ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ
ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

ΑΘΗΝΑ 13 ΦΕΒΡΟΥΑΡΙΟΥ 1990	ΤΕΥΧΟΣ ΔΕΥΤΕΡΟ	ΑΡΙΘΜΟΣ ΦΥΛΛΟΥ 104

ΥΠΟΥΡΓΙΚΕΣ ΑΠΟΦΑΣΕΙΣ & ΕΓΚΡΙΣΕΙΣ

Αριθ. 50941/40

Μεταφορά επικινδύνων υλικών.

Ο ΥΠΟΥΡΓΟΣ
ΜΕΤΑΦΟΡΩΝ ΚΑΙ ΕΠΙΚΟΙΝΩΝΙΩΝ

Έχοντας υπόψη:

α) Τον Νόμο 1741/87 (ΦΕΚ 225/Α/21.12.87) περί «Κυρώσεως Ευρωπαϊκής Συμφωνίας για τη Διεθνή Οδική Μεταφορά Επικινδύνων Εμπορευμάτων (ADR) που υπογράφηκε στη Γενεύη την 30η Σεπτεμβρίου 1957» και ειδικότερα το άρθρο 2 του Νόμου αυτού που παρέχει την δυνατότητα αποδοχής κάθε νεώτερης αναθεώρησης των διατάξεων της Ευρωπαϊκής Συμφωνίας ADR με απόφαση του αρμοδίου Υπουργού.

β) Το γεγονός ότι η Ευρωπαϊκή Συμφωνία για τη Διεθνή Οδική Μεταφορά Επικινδύνων Εμπορευμάτων (ADR) έχει αναθεωρηθεί από την Οικονομική Επιτροπή του ΟΗΕ για την Ευρώπη (Επιτροπή Μεταφορών) την 1η Μαΐου 1985.

γ) Την ανάγκη αναθεώρησης της κυρωθείσας Ευρωπαϊκής Συμφωνίας ADR της 30ης Σεπτεμβρίου 1957 με το ισχύον κείμενο της Συμφωνίας αυτής την 1η Μαΐου 1985, ώστε να υπάρξει εναρμόνιση της Ελληνικής Νομοθεσίας με τα διεθνώς ισχύοντα, αποφασίζουμε:

Αποδεχόμαστε το αναθεωρημένο κείμενο της Ευρωπαϊκής Συμφωνίας για την διεθνή οδική μεταφορά επικινδύνων εμπορευμάτων (ADR) της 1ης Μαΐου 1985, το οποίο σε πρωτότυπο στην αγγλική γλώσσα και σε μετάφραση στην ελληνική έχει ως εξής:

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

European Agreement

concerning the international carriage of dangerous goods by road (ADR) and protocol of signature

done at Geneva on 30 September 1957

VOLUME I

(Agreement, Protocol of signature and Annex A)

UNITED NATIONS
New York, 1985

FOREWORD

The text below comprises, in addition to the Agreement itself and the Protocol of signature, the annexes in the form in which they entered into force on 29 July 1968 as well as the amendments thereto up to 1 May 1985.

The secretariat of the Economic Commission for Europe wishes to acknowledge its appreciation and thanks to the International Road Transport Union (IRU) for the aid it has provided to expedite the preparation and publication of this revised edition of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

THE CONTRACTING PARTIES,

DESIRING to increase the safety of international transport by road, HAVE AGREED as follows:

Article 1

For the purpose of this Agreement,

(a) the term "vehicle" shall mean motor vehicles, articulated vehicles, trailers and semi-trailers, as defined in article 4 of the Convention on Road Traffic of 19 September 1949, other than vehicles belonging to or under the orders of the armed forces of a Contracting Party;

(b) the term "dangerous goods" shall mean those substances and articles the international carriage by road of which is prohibited by, or authorized only on certain conditions by, Annexes A and B;

(c) the term "international transport" shall mean any transport operation performed on the territory of at least two Contracting Parties by vehicles defined in (a) above.

Article 2

1. Subject to the provisions of article 4, paragraph 3, dangerous goods barred from carriage by Annex A shall not be accepted for international transport.

2. International transport of other dangerous goods shall be authorized subject to compliance with:

(a) the conditions laid down in Annex A for the goods in question, in particular as regards their packaging and labelling, and

(b) the conditions laid down in Annex B, in particular as regards the construction, equipment and operation of the vehicle carrying the goods in question, subject to the provisions of article 4, paragraph 2.

Article 3

The Annexes to this Agreement shall form an integral part thereof.

Article 4

1. Each Contracting Party shall retain the right to regulate or prohibit, for reasons other than safety during carriage, the entry of dangerous goods into its territory.

2. Vehicles in service on the territory of a Contracting Party at the time of entry into force of this Agreement or brought into service on such territory within two months after its entry into force shall be allowed, for a period of three years from such entry into force, to perform the international transport of dangerous goods even if their construction and equipment do not entirely conform to the requirements laid down in Annex B for the transport operation in question. Under special clauses of Annex B, however, this period may be reduced.

3. The Contracting Parties shall retain the right to arrange, by special bilateral or multilateral agreements, that certain of the dangerous goods which under this Agreement are barred from all international transport may, subject to certain conditions, be accepted for international transport on their territories, or that dangerous goods which under this Agreement are acceptable for international transport only on specified conditions may be accepted for international transport on their territories under conditions less stringent than those laid down in the Annexes to this Agreement. The special bilateral or multilateral agreements referred to in this paragraph shall be communicated to the Secretary-General of the United Nations, who shall communicate them to the Contracting Parties which are not signatories to the said agreements.

Article 5

The transport operations to which this Agreement applies shall remain subject to national or international regulations applicable in general to road traffic, international road transport and international trade.

Article 6

1. Countries members of the Economic Commission for Europe and countries admitted to the Commission in a consultative capacity under paragraph 8 of the Commission's terms of reference may become Contracting Parties to this Agreement.

(a) by signing it;

(b) by ratifying it after signing it subject to ratification;

(c) by acceding to it.

2. Such countries as may participate in certain activities of the Economic Commission for Europe in accordance with paragraph 11 of the Commission's terms of reference may become Contracting Parties to this Agreement by acceding to it after its entry into force.

3. The Agreement shall be open for signature until 15 December 1957. Thereafter, it shall be open for accession.

4. Ratification or accession shall be effected by the depositing of an instrument with the Secretary-General of the United Nations.

Article 7

1. This agreement shall enter into force one month after the date on which the number of countries mentioned in article 6, paragraph 1, which have signed it without reservation of ratification or have deposited their instruments of ratification or accession has reached a total of five. However, the Annexes thereto shall not apply until six months after the entry into force of the Agreement itself.

2. For any country ratifying or acceding to this Agreement after five of the countries referred to in article 6, paragraph 1, have signed it without reservation of ratification or have deposited their instruments of ratification or accession, this Agreement shall enter into force one month after the said country has deposited its instrument of ratification or accession and the Annexes thereto shall apply for the said country either on the same date, if they are already in force by that date, or, if they are not in force by that date, on the date on which they apply under the provisions of paragraph 1 of this article.

Article 8

1. Any contracting Party may denounce this Agreement by so notifying the Secretary-General of the United Nations.

2. Denunciation shall take effect twelve months after the date of receipt by the Secretary-General of the notification of denunciation.

Article 9

1. This Agreement shall cease to have effect if, after its entry into force, the number of Contracting Parties is less than five during twelve consecutive months.

2. In the event of the conclusion of a worldwide agreement for the regulation of the transport of dangerous goods, any provision of this Agreement which is contrary to any provision of the said worldwide agreement shall, from the date on which the latter enters into force, automatically cease to apply to relations between the Parties to this Agreement which become parties to the worldwide agreement, and shall automatically be replaced by the relevant provision of the said worldwide agreement.

Article 10

1. Any country may, at the time of signing this Agreement without reservation of ratification or of depositing its instrument of ratification or accession or at any time thereafter, declare by notification addressed to the Secretary-General of the United Nations that this Agreement shall extend to all or any of the territories for the international relations of which it is responsible. The Agreement and the annexes thereto shall extend to the territory or territories named in the notification one month after it is received by the Secretary-General.

2. Any country which has made a declaration under paragraph 1 of this article extending this Agreement to any territory for whose international relations it is responsible may denounce the Agreement separately in respect of the said territory in accordance with the provisions of article 8.

Article 11

1. Any dispute between two or more Contracting Parties concerning the interpretation or application of this Agreement shall so far as possible be settled by negotiation between them.

2. Any dispute which is not settled by negotiation shall be submitted to arbitration if any one of the Contracting Parties in dispute so requests and shall be referred accordingly to one or more arbitrators selected by agreement between the Parties in dispute. If within three months from the date of the request for arbitration the Parties in dispute are unable to agree on the selection of an arbitrator or arbitrators, any of those Parties may request the Secretary-General of the United Nations to nominate a single arbitrator to whom the dispute shall be referred for decision.

3. The decision of the arbitrator or arbitrators appointed under paragraph 2 of this article shall be binding on the Contracting Parties in dispute.

Article 12

1. Each Contracting Party may, at the time of signing, ratifying, or acceding to, this Agreement, declare that it does not consider itself bound by article 11. Other Contracting Parties shall not be bound by article 11 in respect of any Contracting Party which has entered such a reservation.

2. Any Contracting Party having entered a reservation as provided for in paragraph 1 of this article may at any time withdraw such reservation by notifying the Secretary-General of the United Nations.

Article 13

1. After this Agreement has been in force for three years, any Contracting Party may, by notification to the Secretary-General of the United Nations, request that a conference be convened for the purpose of reviewing the text of the Agreement. The Secretary-General shall notify all Contracting Parties of the request and a review conference shall be convened by the Secretary-General if, within a period of four months following the date of notification by the Secretary-General, not less than one-fourth of the Contracting Parties notify him of their concurrence with the request.

2. If a conference is convened in accordance with paragraph 1 of this article, the Secretary-General shall notify all the Contracting Parties and invite them to submit within a period of three months such proposals as they may wish the Conference to consider. The Secretary-General shall circulate to all Contracting Parties the provisional agenda for the conference, together with the texts of such proposals, at least three months before the date on which the conference is to meet.

3. The Secretary-General shall invite to any conference convened in accordance with this article all countries referred to in article 6, paragraph 1, and countries which have become Contracting Parties under article 6, paragraph 2.

Article 14

1. Independently of the revision procedure provided for in article 13, any Contracting Party may propose one or more amendments to the Annexes to this Agreement. To that end it shall transmit the text thereof to the Secretary-General of the United Nations. The Secretary-General may also propose amendments to the Annexes to this Agreement for the purpose of ensuring concordance between those Annexes and other international agreements concerning the carriage of dangerous goods.

2. The Secretary-General shall transmit any proposal made under paragraph 1 of this article to all Contracting Parties and inform thereof the other countries referred to in article 6, paragraph 1.

3. Any proposed amendment to the Annexes shall be deemed to be accepted unless, within three months from the date on which the Secretary-General circulates it, at least one-third of the Contracting Parties, or five of them if one third exceeds that figure, have given the Secretary-General written notification of their objection to the proposed amendment. If the amendment is deemed to be accepted, it shall enter into force for all the Contracting Parties, either on the expiry of a further period of three months or, in cases where similar amendments have been or are likely to be made to the other international agreements referred to in paragraph 1 of this article, on the expiry of a period the duration of which shall be determined by the Secretary-General in such a way as to allow, wherever possible, th simultaneous entry into force of the amendment and those that have been or are likely to be made to such other agreements; such period shall not, however, be of less than one month's duration.

4. The Secretary-General shall, as soon as possible, notify all Contracting Parties and all the countries referred to in article 6, paragraph 1, of any objection which may be received from the Contracting Parties to a proposed amendment.

5. If the proposed amendment to the Annexes is not deemed to be accepted, but if at least one Contracting Party other than the Contracting Party which proposed the amendment has given the Secretary-General written notification of its agreement to the proposal, a meeting of all the Contracting Parties and all the countries referred to in article 6, paragraph 1, shall be convened by the Secretary-General within there months after the expiry of the period of three months within which, under paragraph 3 of this article, notification must be given of objection to the amendment. The Secretary-General may also invite to such meeting representatives of:

(a) intergovernmental organizations which are concerned with transport matters;

(b) international non-governmental organizations whose activities are directly related to the transport of dangerous goods in the territories of the Contracting Parties.

6. Any amendment adopted by more than half the total number of Contracting Parties at a meeting convened in accordance with paragraph 5 of this article shall enter into force for all Contracting Parties in accordance with the procedure agreed at such meeting by the majority of the Contracting Parties attending it.

Article 15

In addition to the notifications provided for in articles 13 and 14, the Secretary-General of the United Nations shall notify the countries referred to in article 6, paragraph 1, and the countries which have become Contracting Parties under article 6, paragraph 2, of

(a) signatures, ratifications and accessions in accordance with article 6;
(b) the dates on which this Agreement and the Annexes thereto enter into force in accordance with article 7;
(c) denunciations in accordance with article 8;
(d) the termination of the Agreement in accordance with article 9;
(e) notifications and denunciations received in accordance with article 10;
(f) declarations and notifications received in accordance with article 12, paragraphs 1 and 2;
(g) the acceptance and date of entry into force of amendments in accordance with article 14, paragraphs 3 and 6.

Article 16

1. The Protocol of Signature of this Agreement shall have the same force, effect and duration as the Agreement itself, of which it shall be considered to be an integral part.

2. No reservation to this Agreement, other than those entered in the Protocol of Signature and those made in accordance with article 12, shall be permitted.

Article 17

After 15 December 1957, the original of this Agreement shall be deposited with the Secretary-General of the United Nations, who shall transmit certified true copies thereof to each of the countries referred to in article 6, paragraph 1.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto, have signed this Agreement.

DONE at Geneva, this thirtieth day of September one thousand nine hundred and fifty-seven, in a single copy, in the English and French languages for the text of the Agreement proper, and in the French language for the Annexes, each text being equally authentic for the Agreement proper.

The Secretary-General of the United Nations is requested to prepare an authoritative translation of the Annexes in the English language and attach it to the certified true copies referred to in article 17.

ECE/TRANS/60 (Vol. I)/Add.1
page 1

PROTOCOL AMENDING ARTICLE 14 (3) OF THE EUROPEAN AGREEMENT OF 30 SEPTEMBER 1957 CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

THE PARTIES TO THE PRESENT PROTOCOL,

HAVING CONSIDERED the provisions of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), done at Geneva on 30 September 1957 (hereafter referred to as "the Agreement"), in so far as concerns the amendment of the annexes to the said Agreement, and in particular article 14 (3) of the Agreement;

NOTING that the Contracting Parties to the Agreement occasionally experience difficulties in implementing, within the three-month time limit provided for by article 14 (3) of the Agreement between the time when an amendment is deemed to have been accepted and the time when it is to enter into force, those internal measures that are required for the purpose of putting the amendments into effect;

DESIROUS of modifying in this respect the provisions of article 14 (3) of the Agreement;

AGREE as follows:

Article 1

Modification of article 14 (3) of the Agreement

Paragraph 3 of article 14 of the Agreement is modified to read as follows:

"3. Any proposed amendment to the annexes shall be deemed to be accepted unless, within three months from the date on which the Secretary-General circulates it, at least one-third of the Contracting Parties, or five of them if one-third exceeds that figure, have given the Secretary-General written notification of their objection to the proposed amendment. If the amendment is deemed to be accepted, it shall enter into force for all the Contracting Parties on the expiry of a further period of three months, except in the following cases:

(a) In cases where similar amendments have been or are likely to be made to the other international agreements referred to in paragraph 1 of this article, the amendment shall enter into force on the expiry of a period the duration of which shall be determined by the Secretary - General in such a way as to allow, wherever possible, the simultaneous entry into force of the amendment and those that have been made or are likely to be made to such other agreements; such period shall not, however, be of less than one month's duration;

(b) The Contracting Party submitting the proposed amendment may specify in its proposal, for the purpose of entry into force of the amendment, should it be accepted, a period of more than three months' duration".

Article 2

Acceptance of the present Protocol

The present Protocol shall be open for acceptance by the Contracting Parties to the Agreement. Instruments of acceptance shall be deposited with the Secretary-General of the United Nations.

Article 3

Entry into force of the present Protocol

1. The present Protocol and the amendments therein shall enter into force one month from the date on which the instruments of acceptance of all Contracting Parties have been deposited with the Secretary-General of the United Nations.

2. Any State becoming a Contracting Party to the Agreement after the entry into force of the present Protocol shall be a Contracting Party to the Agreement as amended by the Protocol.

Article 4

Miscellaneous provisions

The original of the present Protocol, in English and French, shall be deposited with the Secretary-General of the United Nations, who shall transmit a certified true copy thereof to the Contracting Parties to the Agreement and to all States which may become Parties to the latter.

DRAWN UP by the Secretary-General of the United Nations, at New York, on 21 August 1975, the date of the completion of the procedure by which the Contracting Parties to the Agreement and other States concerned decided to open the present Protocol for acceptance.

* * *

All the Contracting Parties to the Agreement having deposited their instruments of acceptance with the Secretary-General, the conditions have now been fulfilled for the entry into force of the present Protocol in accordance with article 3, 1. The date of deposit of the last instrument of acceptance was 19 March 1985, therefore the Protocol entered into force one month later, i.e. 19 April 1985. As a result, article 14 (3) of the Agreement has been modified in accordance with the text reproduced in article 1 of the present Protocol.

The Agreement as it appears in ECE/TRANS/60 (Vol. I) should be amended accordingly.

PROTOCOL OF SIGNATURE

TO THE EUROPEAN AGREEMENT ON THE NTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

On proceeding to sign the European Agreement on the International Carriage of Dangerous Goods by Road (ADR) the undersigned, duly authorized,

1. CONSIDERING that the conditions governing the carriage of dangerous goods by sea to or from the United Kingdom differ basically from those set forth in Annex A to ADR and that it is impossible to modify them so as to conform to the latter in the near future;
   HAVING REGARD to the undertaking given by the United Kingdom to submit as an amendment to the said Annex A a special appendix containing special provisions for road-sea carriage of dangerous goods between the Continent and the United Kingdom;
   HAVE AGREED that, until the entry into force of such special appendix, dangerous goods carried under ADR to or from the United Kingdom shall comply with the provisions of Annex A to ADR and also with the United Kingdom conditions for the carriage of dangerous goods by sea;
2. TAKE NOTE OF a declaration by the representative of France to the effect that the Government of the French Republic reserves the right, notwithstanding the provisions of article 4, paragraph 2, to refuse to allow vehicles in service on the territory of another Contracting Party, whatever the date on which they were put into service, to be used for the carriage of dangerous goods on French territory unless such vehicles comply either with the conditions laid down for such carriage in Annex B or with the conditions laid down for the carriage of the goods in question in the French regulations governing the carriage of dangerous goods by road;
3. RECOMMEND that, before submission in accordance with article 14, paragraph 1, or article 13, paragraph 2, proposed amendments to this Agreement or its Annexes shall as far as possible first be discussed at meetings of experts of the Contracting Parties and, if necessary, of the other countries mentioned in article 6, paragraph 1, of the Agreement and of the international organizations mentioned in article 14, paragraph 5, of the Agreement.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD

ANNEX A

PROVISIONS CONCERNING DANGEROUS SUBSTANCES AND ARTICLES

Table of Contents

Part I – DEFINITIONS AND GENERAL PROVISIONS

	Marginals
Definitions	2000 and 2001
General Provisions	2002 to 2099

Part II – LIST OF SUBSTANCES AND SPECIAL PROVISIONS FOR THE VARIOUS CLASSES

Class 1a	Explosive substances and articles	2100 et seq.
Class 1b	Articles filled with explosive substances	2130 et seq.
Class 1c	Igniters, fireworks and similar goods	2170 et seq.
Class 2	Gases: compressed, liquefied or dissolved under pressure	2200 et seq.
Class 3	Inflammable liquids	2300 et seq.
Class 4.1	Inflammable solids	2400 et seq.
Class 4.2	Substances liable to spontaneous combustion	2430 et seq.
Class 4.3	Substances which give off inflammable gases on contact with water	2470 et seq.
Class 5.1	Oxidizing substances	2500 et seq.
Class 5.2	Organic peroxides	2550 et seq.
Class 6.1	Toxic substances	2600 et seq.
Class 6.2	Repugnant substances and substances liable to cause infection	2650 et seq.
Class 7	Radioactive substances	2700 et seq.
Class 8	Corrosive substances	2800 et seq.

Part III – APPENDICES TO ANNEX A

Appendix A.1	Stability and safety conditions relating to explosive substances, inflammable solids and organic peroxides	3100 et seq.
Appendix A.2	Provisions relating to the nature of aluminium-alloy receptacles for certain gases of Class 2; requirements concerning the materials and construction of receptacles intended for the carriage of deeply-refrigerated liquefied gases of Class 2; provisions relating to tests on aerosol dispensers and non-refillable containers for gases under pressure of Class 2, 10° and 11°	3200 et seq.
Appendix A.3	Tests relating to inflammable liquids of Classes 3, 6.1 and 8	3300 et seq.
Appendix A.4	Reserved	3400 et seq.
Appendix A.5	General packing conditions, types of packing, requirements applicable to packagings, test requirements for packagings	3500 et seq.
Appendix A.6	Regulations relating to radioactive substances of Class 7	3600 et seq.
Appendix A.7	Reserved	3700 et seq.
Appendix A.8	Reserved	3800 et seq.
Appendix A.9	Provisions relating to danger labels; explanation of symbols	3900 et seq.

PART I. DEFINITIONS AND GENERAL PROVISIONS

1-1999
DEFINITIONS

(1) For the purposes of this Annex: 2000

– the term "competent authority" means the authority designated as such in each country and in each specific case by the Government;

– the term "fragile package" means a package containing a fragile receptacle, i.e. a receptacle made of glass, porcelain, stoneware or similar materials, which is not enclosed in a packaging with complete sides protecting it effectively against shock (see also marginal 2001 (7));

– the term "gas" means a gas or vapour;

– the term "dangerous substances", when used alone, means the substances and articles designated as being substances and articles of ADR;

– the term "carriage in bulk" means the carriage of a solid substance without packaging;

– the term "RID" signifies Regulations concerning the international carriage of dangerous goods by rail, which are Annex I of COTIF – Convention concerning international carriage by rail, Appendix B – Uniform rules concerning the contract for international carriage of goods by rail (CIM).

(2) For the purposes of this Annex, tanks (see definitions in Annex B) are not placed on the same footing as receptacles, the term "receptacle" being used in a restrictive sense. Provisions concerning receptacles are applicable to fixed tanks, batteries of receptacles, demountable tanks and tank-containers only if this is expressly stipulated.

(3) The term "full load" means any load originating from one sender for which the use of a vehicle or of a large container is exclusively reserved and all operations for the loading and unloading of which are carried out in conformity with the instructions of the sender or of the consignee.

Definitions and General Provisions

Units of measurement

(1) The following units of measurement[1/] are applicable in this Annex and in Annex B: 2001

Measurement of	SI Unit[2/]	Acceptable alternative units	Relationship between units
Length	m (metre)	–	–
Area	m^2 (square metre)	–	–
Volume	m^3 (cubic metre)	l[3/] (litre)	$1\ l = 10^{-3} m^3$
Time	s (second)	min (minute)	1 min = 60 s
		h (hour)	1 h = 3 600 s
		d (day)	1 d = 86 400 s
Mass	kg (kilogramme)	g (gramme)	$1\ g = 10^{-3}$ kg
		t (tonne)	$1\ t = 10^{3}$ kg
Mass density	kg/m^3	kg/l	$1\ kg/l = 10^{3} kg/m^3$
Temperature	K (kelvin)	°C (degree Celcius)	0°C = 273.15 K
Difference of temperature	K (kelvin)	°C (degree Celsius)	1°C = 1 K
Force	N (newton)	–	$1\ N = 1\ kg.m/s^2$
Pressure	Pa (pascal)	bar (bar)	$1\ bar = 10^{5}$ Pa
			$1\ Pa = 1\ N/m^2$
Stress	N/m^2	N/mm^2	$1\ N/mm^2 = 1$ MPa
Work)	J (joule)		1 J = 1 N.m = 1 W.s
Energy)	J (joule)	kWh (kilowatt hour)	1 kWh = 3.6 MJ
Quantity)		eV (electron-volt)	
of heat)	J (joule)		$1\ eV = 0.1602.10^{-18}$ J
Power	W (watt)	–	1 W = 1 J/s = 1 N.m/s
Kinematic viscosity	m^2/s	mm^2/s	$1\ mm^2/s = 10^{-6} m^2/s$
Dynamic viscosity	Pa.s	mPa.s	$1\ mPa.s = 10^{-3}$ Pa.s

Force

1 kg = 9.807 N
1 N = 0.102 kg

Stress

$1\ kg/mm^2 = 9.807\ N/mm^2$
$1\ N/mm^2 = 0.102\ kg/mm^2$

Pressure

1 Pa	$= 1\ N/m^2 = 10^{-5}$ bar	$= 1.02 . 10^{-5} kg/cm^2$	$= 0.75 . 10^{-2}$ torr
1 bar	$= 10^{5}$ Pa	$= 1.02\ kg/cm^2$	= 750 torr
$1\ kg/cm^2$	$= 9.807 . 10^{4}$ Pa	= 0.9807 bar	= 736 torr
1 torr	$= 1.33 . 10^{2}$ Pa	$= 1.33 . 10^{-3}$ bar	$= 1.36 . 10^{-3} kg/cm^2$

Energy, work, quantity of heat

1 J	= 1 Nm	$= 0.278 . 10^{-6}$ kWh	$= 0.102$ kgm $= 0.239 . 10^{-3}$ kcal
1 kWh	$= 3.6 . 10^{6}$ J		$= 367 . 10^{3}$ kgm = 860 kcal
1 kgm	= 9.807 J	$= 2.72 . 10^{-6}$ kWh	$= 2.34 . 10^{-3}$ kcal
1 kcal	$= 4.19 . 10^{3}$ J	$= 1.16 . 10^{-3}$ kWh	= 427 kgm

Power

1 W = 0.102 kgm/s = 0.86 kcal/h
1 kgm/s = 9.807 W = 8.43 kcal/h
1 kcal/h = 1.16 W = 0.119 kgm/s

Kinematic viscosity

$1\ m^2/s = 10^{4}$ St (Stokes)
$1\ St = 10^{-4} m^2/s$

Dynamic viscosity

1 Pa.s	$= 1\ Ns/m^2$	= 10 P (poise)	$= 0.102\ kgs/m^2$
1 p	= 0.1 Pa.s	$= 0.1\ Ns/m^2$	$= 1.02 . 10^{-2} kgs/m^2$
$1\ kgs/m^2$	= 9.807 Pa.s	$= 9.807\ Ns/m^2 = 98.07$ P	

The decimal multiples and sub-multiples of a unit may be forme by prefixes, having the following meanings, placed before the name o the unit:

Factor		Prefix	Symbol
1 000 000 000 000 000 000	$= 10^{18}$ quintillion	exa	E
1 000 000 000 000 000	$= 10^{15}$ quadrillion	peta	P
1 000 000 000 000	$= 10^{12}$ trillion	tera	T
1 000 000 000	$= 10^{9}$ billion	giga	G
1 000 000	$= 10^{6}$ million	mega	M
1 000	$= 10^{3}$ thousand	kilo	k
100	$= 10^{2}$ hundred	hecto	h
10	$= 10^{1}$ ten	deca	da
0.1	$= 10^{-1}$ tenth	deci	d
0.01	$= 10^{-2}$ hundredth	centi	c
0.001	$= 10^{-3}$ thousandth	milli	m
0.000 001	$= 10^{-6}$ millionth	micro	μ
0.000 000 001	$= 10^{-9}$ billionth	nano	n
0.000 000 000 001	$= 10^{-12}$ trillionth	pico	p
0.000 000 000 000 001	$= 10^{-15}$ quadrillionth	femto	f
0.000 000 000 000 000 001	$= 10^{-18}$ quintillionth	atto	a

NOTE: 10^{9} = 1 billion is United Nations usage. By analogy, so is 10^{-9} = 1 billionth.

(2) Whenever the word "weight" is used in this Annex and in Annex B, it means "mass".

(3) Whenever the weight of a package is mentioned in this Annex and in Annex B, the gross mass is meant unless otherwise stated. The mass of containers or tanks used for the carriage of goods is not included in the gross mass.

(4) Unless expressly stated otherwise, the sign "%" in this Annex and in Annex B represents:

(a) in the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid: a percentage mass based on the total mass of the mixture, the solution or the wetted solid;

(b) in the case of gaseous mixtures: a percentage by volume based on the total volume of the gaseous mixture.

(5) Pressures of all kinds relating to receptacles (such as test pressure, internal pressure, safety-valve opening pressure) are always indicated in gauge pressure (pressure in excess of atmospheric pressure), however, the vapour pressure of substances is always expressed in absolute pressure.

(6) Where this Annex or Annex B specifies a degree of filling for receptacles or tanks, that degree of filling is always referred to a temperature of the substances of 15°C unless some other temperature is indicated.

(7) Fragile receptacles secured, either singly or in groups, by cushioning materials in a strong receptacle are not regarded as fragile receptacles if the strong receptacle is leakproof and so designed that in the event of breakage or leakage of the fragile receptacles their contents cannot

---

1/ The following round figures are applicable for the conversion of the units hitherto used into SI Units.

2/ The International System of Units (SI) is the result of decisions taken at the General Conference on Weights and Measures (Address: Pavillon de Breteuil, Parc de St-Cloud, F-92 310 Sèvres).

3/ The abbreviation "L" for litre may also be used in place of the abbreviation "l" when a typewriter cannot distinguish between figure "1" and letter "l".

escape from the strong receptacle and the mechanical strength of the latter is not impaired by corrosion during carriage.

(8) The following approximate conversion formula is authorized until SI units have been incorporated throughout the texts of this Annex and Annex B.

1 kg/mm^2 = 10. N/mm^2 1 kg/cm^2 = 1 bar

GENERAL PROVISIONS

(1) This Annex specifies the dangerous goods to be excluded from international carriage by road and the dangerous goods to be accepted for such carriage under certain conditions. It groups the dangerous goods in restrictive and non-restrictive classes. Of the dangerous goods covered by the headings of the restrictive classes (Classes 1a, 1b, 1c, 2, 4.2, 4.3, 5.2, 6.2 and 7), those which are listed in the clauses concerning these classes (marginals 2101, 2131, 2171, 2201, 2431, 2471, 2551, 2651 and 2701) are to be accepted for carriage only under the conditions specified in these clauses, and others are to be excluded from carriage. Some of the dangerous goods covered by the headings of the non-restrictive classes (Classes 3, 4.1, 5.1, 6.1 and 8) are, by notes inserted in the clauses concerning the various Classes, excluded from carriage; of the other goods covered by the headings of the non-restrictive classes, those which are mentioned in the clauses concerning these classes (marginals 2301, 2401, 2501, 2601 and 2801) are to be accepted for carriage only under the conditions specified in these clauses; those which are not mentioned or covered by one of the collective headings are not deemed to be dangerous goods for the purposes of this Agreement and are to be accepted for carriage without any special conditions.

(2) The classes of this Annex are as follows:

Class 1a	Explosive substances and articles	Restrictive
Class 1b	Articles filled with explosive substances	Restrictive
Class 1c	Igniters, fireworks and similar goods	Restrictive
Class 2	Gases: compressed, liquefied or dissolved under pressure	Restrictive
Class 3	Inflammable liquids	Non-restrictive
Class 4.1	Inflammable solids	Non-restrictive
Class 4.2	Substances liable to spontaneous combustion	Restrictive
Class 4.3	Substances which give off inflammable gases on contact with water	Restrictive
Class 5.1	Oxidizing substances	Non-restrictive
Class 5.2	Organic peroxides	Restrictive
Class 6.1	Toxic substances	Non-restrictive
Class 6.2	Repugnant substances and substances liable to cause infection	Restrictive
Class 7	Radioactive substances	Restrictive
Class 8	Corrosive substances	Non-restrictive

(3) Any carriage of goods governed by this Annex shall be the subject of a transport document. The sender shall communicate in writing to the carrier the particulars to be included in the transport document as laid down for each class in Part II of this Annex in sections 2.B. The document may be that already required by other regulations in force. Any goods the carriage of which is so governed shall be described in the transport document in conformity with the indications in sections B of the special provisions for each class. The particulars to be entered in the transport document shall be drafted in an official language of the forwarding country, and also, if that language is not English, or French, or German, in English, French or German, unless international road transport tariffs, if any, or agreements concluded between the countries concerned in the transport operation, provide otherwise. The transport document shall be accompanied, if appropriate, by instructions to be implemented in the event of an accident (see Annex B, marginal 10385). The transport document shall accompany the dangerous substances carried.

(4) If by reason of the size of the load a consignment cannot be loaded in its entirety on a single transport unit, at least as many separate documents, or copies of the single document, shall be made out as transport units loaded. Furthermore, in all cases separate transport documents shall be made out for consignments or parts of consignments which may not be loaded together on the same vehicle by reason of the prohibitions set forth in Annex B.

2002

(5) Outer packagings additional to those specified in this Annex may be used providing that they do not contravene the spirit of the provisions of this Annex relating to outer packagings. If such additional packagings are used, the prescribed marking and labels shall be applied to them.

(6) If the mixed packing of several dangerous substances with one another or with other goods is allowed by the provisions of section A.3 of the provisions applicable to the various classes, the inner packagings containing different dangerous substances shall be carefully and effectively separated from one another in the collective packagings if dangerous reactions, such as the production of dangerous heat, combustion, the formation of mixtures sensitive to friction or shock, and the release of inflammable or toxic gases, are liable to occur as a result of damage to or destruction of the inner packagings. In particular, if fragile receptacles are used, and especially if the said receptacles contain liquids, the danger of the formation of dangerous mixtures shall be avoided and to this end all appropriate measures shall be taken, such as the use of suitable cushioning materials in sufficient quantity, securing of the receptacles in a second, strong packaging, and subdivision of the collective packaging into several compartments.

(7) If mixed packing is used, the provisions of this Annex concerning the particulars in the transport document shall apply in respect of each of the different kinds of dangerous substance contained in the collective package, and the collective package shall bear all the inscriptions and all the danger labels prescribed in this Annex for the dangerous substances the collective package contains.

(8) If solutions of substances listed in this Annex are not expressly mentioned in the list of the class to which the dissolved substances belong, they shall nevertheless be considered as substances of ADR if their concentration is such that they retain the danger inherent in the substances themselves; their packaging shall in such event conform to the requirements of section A of the special provisions applicable to the class to which the said substances belong, it being understood that packagings which would be unsuitable for the carriage of liquids may not be used.

(9) Mixtures of substances of ADR with other substances shall be considered as substances of ADR if they retain the danger inherent in the substance which is a substance of ADR.

(10) The sender, either in the transport document or in a separate declaration, shall certify that the substance presented may be carried by road in conformity with the provisions of ADR, that its condition, treatment and, as appropriate its packaging and labelling comply with the provisions of ADR. Furthermore, if several dangerous goods are packed together in a collective package or in a single container, the sender is required to declare that this mixed packing is not prohibited.

(11) A substance whose specific radioactivity does not exceed 74 kBq/kg (0.002 microcurie per gramme) and which is covered by a collective heading of any class shall be excluded from carriage if, in addition, it is covered by the heading of a restrictive class in which it is not listed.

(12) A substance whose specific radioactivity does not exceed 74 kBq/kg (0.002 microcurie per gramme) and which is not listed by name in a class, but is covered by two or more collective headings of different classes, shall be subject to the conditions of carriage laid down:

(a) in the restrictive class, if one of the classes concerned is a restrictive class;

(b) in the class corresponding to the predominant danger exhibited by the substance during carriage, if none of the classes concerned is a restrictive class.

2003 (1) This Annex contains for each class other than Class 7:

(a) a list of the dangerous substances constituting the class and, where applicable, under a marginal ending with the letter "a", the exemptions allowed from the provisions of ADR for some of these substances if they comply with certain conditions;

(b) provisions sub-divided as follows;

A. Packages:

1. General conditions of packing;

2. Packing of a single substance or of articles of the same kind;

3. Mixed packing;

4. Marking and danger labels on packages.

B. Particulars in the transport document.

C. Empty packagings.

D. (where appropriate) Other provisions.

(2) Provisions concerning:

– consignment in bulk, in containers and in tanks;

– method of despatch and restrictions on forwarding;

– prohibitions on mixed loading; and

– transport equipment.

are to be found in Annex B and its appendices, which also contain all other pertinent provisions applying specifically to carriage by road.

(3) The appendices to this Annex contain:

Appendix A.1: Stability and safety conditions relating to explosive substances, inflammable solids and organic peroxides, together with rules for tests;

Appendix A.2: Provisions relating to the nature of aluminium-alloy receptacles for certain gases of Class 2; provisions relating to the materials and construction of receptacles, intended for the carriage of deeply-refrigerated liquefied gases of Class 2; and provisions relating to tests on aerosol dispensers and non-refillable containers for gases under pressure of Class 2, 10° and 11°;

Appendix A.3: Tests relating to inflammable liquids of classes 3, 6.1 and 8;

Appendix A.5: General packing conditions, types of packaging, requirements applicable to packagings, test requirements for packagings;

Appendix A.6: Regulations relating to radioactive substances of Class 7;

Appendix A.9: Provisions relating to danger labels, and explanation of the symbols.

Appendices A.4, A.7 and A.8 are reserved.

(4) For Class 7, the details concerning conditions of packing, mixed packing, labelling and marking of packages as well as provisions governing storage, despatch and carriage, including in bulk, in containers and in tanks, are specified in the schedules of Annex A listed in marginal 2702. Some of the detailed and technical provisions affecting this class are elaborated in Appendix A.6 which also includes the complete table of radionuclides and methods of testing packagings intended for substances of Class 7.

2004 2005 Where the provisions relating to carriage as a "full load" are applied, the competent authorities may require the vehicle or large container used for the transport operation concerned to be loaded at only one point and unloaded at only one point.

2006 (1) If the vehicle carrying out a transport operation subject to the provisions of ADR is conveyed over a section of the journey otherwise than by road haulage, then any national or international regulations which, on the said section, govern the carriage of dangerous goods by the mode of transport used for conveying the road vehicle shall alone be applicable to the said section of the journey.

(2) In cases where a transport operation subject to the provisions of ADR is likewise subject over the whole or a part of its road journey to the provisions of an international convention which regulates the carriage of dangerous goods by a mode of transport other than road carriage by virtue of clauses extending the applicability of the said convention to certain motor-vehicle services, then the provisions of that international convention shall apply, over the journey in question, concurrently with those of ADR which are not incompatible therewith; the other clauses of ADR shall not apply over the journey in question.

2007-2009

2010 For the purpose of carrying out the trials necessary with a view to amending the provisions of this Annex in order to adapt them to technological and industrial developments, the competent authorities of the Contracting Parties may agree directly among themselves to authorize certain transport operations in their territories by temporary derogation from the provisions of this Annex. The authority which has taken the initiative with respect to the temporary derogation so granted shall notify the competent service of the United Nations Secretariat of the derogation, which service shall bring it to the attention of the Contracting Parties.

2011-2099

PART II.
LIST OF SUBSTANCES AND SPECIAL PROVISIONS FOR THE VARIOUS CLASSES

CLASS 1a EXPLOSIVE SUBSTANCES AND ARTICLES

NOTE: Substances and articles which cannot explode on contact with a flame and which are not more sensitive to shock or friction than dinitrobenzene are not subject to the provisions of Class 1a.

1. List of substances and articles

2100 (1) Among the substances and articles covered by the heading of Class 1a, only those listed in marginal 2101 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

(2) In the explosives which are to be accepted for carriage, nitroglycerine may be replaced wholly or in part by:

(a) nitroglycol, or

(b) dinitrodiethyleneglycol, or

(c) nitrated sugar (nitrated saccharose), or

(d) a mixture of the above substances.

2101 1° Highly nitrated nitrocellulose (such as guncotton), i.e. with a nitrogen content of more than 12.6 per cent, well stabilized and containing in addition:

when the nitrocellulose is not compressed, not less than 25 per cent water or alcohol (methyl, ethyl, normal propyl or isopropyl, butyl, or amyl alcohol or mixtures thereof), including denatured alcohol; or mixtures of water and alcohol;

when the nitrocellulose is compressed, not less than 15 per cent water, or not less than 12 per cent paraffin wax or other similar substances.

See also Appendix A.1, marginal 3101.

NOTES: 1. Nitrocellulose with a nitrogen content not

exceeding 12.6 per cent is a substance of Class 4.1 if it complies with the specifications set out in marginal 2401, 7° (a), (b) or (c).

2. Nitrocellulose in the form of nitrocellulose-film waste, free from gelatine, in reels, sheets or strips, is a substance of Class 4.2 (see marginal 2431, 4°).

2° Cordite paste, non-gelatinized ("powder cake"), for use in the making of smokeless powders and containing not more than 70 per cent anhydrous substance and not less than 30 per cent water; the anhydrous substance must not contain more than 50 per cent nitroglycerine or similar liquid explosives.

3° Gelatinized nitrocellulose powders and gelatinized nitrocellulose powders containing nitroglycerine (nitroglycerine powders): 2101

(a) non-porous and non-dusty;

(b) porous or dusty.

See also Appendix A.1, marginal 3102.

4° Plasticized nitrocellulose containing not less than 12 per cent but less than 18 per cent plasticizing substances (such as butyl phthalate or a plasticizer at least equal in effect to butyl phthalate), and whose nitrocellulose has a nitrogen content not exceeding 12.6 per cent, also in the form of chips.

NOTE: Plasticized nitrocellulose containing not less than 18 per cent butyl phthalate or a plasticizer at least equal in effect is a substance of Class 4.1 [see marginal 2401, 7° (b) and (c)].

See also Appendix A.1, marginal 3102, 1.

5° Non-gelatinized nitrocellulose powders. See also Appendix A.1, marginal 3102.

6° Trinitrotoluene (tolite), also when compressed or cast, trinitrotoluene mixed with aluminium, mixtures termed liquid trinitrotoluene, and trinitroanisole.

See also Appendix A.1, marginal 3103.

7° (a) Hexyl (hexanitrodiphenylamine) and (picric acid;

(b) pentolites (mixtures of pentaerythritol tetranitrate and trinitrotoluene) and hexolites (mixtures of trimethylene-trinitramine and trinitrotoluene) if their trinitrotoluene content is such that their sensitiveness to shock does not exceed that of tetryl;

(c) phlegmatized penthrite (pentaerythritol tetranitrate) and phlegmatized hexogen (trimethylene-trinitramine), both phlegmatized by incorporation of wax, paraffin wax or other similarly effective substances in such quantity that the sensitiveness of these substances to shock does not exceed that of tetryl.

For (a), (b) and (c), see also Appendix A.1, marginal 3103.

NOTE: Substances of 7° (b) and phlegmatized hexogen of 7° (c) may also contain aluminium.

8° Explosive organic nitro-compounds:

(a) soluble in water, e.g. trinitroresorcinol;

(b) insoluble in water, e.g. tetryl (trinitrophenylmethylnitramine);

(c) tetryl gaines without metal covering.

For (a) and (b), see also Appendix A.1, marginal 3103. 2101

NOTE: Except for liquid trinitrotoluene of 6°, explosive organic nitro-compounds in the liquid state are not to be accepted for carriage.

9° (a) Moist penthrite (pentaerythritol tetranitrate) and moist hexogen (trimethylene-trinitramine) wetted throughout with not less than 20 per cent water in the case of the former and not less than 15 per cent in the case of the latter;

(b) moist pentolites (mixtures of penthrite and trinitrotoluene) and moist hexolites (mixtures of hexogen and trinitrotoluene) whose sensitiveness to shock in the dry state exceeds that of tetryl and which are wetted throughout with not less than 15 per cent water;

(c) moist mixtures of penthrite or of hexogen with wax, paraffin wax or substances similar to wax or paraffin wax, whose sensitiveness to shock in the dry state exceeds that of tetryl and which are wetted throughout with not less than 15 per cent water;

(d) compressed penthrite gains without metal covering.

For (a), (b) and (c), see also Appendix A.1, marginal 3103.

10° (a) Benzoyl peroxide:

1. in the dry state or with less than 10 per cent water;

2. with less than 30 per cent phlegmatizer.

NOTES: 1. Benzoyl peroxide with not less than 10 per cent water or with not less than 30 per cent phlegmatizer is a substance of Class 5.2 [see marginal 2551, 8° (a) and (b)].

2. Benzoyl peroxide with not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

(b) cyclohexanone peroxides [1-hydroxy-1'-hydroperoxy-dicyclohexyl peroxide and bis-(1-hydroxycyclohexyl) peroxide and mixtures of these two compounds]:

1. in the dry state or with less than 5 per cent water;

2. with less than 30 per cent phlegmatizer.

NOTES: 1. Cyclohexanone peroxides and their mixtures with not less than 5 per cent water or with not less than 30 per cent phlegmatizer are substances of Class 5.2 [see marginal 2551, 9° (a) and (b)].

2. Cyclohexanone peroxides and their mixtures with not less than 70 per cent dry and inert solids are not subject to the provisions of ADR.

(c) parachlorobenzoyl peroxide:

1. in the dry state or with less than 10 per cent water;

2. with less than 30 per cent phlegmatizer.

NOTES: 1. Parachlorobenzoyl peroxide with not less than 10 per cent water or with not less than 30 per cent phlegmatizer is a substance of Class 5.2. [see marginal 2551, 17° (a) and (b)].

2. Parachlorobenzoyl peroxide with not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

11° (a) Black powder (with a basis of potassium nitrate) in corned or meal form;

(b) slow mining powders similar to black powder (composed of sodium nitrate, sulphur and wood charcoal, coal or lignite, or composed of potassium nitrate with or without sodium nitrate, sulphur, coal or lignite);

(c) cartridges of compressed black powder or powder similar to compressed black powder.

NOTE: The density of the compressed mass must not be less than 1.5 g per cm^3.

For (a) and (b), see also Appendix A.1, marginal 3104.

12° (a) Nitrate explosives, in powder form, not covered by 11° or 14° (a) or (c) and consisting essentially of ammonium nitrate or of a mixture of ammonium nitrate and alkali or alkaline-earth nitrates or of a mixture of ammonium nitrate and sodium chloride, or of a mixture of alkali or alkaline-earth nitrates and ammonium chloride, or of a mixture of ammonium nitrate with alkali or alkaline-earth nitrates and of sodium chloride, or of a mixture of ammonium nitrate with alkali or alkaline-earth nitrates and ammonium chloride. They may contain, in addition, combustible substances (such as wood flour, or other vegetable flour or hydrocarbons), sensitizers (for example, fine aluminium powder), aromatic nitro-compounds, nitroglycerine or nitroglycol or a mixture of the two, and inert stabilizing or colouring substances (see also Appendix A.1, marginal 3105).

(b) explosives not containing inorganic nitrates, in powder form, consisting essentially of a mixture of inert substances (such as alkali chlorides) with nitroglycerine or nitroglycol or a mixture of the two. They may contain, in addition, aromatic nitro-compounds and substances with a phlegmatizing, stabilizing or gelatinizing, or colouring effect. See also Appendix A.1, marginal 3105.

13° Chlorate and perchlorate explosives, i.e. mixtures of chlorates or perchlorates of alkali or alkaline-earth metals with compounds rich in carbon.

See also Appendix A.1, marginal 3106.

14° (a) Dynamites with an inert absorbent, and explosives similar to dynamite with an inert absorbent;

(b) blasting gelatine consisting of gun-cotton and not more than 93 per cent nitroglycerine, and gelatinized dynamites with a nitroglycerine content not exceeding 85 per cent;

(c) gelatinous nitrate explosives, consisting essentially of ammonium nitrate or of a mixture of ammonium nitrate with nitrates of alkali or alkaline-earth metals containing not more than 40 per cent gelatinized nitroglycerine or gelatinized nitroglycol or a mixture of the two. They may contain, in addition, nitro-compounds or combustible substances (such as wood flour or other vegetable flour or hydrocarbons) and, in addition, other inert or colouring substances.

For (a), (b) and (c), see also Appendix A.1, marginal 3107.

15° Empty packagings, uncleaned, which have contained dangerous substances of Class 1a.

2. Provisions

A. Packages

1. General conditions of packing. 2102

(1) Packagings shall be so closed and leak-proof as to prevent any loss of the contents. The use of metal bands or wires to ensure closure is forbidden unless this procedure is specifically authorized in the special provisions ralating to the packing of the substances or articles in question.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of a single substance or of articles of the same kind", inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must not be less than 2 mm.

(5) Cushioning materials shall be suited to the nature of the contents; in particular, they must be absorbent if the contents are liquid or might exude liquid.

2. Packing of a single substance or of articles of the same kind 2103

(1) Substances of 1° and 2° shall be packed:

(a) in wooden receptacles or in drums made of impermeable fibreboard; these receptacles and drums shall in addition be fitted with a lining impermeable to the liquids they contain; their closure must be leak-proof; or

(b) in impermeable bags (e.g. made of rubber or of a suitable plastics material not readily inflammable) placed in a wooden case; or

(c) in iron drums coated inside with zinc or lead; or

(d) in receptacles made of tin-plate, zinc sheet or aluminium sheet, which shall be secured by cushioning materials in wooden cases.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacles nor impair its closure.

(3) Nitrocellulose of 1°, if wetted exclusively with water, may be packed in fibre drums; the fibreboard must have undergone a special treatment to render it completely impermeable; the closures of the drums must be water-vapour proof.

(4) A package containing substances of 1° must not weigh more than 120 kg or, if it can be rolled, more than 300 kg; however, where fibre drums are used, a package must not weigh more than 75 kg.

A package containing substances of 2° must not weigh more than 75 kg.

(1) Substances of 3° (a) and 4° shall be packed: 2104

(a) if they are to be carried as a full load:

1. in drums made of impermeable fibreboard; or

2. in packagings made of wood or of metal other than black sheet-iron;

(b) if they are not to be carried as a full load:

1. in boxes made of fibreboard, tin-plate, zinc sheet or aluminium sheet, or of a suitable plastics material not readily inflammable, or in bags made of closely-woven textile or of stout paper of at least two plies or of stout paper lined with aluminium foil or with a suitable plastics material. These packagings shall be placed in wooden case; or

2. without preliminary packing in boxes or bags:

a. in drums made of impermeable fibreboard or in wooden casks; or

b. in wooden packagings lined with zinc sheet or aluminium sheet; or

c. in receptacles made of metal other than black sheet-iron.

(2) If the powder is in tubes, sticks, threads, bands or sheets it may also be enclosed, without preliminary packing in boxes or bags, in wooden cases.

(3) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(4) The closure of wooden cases may be ensured by means of bands of wires made of a suitable metal fastened tightly round them. If the bands or wires are made of iron, they shall be covered with a material not liable to produce sparks when subjected to impact or friction.

(5) A package must not weigh more than 120 kg; however, where fibreboard drums are used, a package must not weigh more than 75 kg.

(1) Substances of 3° (b) and 5° shall be packed: 2105

(a) if they are to be carried as a full load:

1. in drums made of impermeable fibreboard; or

2. in packagings made of wood or of metal other than black sheet-iron;

(b) if they are not to be carried as a full load:

1. in boxes made of fibreboard, tin-plate or aluminium sheet. A box must not contain more than 1 kg of powder and must be wrapped in paper. These packagings shall be placed in wooden packagings; or

2. in bags made of closely-woven textile or of stout paper of at least two plies or of stout paper lined with aluminium foil or with a suitable plastics material. These bags shall be placed in fibre drums or in wooden casks or in other wooden packagings lined with zinc sheet or aluminium sheet, or in receptacles made of zinc sheet or aluminium sheet. Receptacles made of zinc sheet or aluminium sheet shall be completely lined with wood or fibreboard.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 Mpa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(3) The closure of wooden cases may be ensured by means of bands or wires made of a suitable metal fastened tightly round them. If the bands or wires are made of iron, they shall be covered with a material not liable to produce sparks when subjected to impact or friction.

(4) A package under (1) (a) must not weigh more than 100 kg; however, where fibre drums are used, a package must not weigh more than 75 kg. A package under (1) (b) must not weigh more than 75 kg. It must not contain more than 30 kg of nitrocellulose powder.

(1) Substances of 6° shall be packed in wooden receptacles. Drums made of impermeable fibreboard are likewise to be accepted for solid trinitrotoluene and for trinitroanisole, and iron receptacles for mixtures termed liquid trinitrotoluene. 2106

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacles nor impair it closure.

(3) A package must not weigh more than 120 kg or, if it can be rolled, more than 300 kg; however, where fibre drums are used, a package must not weigh more than 75 kg.

(1) Substances of 7° shall be packed: 2107

(a) substances of 7° (a): in wooden receptacles or in drums made of impermeable fibreboard. Lead and materials containing lead (alloys or compounds) must not be used in the packaging of hexyl (hexanitrodiphenylamine) and picric acid.

Picric acid may also be packed, not more than 500 g per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials or of a suitable plastics material, secured in a wooden case by cushioning material (e.g. corrugated fibreboard). The receptacles shall be closed by means of a stopper,made of cork or rubber or a suitable plastics material, which shall be held in position by an additional device (such as a cap, crown, seal or binding) capable of preventing any loosening of the closure system during carriage;

(b) substances of 7° (b) and (c): not more than 30 kg per bag, in cloth bags which do not allow the contents to filter through, or in bags made of stout paper or a suitable plastics material, which shall be placed in leak-proof wooden receptacles or in drums made of hardened fibreboard capable of being so closed as to be leak-proof and whose bottoms and lids shall be made of plywood. The lids of cases shall be secured by means of screws and those of drums by means of a collar.

(2) A package containing substances of 7° (a) must not weigh more than 120 kg if it is a wooden receptacle; where fibre drums are used, a package must not weigh more than 75kg. Packages containing picric acid packed in fragile receptacles or in receptacles made of a plastics material must not weigh more than 15 kg. A package containing substances of 7° (b) or (c) must not weigh more than 75kg; cases which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

(1) Substances and articles of 8° shall be packed: 2108

(a) substances of 8° (a): in receptacles made of steel not liable to rust, or of any other suitable material (which in particular excludes lead and its alloys). Nitro-compounds shall be uniformly wetted with sufficient water to ensure that they contain not less than 25 per cent water throughout the journey, at every point in the substance. Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure. Receptacles, except those made of steel not liable to rust, shall be secured by cushioning materials in wooden packings;

(b) substances of 8° (b): not more than 15 kg per bag, 2108
in bags made of cloth or of a suitable plastics material, placed in wooden packagings;

(c) substances of 8° (a) and (b) may also be packed, not more than 500 g per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, secured by cushioning materials (e.g. corrugated fibreboard) in a wooden case. A package must not contain more than 5 kg of nitro-compounds. The receptacles shall be closed by means of a stopper, made of cork or rubber or a suitable plastics material, which shall be held in position by an additional device (such as a cap, crown, seal or binding) capable of preventing any loosening of the closure system during carriage;

(d) articles of 8° (c): separately in stout paper and placed, not more than 100 per box, in sheet-metal boxes. Not more than 100 of these boxes shall be packed in a wooden packing case.

(2) A package under paragraph (1) (a) or (b) must not weigh more than 75 kg; it must not contain more than 25 kg of substances of 8° (a) or more than 50 kg of substances of 8° (b). A package under paragraph (1) (c) must not weigh more than 15 kg, or a package under paragraph (1) (d) more than 40 kg.

(1) Substances and articles of 9° shall be packed: 2109

(a) substances of 9° (a) to (c):

1. not more than 10 kg per bag, in bags made of cloth or of a suitable plastics material, placed in an impermeable fibreboard box or in a box made of tin-plate or aluminium sheet or zinc sheet; or

2. not more than 10 kg per receptacle, in receptacles made of fibreboard of adequate strength, impregnated with paraffin wax or rendered impermeable by some other means.

Boxes made of tin-plate or aluminium sheet or zinc sheet and boxes or receptacles of other kinds shall be placed in a wooden case lined with corrugated fibreboard; metal boxes so placed shall be separated from one another by means of a corrugated-fibreboard wrapping. A case may not contain more than four boxes or receptacles of other kinds. The lids of cases shall be secured by means of screws.

(b) penthrite of 9° (a) may also be packed either:

1. not more than 5 kg per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, closed by means of a stopper made of cork or rubber or a suitable plastics material; each receptacle shall be placed in a metal receptacle hermetically closed by welding or soldering and cushioned with resilient materials so as to wedge the inner receptacle securely without leaving any empty space. Not more than 4 metal receptacles shall be packed in a wooden case lined with corrugated fibreboard and shall be separated from one another by several thicknesses of corrugated fibreboard or of another material capable of performing the same function; or

2. not more than 500 g dry mass per receptacle, in receptacles made of glass, porcelain, stoneware or similar materials, or of a suitable plastics material, closed by means of a stopper made of cork or rubber or a suitable plastics material. These receptacles shall be placed in a wooden case. They shall be separated from one another by means of a corrugated fibreboard wrapping and from the sides of the case by a space of not less than 3 cm filled with cushioning materials;

(c) hexogen of 9° (a) may also be packed as provided under (b) 1. above for penthrite;

(d) articles of 9° (d): first separately in stout paper and placed, not more than 3 kg per case, in fibreboard cases in which they shall be fixed in position by cushioning materials; these cases, not more than 10 per wooden case, shall be so secured by cushioning materials in a wooden case closed by means of screws that there is a space of not less than 3 cm filled with cushioning materials at all points between the fibreboard cases and the packing case.

(2) A package under (1) (a) or (1) (b) 1. must not weigh more than 75 kg; a package under 1 (c) must not weigh more than 10 kg; a package under (1) (b) 2. or (1) (d) must not weigh more than 35 kg. Packages which, with their

contents, weigh more than 30 kg shall be fitted with means of handling.

2110 (1) Substances of 10° shall be packed, not more than 500 g per bag, in firmly-tied bags made of a suitable pliant material; each bag shall be placed in a box made of metal, fibreboard or paperboard; these boxes, not more than 30 per packing case, shall be secured by cushioning materials in w wooden packing case with complete sides not less than 12 mm thick.

(2) A package must not weigh more than 25 kg.

2111 (1) Substances and articles of 11° shall be packed:

(a) substances of 11° (a) and (b):

1. not more than 2.5 kg per bag, in bags placed in boxes made of fibreboard, tin-plate or aluminium. The boxes shall be secured by cushioning materials in wooden packagings, or

2. in bags made of closely-woven fabric, placed in wooden casks or cases;

(b) articles of 11° (c): rolled in stout paper; each roll must not weigh more than 300 g. The rolls shall be placed in a wooden case lined with stout paper.

(2) The lids of the wooden cases shall be secured by means of screws; if the screws are made of iron, they shall be coated with a material not liable to produce sparks when subjected to shock or friction.

(3) A package must not weigh more than 75 kg if it is carried as part of a full load, and not more than 35 kg if it is not carried as part of a full load.

2112 (1) Substances of 12° shall be cartridged in wrappings made of a suitable plastics material or of paper. The cartridges may be dipped in paraffin wax, ceresine or resin, or be wrapped in a suitable plastics material, so as to be protected from damp. Explosives containing more than 6 per cent liquid nitric esters shall be cartridged in paper coated with paraffin wax or ceresine or in an impermeable plastics material such as polyethylene. The cartridges shall be placed in wooden packagings.

(2) Cartridges not coated with paraffin wax or ceresine, or cartridges in permeable wrappings, shall be made up into packets weighing not more than 2.5 kg each. Packets so made up, whose wrapping must consist at least of stout paper, shall be dipped in paraffin wax, ceresine or resin or wrapped in a suitable plastics material so as to be protected from damp. The packets shall be placed in wooden packagings.

(3) The closure of wooden packagings may be ensured by means of metal bands or wires fastened tightly round them.

(4) A package must not weigh more than 75 kg. It must not contain more than 50 kg of explosives.

(5) Instead of the wooden packagings prescribed in paragraph (1) and paragraph (2), it is also permissible to use suitable cases, made of solid fibreboard or corrugated fibreboard, which are of sufficient mechanical strength and whose lid flaps and bottom flaps must be closed by means of adhesive strips of sufficient strength. The design of cases made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country of departure. Such a package must not weigh more than 30 kg; it must not contain more than 25 kg of explosives.

2113 (1) Substances of 13° shall be cartridged in paper wrappings. Cartridges not coated with paraffin wax or ceresine shall first be rolled in paper that has been rendered impermeable. They shall be made up by means of a paper wrapping into packets weighing not more than 2.5 kg each, which shall be secured by cushioning materials in wooden packagings whose closure may be ensured by means of metal bands or wires fastened tightly round them.

(2) A package must not weigh more than 35 kg.

2114 (1) Substances of 14° shall be packed:

(a) substances of 14° (a): cartridged in wrappings made of paper that has been rendered impermeable or in a suitable plastics material. The cartridges shall be made up into packets by means of a paper wrapping or, if without a paper wrapping, secured by cushioning materials in fibreboard cases. The packets or fibreboard cases shall be secured by inert cushioning materials in wooden packagings whose closure may be ensured by means of metal bands or wires fastened tightly round them;

(b) substances of 14° (b): cartridged in wrappings made of paper that has been rendered impermeable or in a suitable plastics material. The cartridges shall be placed in a fibreboard box. The fibreboard boxes, wrapped in paper that has been rendered impermeable, shall be secured, leaving no empty spaces, in wooden packaging whose closure may be ensured by means of metal bands or wires fastened tightly round them;

(c) substances of 14° (c):

1. cartridged in wrappings made of a suitable plastics material or of paper. The cartridges may be dipped in paraffin wax, ceresine or resin or be wrapped in a suitable plastics material, so as to be protected from damp. Explosives containing more than 6 per cent liquid nitric esters shall be cartridged in paper coated with paraffin wax or ceresine or in an impermeable plastics material such as polyethylene. The cartridges shall be placed in wooden packagings;

2. cartridges not coated with paraffin wax or ceresine, or cartridges in permeable wrappings, shall be made up into packets weighing not more than 2.5 kg each. Packets so made up, whose wrapping must consist at least of stout paper, shall be dipped in paraffin wax, ceresine or resin or be wrapped in a suitable plastics material, so as to be protected from damp. The packets shall be placed in wooden packagings;

3. the closure of wooden packagings may be ensured by means of metal bands or wires fastened tightly round them;

4. instead of the wooden packagings prescribed under 1. and 2. above, it is also permissible to use suitable cases, made of solid fibreboard or corrugated fibreboard, which are of sufficient mechanical strength and whose lid flaps and bottom flaps must be closed by means of adhesive strips of sufficient strength. The design of cases made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country of departure.

(2) A package containing substances of 14° (a) or (b) must not weigh more than 35 kg. A package containing substances of 14° (c) must not weigh more than 75 kg; it must not contain more than 50 kg of explosives; in the case of a packing conforming to paragraph 1 (c) 4., the package must not weigh more than 30 kg nor contain more than 25 kg of explosives.

3. Mixed packing

2115 Substances listed under an item number of marginal 2101 may not be included in the same package either with substances grouped under the same or another item number of that marginal, or with substances or articles of other classes, or with other goods.

NOTE: Packages as referred to in marginal 2108 (1) (c) may contain organic nitro-compounds having different compositions and names.

4. Marking and danger labels on packages (see Appendix A.9)

2116 Packages containing picric acid of 7° (a) shall be marked with the name of the substance in clearly legible and indelible red characters. This marking shall be in an official language of the country of departure and also, if that language is not English, or French, or German, in English, French or German, unless international road transport tarrifs, if any, of agreements concluded between the countries concerned in the transport operation, provide otherwise.

2117 (1) Packages containing substances and articles of Class 1a shall bear a label conforming to model No. 1.

(2) Packages containing fragile receptacles not visible

from the outside shall bear a label conforming to model No. 12. If the fragile receptacles contain liquids, the packages shall, in addition, except in the case of sealed ampoules, bear labels conforming to model No. 11; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2101. Where the name of the substance is not indicated in the case of 8° (a) and (b), the trade name must be used. The description of the goods must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials «ADR» or "RID" [e.g., 1a, 3° (a), ADR].

(2) The following must be certified in the transport document: "The nature of the goods, and the packaging, are in conformity with the provisions of ADR".

(3) For consignments which, under marginal 11 105 of Annex B, are to be accepted for carriage as a full load only, the transport document shall also show the mass of each package and the number and nature of the packagings.

C. Empty packagings

(1) Packagings of 15° shall be securely closed and be leak-proof to the same degree as though they were full.

(2) Empty packagings, uncleaned, of 15° shall bear the same danger labels as if they were full.

(3) The description in the transport document shall be: "Empty packaging, 1a, 15°, ADR (or RID)". This text shall be underlined

CLASS 1b ARTICLES FILLED WITH EXPLOSIVE SUBSTANCES

1. List of articles

(1) Among the articles covered by the heading of Class 1b, only those listed in marginal 2131 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These articles to be accepted for carriage under certain conditions are to be considered as articles of ADR.

(2) If the articles listed under 7°, 10° or 11° of marginal 2131 are composed of, or filled with, explosive substances listed in marginal 2101, those substances must satisfy the stability and safety conditions laid down concerning them in Appendix A.1.

1° Fuses, not primed:

(a) rapid combustion fuses (fuses consisting of a thick tube with a core of black powder, or with a core of threads impregnated with black powder, or with a core of nitrated cotton threads);

(b) detonating fuses in the form of small-section metal tubes with thin walls and a core filled with an explosive substance; see also Appendix A.1, marginal 3108;

(c) flexible detonating fuses wrapped in textile or a plastics material, of small section and with a core filled with an explosive substance; see also Appendix A.1, marginal 3109;

(d) instantaneous detonating fuses (small-section woven fuses with a core filled with an explosive substance more dangerous than penthrite).

(For other fuses, see Class 1c, 3° (marginal 2171).

2° Non-detonating primers (primers which do not produce a disruptive effect either with the aid of detonators or by other means):

(a) percussion caps;

(b) 1. primed cases of central-percussion cartridges, not filled with propellent powder, for firearms of all calibres;

2. primed cases of rim-fire cartridges, not filled with propellent powder, for Flobert weapons and firearms of similar calibres;

(c) quick-matches, screw-primers and other similar primers containing a small charge (black powder or other explosives), set in action by friction, percussion or electricity; 2118

(d) fuses without any device, e.g. detonator, producing a disruptive effect and without a transmission charge. 2119

3° Railway for signals

4° Small-arms cartridges, with the exception of those containing a bursting charge (see under 11°):

(a) sporting cartridges; 2131

(b) Flobert cartridges;

(c) tracer cartridges;

(d) incendiary cartridges;

(e) other central-percussion cartridges.

NOTE: Apart from sporting cartridges with lead pellets, only cartridges whose calibre does not exceed 13.2 mm are to be considered as articles of 4°.

2120-2125

5° Detonating fuses:

(a) detonators with or without a delayed-action device; delayed-action connecting pieces for detonating fuses;

(b) electric detonators fitted with fuses with or without a delayed-action device;

(c) detonators connected firmly to a black-powder fuse;

(d) detonators with gaines (detonators combined with a transmission charge composed of a compressed explosive); see also Appendix A.1, marginal 3110;

2127-2129 (e) fuses with detonators (fused detonators) with or without a transmission charge;

(f) detonators with percussion cap ("bouchons allumeurs") with or without a delayed action device, with or without a mechanical device for firing, and without a transmission charge.

6° Sounding caps (detonators, with or without primers, contained in sheet-metal tubes). 2130

7° Articles with a propellent charge, other than those listed under 8°; articles with a bursting charge; articles with a propellent and a bursting charge, provided that they contain only explosive substances of Class 1a all without a device producing a disruptive effect (e.g. detonator). The charge in these articles may comprise a tracer substance (see also under 8° and 11°).

NOTE: Non-detonating primers (2°) are allowed in these articles. 2131

8° Articles filled with tracer substances or substances intended for signalling, with or without a propellent charge, with or without an ejection charge, and without a bursting charge, in which the propellent or tracer substance is compressed in such a way that the articles cannot explode when ignited.

9° Smoke-producing devices containing chlorates or carrying an explosive charge or an explosive ignition charge.

For smoke-producing substances for agricultural and forestry purposes, see Class 1c, marginal 2171, 27°.

10° Boring devices containing a charge of dynamite or of an explosive similar to dynamite, without fuses and without any device producing a disruptive effect (e.g. detonator), hollow-charge devices for industrial purposes, containing not more than 1 kg of explosive secured within the casing, and without a detonator. 2131

11° Articles with a bursting charge, articles with a propellent and a bursting charge, all fitted with a device producing a disruptive effect (e.g. detonator), the whole well secured. The mass of each article must not exceed 25 kg.

2. Provisions

A. Packages

1. General conditions of packing

(1) Packagings shall be so closed and leak-proof as to prevent any loss of the contents. The use of metal bands or wires fastened round the packages to ensure their closure is allowed; their use is compulsory with cases having hinged lids if the lids are not fitted with an effective device to obviate any loosening of the closure. 2132

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagins, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Articles shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of articles of the same kind", inner packagings may be enclosed in outer packagings, either singly or in groups.

(4) Cushioning materials shall be suited to the nature of the contents.

2. Packing of articles of the same kind

Articles of 1° shall be packed as follows: 2133

(a) articles of 1° (a) and (b): in wooden packagings or in drums made of impermeable fibre. A package must not weigh more than 120 kg; however, a fibre drum must not weigh more than 75 kg;

(b) articles of 1° (c): rolled in lengths or up to 250 m on reels made of wood or fibreboard. The reels shall be placed in wooden cases in such a manner that they cannot come into contact either with one another or with the sides of the cases. A case must not contain more than 1 000 m of fuse;

(c) articles of 1° (d): rolled in lengths of up to 125 m on reels made of wood or fibreboard which shall be packed in a wooden case, closed by means of screws and with sides not less than 18 mm thick, in such a manner that the reels cannot come into contact either with one another or with the sides of the case. A case must not contain more than 1 000 m of instantaneous detonating fuse.

(1) Articles of 2° shall be packed as follows: 2134

(a) ârticles of 2°(a): caps with an uncovered explosive charge, not more than 500 per box or small case, and caps with a covered explosive charge, not more than 5,000 per box or small case, in sheet-metal boxes, fibreboard boxes or small wooden cases. These packagings shall be placed in a packing case made of wood or sheet-metal;

(b) articles of 2°(b)1.: primed cases of central percussion cartridges, not filled with propellent powder, for firearms of all calibres, cases made of wood or fibreboard or in textile bags;

(c) articles of 2°(b)2.: primed cases of rim-fire cartridges, not filled with propellent powder, for Flobert weapons and firearms of similar calibres, not more than 5,000 per box, in boxes made of sheet-metal or fibreboard which shall be placed in a packing case made of wood or sheet-metal; however, these primed cases for rim-fire cartridges may also be packed, not more than 25,000 per bag, in a bag which must be secured by means of corrugated fibreboard in a packing case made of wood or iron;

(d) articles of 2° (c) and (d): in boxes made of fibreboard, wood or sheet-metal which shall be placed in packagings made of wood or metal.

(2) A package containing articles of 2° (a), (c) or (d) must not weigh more than 100 kg.

(1) Articles of 3° shall be packed in cases made of boards not less than 18 mm thick, tongued and grooved and assembled by means of wood screws. For signals shall be secured in cases by cushioning materials in such a manner that they cannot come into contact either with one another or with the sides of the case. 2135

(2) A package must not weigh more than 50 kg.

(1) Articles of 4° (a), (b) and (c) shall be placed tightly in firmly-closing boxes made of sheet metal, wood or fibreboard; these boxes shall be housed, leaving no empty spaces, in packing cases made of metal, wood, hardboard, solid fibreboard or corrugated fibreboard; the fibreboard must have been rendered impermeable by impregnation and be of sufficient mechanical strength. 2136

Fibreboard cases shall be closed by means of adhesive strips of sufficient strength or in an equivalent manner. The production model of cases made of solid fibreboard or corrugated fibreboard must be approved by the competent authority of the country of departure.

(2) Articles of 4° (c) and (d) shall be placed, not more than 400 per box, in boxes made of sheet-metal, wood or fibreboard; these boxes shall be packed securely in packing cases made of metal or wood.

(3) A package must not weigh more than 100 kg; however, where hardboard or fibreboard cases are used, a package containing articles of 4° (a), (b) or (c) must not weigh more than 40 kg.

(1) Articles of 5° shall be packed as follows: 2137

(a) articles of 5° (a): not more than 100 per receptacle in the case of detonators and not more than 50 per receptacle in the case of connecting pieces, in receptacles, made of sheet-metal or impermeable fibreboard, in which they shall be well protected against ignition and secured by cushioning materials. Sheet-metal receptacles shall be lined with a resilient material. The lids shall be secured all round by adhesive strips. Receptacles shall, not more than 5 per packet or box in the case of detonators and not more than 10 per packet or box in the case of connecting pieces, be enclosed in a packet or placed in a fibreboard box. The packets or boxes shall be packed in a wooden case closed by means of screws and with sides not less than 18 mm thick, or in a sheet-metal packaging, the case or packaging being secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the wooden case or sheet-metal packaging and the packing case;

(b) articles of 5° (b): not more than 100 per packet, in packets with alternate detonators lying towards opposite ends of the packet. Not more than 10 of these packets shall be tied together to form a collective packet. Not more than 5 of these collective packets shall be secured by cushioning materials in a wooden packing case with sides not less than 18 mm thick, or in a sheet metal packaging, in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the collective packets and the packing case or sheet-metal packaging;

(c) articles of 5° (c): fuses fitted with detonators, rolled into coils; not more than 10 coils shall be made into a roll which shall be wrapped in paper. Not more than 10 rolls shall be secured by cushioning materials in a small wooden case closed by means of screws and with sides not less than 12 mm thick. Not more than 10 small cases shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the small cases and the packing case;

(d) articles of 5° (d):

1. not more than 100 detonators per case, in wooden cases with sides not less than 18 mm thick, in such a manner that the detonators are spaced not less than 1 cm from one another and from the sides of the case. The said sides shall be mortised and the bottom and lid shall be secured by screws. If the case is lined with zinc sheet of aluminium sheet, a side thickness of 16 mm is sufficient. The case shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that

there is a space of not less than 3 cm filled with cushioning materials at all points between it and the packing case; or

2. not more than 5 detonators per box, in sheet-metal boxes, the detonators being placed therein in slatted wooden frames or in holed pieces of wood. The lid shall be secured all round by adhesive strips. Not more than 20 sheet-metal boxes shall be placed in a packing case with sides not less than 18 mm thick;

(e) articles of 5° (e): not more than 50 per case, in wooden cases with sides not less than 18 mm thick. The articles shall be secured within the cases by a wooden structure in such a manner that they are spaced not less than 1 cm from one another and from the sides of the case. The sides of the case shall be mortised and the bottom and lid shall be secured by screws. Not more than 6 cases shall be secured by cushioning materials in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the cases and the packing case. The space may be reduced to not less than 1 cm if it is filled with porous wood-fibreboard slabs. If the articles are individually packed and firmly secured in hermetically-closing boxes made of sheet-metal or a plastics material, they may be placed in a wooden packing case with sides not less than 18 mm thick. The articles must be separated from one another and firmly secured by fibreboard or by wood-fibreboard slabs;

(f) articles of 5° (f):

1. not more than 50 per case, in wooden or metal cases; in these cases each detonating part of the "bouchon allumeur" shall be so accommodated in a slotted wooden support that the distance between adjacent detonators and between the detonators of the outermost "bouchons allumeurs" and the side of the case is not less than 2 cm; closing the lid of the case shall ensure complete immobility of the whole; not more than 3 cases shall be placed, leaving no empty spaces, in a wooden packing case with sides not less than 18 mm thick; or

2. in boxes made of wood or metal; in these boxes each "bouchon allumeur" shall be so supported by a frame that the distance between two "bouchons allumeurs" and between a "bouchon allumeur" and the side of the box is not less than 2 cm and that the immobility of the whole is ensured; these boxes shall be placed in a packing case with sides not less than 18 mm thick in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the boxes and between the boxes and the packing case; a package must not contain more than 150 "bouchons allumeurs".

(2) The lid of the packing case shall be closed by means of screws or of hinges and folding bars.

(3) Each package containing articles of 5° shall be provided with a closure protected either by lead or other seals (stamp or mark) applied to two screw-heads at the ends of the major axis of the lid or of the folding bars, or by a strip, bearing the trade mark, gummed on to the lid and on two opposite sides of the case.

(4) A package must not weigh more than 75 kg; packages weighing more than 30 kg must be fitted with means of handling.

(1) Articles of 6° shall be rolled separately in paper and placed in corrugated fibreboard wrappings. They shall be packed, not more than 25 per box, in boxes made of fibreboard or sheet-metal. The lids shall be secured all round by adhesive strips. Not more than 20 boxes shall be placed in a wooden packing case. 2138

(2) A package must not weigh more than 50 kg. Packages weighing more than 30 kg shall be fitted with means of handling. 2138

(1) Articles of 7° shall be packed in wooden cases closed by means of screws or of hinges and folding bars and with sides not less than 16 mm thick, or in receptacles made of metal or a suitable plastics material of adequate strength. The lids and bottoms of the wooden cases may also be made of highly - compressed hardboard equalling the sides in strength. Articles weighing more than 20 kg may also be despatched in crates or without packing. 2139

(2) A package must not weigh more than 100 kg if it contains articles each of which weighs not more than 1 kg. Cases which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

(1) Articles of 8° shall be packed in wooden cases, in drums made of fibreboard which has been rendered impermeable, or in receptacles made of metal or of a suitable plastics material of adequate strength. The ignition head shall be protected in such a manner as to prevent any scattering of the charge from the article. 2140

(2) A package must not weigh more than 100 kg; however, where fibre drums are used, a package shall not weigh more than 75 kg. Cases which, with their contents, weigh more than 30 kg shall be fitted with means of handling.

Articles of 9° shall be enclosed in wooden packagings. A package must not weigh more than 75 kg; packages weighing more than 30 kg shall be fitted with means of handling. 2141

Articles of 10° shall be packed in wooden cases. Packages weighing more than 30 kg shall be fitted with means of handling. 2142

Articles of 11° shall be packed as follows: 2143

(a) articles less than 13.2 mm in diameter: not more than 25 per box, packed tightly in firmly - closing fibreboard boxes or in receptacles made of a suitable plastics material of adequate strength; these boxes or receptacles shall be placed, leaving no empty spaces, in a wooden case, with sides not less than 18 mm thick, which may be lined with tin-plate, zinc or aluminium sheet, or a suitable plastics or similar material of adequate strength.

A package must not weigh more than 60 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

(b) articles from 13.2 mm to 57 mm in diameter:

1. separately in a tube made of fibreboard or of a suitable plastics material, strong, close-fitting and closing firmly at both ends; or

strong, close-fitting, closed at one end and open at the other; or

open at both ends but with an inner projection or other suitable internal device to prevent the article from moving.

Packed in this manner, not more than:

300 articles not less than 13.2 mm and not more than 21 mm in diameter; or

60 articles more than 21 mm but not more than 37 mm in diameter; or

25 articles more than 37 mm but not more than 57 mm in diameter shall be placed in layers in a wooden case with sides not less than 18 mm thick, the wooden case being lined with tin-plate, zinc sheet, or aluminium sheet.

In the case of articles packed in tubes open at both ends or at one end, the packing case shall be lined on the side or sides adjacent to the open ends of the tubes either with a felt pad not less than 7 mm thick or with a sheet of the same thickness of double - faced corrugated fibreboard or similar material.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

2. articles 20 mm in diameter may also be packed, not more than 10 per box, in strong, closely-fitting fibreboard boxes coated with paraffin wax and equipped with a honeycombed bottom insert and with partitions made of fibreboard coated with paraffin wax. The boxes shall be closed by a gummed flap. Not more than 30 boxes shall be tightly packed in a wooden case with sides not less than 18 mm thick, the wooden case being lined with zinc sheet, tin-plate or aluminium sheet.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

3. articles not more than 30 mm in diameter may, in a number not exceeding that indicated under 1., also be put on to strips and packed in a strong steel receptacle. This receptacle may be cylindrical.

These articles put on to strips shall be surrounded by a suitable device so as to constitute a compact unit and as to prevent individual articles from becoming detached. One or more units shall be so fixed in the receptacle that they cannot be displaced.

The ends of articles put on to strips shall rest on shock-absorbing non-metallic supports.

The lid of the receptacle must be so closed as to be leak-proof and be so secured by a locking device capable of being sealed that the articles cannot fall out.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling. Receptacles capable of being rolled shall have their lids fitted with a strong handle enabling them to be carried;

4. articles not less than 30 mm and not more than 57 mm in diameter may also be packed separately in a strong, closely-fitting, hermetically-closed cylindrical box made of fibreboard, fibreboard or a suitable plastics material. Not more than 40 of these boxes shall be placed in layers in a wooden case with sides not less than 18 mm thick.

A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling;

(c) other articles of 11°: in conformity with the provisions of marginal 2139 (1). A package must not weigh more than 100 kg. Packages weighing more than 30 kg shall be fitted with means of handling.

NOTE: In the case of articles containing both propellent and bursting charges, the diameter referred to is that of the cylindrical portion containing the bursting charge.

3. Mixed packing

(1) Articles listed under an item number of marginal 2131 may not be included in the same package either with articles of a different kind but of the same item number, or with articles of another item number of that marginal, or with substances or articles belonging to other classes, or with other goods. 2144

(2) The following may, however, be included in the same package:

(a) articles of 1° with one another:

When articles of 1° (a) and (b) are included in the same package, they shall be packed in conformity with marginal 2133 (a).

When articles of 1° (c) are included in the same package with articles of 1° (a) or (b) or both, those of 1° (c) shall be made up into packages in conformity with the provisions applicable to them and the outer packaging shall be that prescribed for articles of 1° (a) or (b). A package must not weigh more than 120 kg;

(b) articles of 2° (a) with those of 2° (b), provided that both are contained in inner packagings consisting of boxes placed in wooden cases. A package must not weigh more than 100 kg;

(c) articles of 4° with one another, taking into account the provisions for inner packaging, in a wooden outer packaging. A package must not weigh more than 100 kg;

(d) articles of 7° with those of 5° (a), (d), (e) and (f), on condition that the packaging of these latter prevents the transmission of a possible detonation to the articles of 7°. In one package the number of articles of 5° (a), (d), (e) and (f) must be the same as that of the articles of 7°. A package must not weigh more than 100 kg.

4. Marking and danger labels on packages (see Appendix A.9)

Packages containing articles of Class 1b shall bear a label conforming to model No 1. However, packages containing articles of 1° (d), 5° and 6° shall bear two labels conforming to model No. 1. 2145

2146

B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2131; it must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials «ADR» or «RID» (e.g., 1b, 2° (a), ADR). 2147

(2) The following must be certified in the transport document:

«The nature of the goods, and the packaging, are in conformity with the provisions of ADR».

2148-2162

C. Empty packagings

No provisions. 2163-2164-2169

CLASS 1c IGNITERS, FIREWORKS AND SIMILAR GOODS

1. List of goods

(1) Among the substances and articles covered by the heading of Class 1c, only those listed in marginal 2171 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR. 2170

(2) Articles to be accepted must fulfill the following conditions:

(a) The explosive charge shall be constituted, arranged and distributed in such a manner that neither friction, shaking, shock nor ignition of the packed articles can lead to an explosion of the whole contents of the package;

(b) white or yellow phosphorus may not be used except in articles of 2° and 20°;

(c) the detonating compound of fireworks (21° - 24°), flash-powders (26°), and the smoke-producing compounds of pesticides (27°), must not contain chlorates;

(d) the explosive charge must satisfy the stability conditions of Appendix A.1, marginal 3111.

A. Igniters: 2171

1° (a) Safety matches (with a potassium chlorate and sulphur base);

(b) matches with a base of potassium chlorate and of phosphorus sesquisulphide, also friction igniters.

2° Strips of amorces for safety lamps and strips of paraffin-waxed amorces for safety lamps. 1,000 amorces must not contain more than 7.5 g explosive.

For strips of caps, see under 15°.

3° Slow-combustion fuses (fuses consisting of a thin impermeable tube with a narrow - section core of black powder).

For other fuses, see Class 1b, 1° (marginal 2131).

4° Pyroxylin thread (nitrated cotton thread). See also Appendix A.1, marginal 3101.

5° Tubular igniters ("lances d' allumage") (tubes, made of paper or fibreboard, containing a small quantity of a fuse composition of oxygenated substances and organic substances and, possibly, of nitrated aromatic compounds) and thermite caps with pellet igniters.

6° Safety igniters for fuses (paper cartridges containing a primer pierced by a thread intended to cause friction or tearing, or similar devices).

7° (a) Electric primers without detonator; 2171

(b) pellets for electric primers.

8° Electric igniters (e.g. igniters intended for igniting photographic magnesium powders). The charge of each

must not exceed 30 mg nor contain more than 10 per cent fulminate of mercury.

NOTE: Appliances of the electric bulb type producing a sudden light and containing an ignition charge similar to that of electric igniters are not subject to the provisions of ADR.

B. Pyrotechnic articles and toys: caps and strips (strings) of caps; detonating articles:

9° Indoor pyrotechnic articles (e.g. Bosco cylinders, confetti bombs, cotillon fruits). Articles with a nitrated-cotton (collodion-cotton) base must not contain more than 1 g per article.

10° Fulminating bonbons, flower crackers, strips of nitrated paper (collodion paper).

11° (a) Fulminating peas, fulminating grenades and other similar pyrotechnic toys containing fulminate of silver;

(b) fulminating matches;

(c) accessories with fulminate of silver.

For (a), (b) and (c): 1 000 articles must not contain more than 2.5 g fulminate of silver.

12° Detonating pebbles, each carrying on the outside a charge of not more than 3 g of an explosive other than fulminate.

13° Pyrotechnic matches (e.g. Bengal matches, golden-rain matches or cascade-of-flowers matches).

14° Miracle candles without ignition heads.

15° Caps for children's toys, strips (strings) of caps and rings of caps. 1 000 caps must not contain more than 7.5 g of an explosive free from fulminate.

For strips of caps for safety lamps, see under 2°.

16° Explosive corks with an explosive charge having a phosphorus and chlorate base or with a charge of fulminate or a similar compound compressed into cardboard cartidges. 1 000 corks must not contain more than 60 g chlorate explosive nor more than 10 g of fulminate or of a compound with a fulminate base.

17° Round petards with an explosive charge having a phosphorus and chlorate base. 1000 petards must not contain more than 45 g explosive.

18° Cardboard caps (toy ammunition) with an explosive charge having a phosphorus and chlorate base or with a charge of fulminate or a similar compound. 1 000 caps must not contain more than 25 g explosive. 2171

19° Cardboard caps exploding under foot, with a protected charge having a phosphorus and chlorate base. 1 000 caps must not contain more than 30 g explosive.

20° (a) Detonating sheets;

(b) martinikas (so-called Spanish fireworks).

Both comprise a mixture of white (yellow) and red phosphorus with potassium chlorate and not less than 50 per cent inert substances not taking part in the decomposition of the mixture of phosphorus and chlorate. A sheet must not weigh more than 2.5 g and a martinika not more than 0.1 g.

C. Fireworks.

21° Anti-hail rockets not fitted with a detonator, bombs and firepots. The charge, including the propellent charge, must not weigh more than 14 kg per article, the bomb or firepot not more than 18 kg in all.

22° Incendiary bombs, rockets, Roman candles, fountains, wheels and similar fireworks, with a charge not weighing more than 1,200 g per article.

23° Cannon shots each containing not more than 600 g granulated black powder or 220 g of an explosive not more dangerous than aluminium powder with potassium perchlorate, rifle shots (crackers) each containing not more than 20 g granulated black powder, all provided with fuses with covered ends; and similar articles for producing a loud detonation.

For railway fog-signals, see Class lh, 3° (marginal 2131).

24° Small fireworks (e.g. jumping - crackers, serpents, golden rain, silver rain, if they contain not more than 1,000 g granulated black powder per 144 articles; volcanoes and hand comets, if they contain not more than 30 g each of granulated black powder).

25° Bengal fires without ignition heads (e.g. Bengal torches, lights, flames).

26° Magnesium flash - powders, not more than 5 g per bag or tube, in paper bags or in small glass tubes.

D. Pesticides (substances and articles):

27° Smoke - producing substances for agricultural and forestry purposes, and smoke - producing cartridges for use as pesticides.

For smoke-producing devices containing chlorates or carrying an explosive charge or an explosive ignition charge, see Class lb, 9° (marginal 2131).

2. Provisions

A. Packages

1. General conditions of packing.

(1) Packagings shall be so closed and leak - proof as to prevent any loss of the contents. 2172

(2) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Articles shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of a single substance or of articles of the same kind", inner packagings may be enclosed in outer packagings, either singly or in groups.

(3) Cushioning materials shall be suited to the nature of the contents.

2. Packing of a single substance or of articles of the same kind.

(1) Articles of 1° (a) shall be packed in boxes or in books. These boxes or books shall be wrapped in stout paper to form a collective packet all the folds of which shall be glued. The books may also be placed in boxes made of thin fibreboard or of a material not readily inflaminable (e.g. cellulose acetate). The fibreboard boxes or the collective packets shall be placed in a strong case made of wood, metal, compressed - wood hardboard, strong solid fibreboard or double - faced corrugated fibreboard. 2173

All joints of metal cases shall be closed by soft soldering or by double - seaming.

Fibreboard cases shall be closed my means of joined flaps. The edges of the outer flaps, and all joints, must be either glued or firmly closed by some other suitable means.

If the fibreboard boxes or collective packets are packed in fibreboard cases, the mass of a package may not exceed 20 kg.

(2) Articles og 1° (b) shall be so packed in boxes as to prevent any movement. Not more than 12 of these boxes shall be enclosed in a packet all the folds of which shall be glued.

Not more than 12 of these packets shall be wrapped in stout paper to form a collective packet all the folds of which shall be glued. The collective packets shall be placed in a strong case made of wood, metal, compressed - wood hardboard, strong solid fibreboard or double faced corrugated fibreboard.

All joints of metal cases shall be secured by soft soldering or double seaming.

Fibreboard cases shall be closed by means of joined flaps. The edges of the outer flaps, and all joints, must be either glued or firmly closed by some other suitable means.

If the collective packets are packed in fibreboard cases, the mass of a package must not exceed 20 kg.

(1) Articles of 2° shall be packed in boxes made of sheet-metal or fibreboard. Not more than than 30 sheet-metal or 2174

144 fibreboard boxes shall be enclosed in a packet which must not contain more than 90 g explosive. These packets shall be placed in a packing case, with well-jointed sides not less than 18 mm thick, lined with stout paper or with thin zinc or aluminium sheet or with a sheet of a plastics material not readily inflammable. A side thickness of 11 mm is sufficient for a package weighing not more than 35 kg if the case is encircled with an iron band.

(2) A package must not weigh more than 100 kg.

2175 (1) Articles of 3° shall be packed in wooden cases lined with shout paper or thin zinc or aluminium sheet, or in drums of impermeable fibreboard.

Small consignments weighing not more than 20 kg, wrapped in corrugated fibreboard, may also be made up into packets in stout two-ply packing paper securely tied with string.

(2) Where fibre drums are used, a package must not weigh more than 75 kg.

2176 (1) Pyroxylin thread of 4° shall be rolled, in lengths not exceeding 30 m per strip, on fibreboard strips. Each roll shall be wrapped in paper. Not more than 10 of these rolls shall be wrapped in packing paper to form packets which shall be secured by cushioning materials in small wooden cases. The cases shall be placed in a wooden packing case.

(2) A package must not contain more than 6 000 m of pyroxylin thread.

2177 (1) Articles of 5° shall be packed, not more than 25 per box, in boxes made of tin-plate or fibreboard; however, thermite caps may be packed, not more than 100 per box, in fibreboard boxes. Not more than 40 of these boxes shall be secured by cushioning materials in a wooden case in such a manner that they connot come into contact either with one another or with the sides of the case.

(2) A package must not weigh more than 100 kg.

2178 (1) Articles of 6° - 8° shall be packed:

(a) articles of 6°: in wooden cases;

(b) articles of 7° (a); in wooden cases or in wooden casks or in drums made of impermeable fibreboard;

(c) articles of 7° (b); not more than 1 000 per box, secured by sawdust cushioning in fibreboard boxes divided into not less than three compartments each containing approximately the same number of articles and separated by interposed fibreboard sheets. The lids of boxes shall be secured by gummed strips applied all round. Not more than 100 of these fibreboard boxes shall be placed in a perforated sheet-iron receptacle. This receptacle shall be secured by cushioning materials in a wooden packing case closed by means of screws and with sides not less than 18 mm thick, in such a manner that there is a space of not less than 3 cm filled with cushioning materials at all points between the sheet-iron receptacle and the packing case;

(d) articles of 8°: in fibreboard boxes. The boxes shall be made up into a packet containing not more than 1 000 electric igniters. The packets shall be placed in a wooden packing case.

(2) In the case of fibre drums, a package containing articles of 7° (a) must weigh more than 75 kg. A package containing articles of 7° (b) must not weigh more than 50 kg; if it weighs more than 30 kg, it shall be fitted with means of handling.

2179 (1) Articles of 9° - 26° shall be enclosed (inner packaging):

(a) articles of 9° and 10°: in paper packagings or in boxes;

(b) articles of 11° (a): not more than 500 per fibreboard box or per small wooden case, secured by sawdust cushioning:

1. in fibreboard boxes which shall be wrapped in paper; or

2. in small wooden cases;

(c) articles of 11° (b): not more than 10 per book, in books; not more than 100 books together shall be packed in a fibreboard box or wrapped in stout paper;

(d) articles of 11° (c): not more than 10 per bag, in bags made of paper or of a suitable plastics material; not more than 100 bags together shall be packed in a fibreboard box;

(e) articles of 12°: not more than 25 per box, in fibreboard boxes;

(f) articles of 13°: in boxes wrapped in paper to form packets each containing not more than 12 boxes;

(g) articles of 14°: in boxes or in bags made of paper or of a suitable plastics material. These packagings shall be wrapped in paper to form packets each containing not more than 144 of these articles;

(h) articles of 15°: in fibreboard boxes each containing: not more than 100 caps each charged with not more than 5 mg explosive; or not more than 50 caps each charged with not more than 7.5 mg explosive.

Not more than 12 of these boxes shall be made up in paper into a roll and not more than 12 of these rolls shall be wrapped in packing paper to form a packet.

Strips (strings) of 50 caps, each cap being charged with not more than 5 mg explosive, may be packed in the following manner: 5 strips (strings) per box, in fibreboard boxes wrapped 6 together in paper equivalent in strength to Kraft paper of a minimum mass of 40 g/m^2; 12 small packets so made up shall be wrapped together in paper of the same quality to form a large packet;

(i) articles of 16°: secured by cushioning materials, not more than 50 per box, in fibreboard boxes. The corks shall be glued to the bottom of the boxes or fixed in position there by some equivalent method. Each box shall be wrapped in paper and not more than 10 of these boxes shall be wrapped in packing paper to form a packet;

(k) articles of 17°: not more than 5 per box, in fibreboard boxes. Not more than 200 boxes, arranged in rolls, shall be placed together in a collective fibreboard box;

(l) articles of 18°: secured by cushioning materials, not more than 10 per box, in fibreboard boxes. Not more than 100 boxes, arranged in rolls, shall be wrapped in paper to form a packet;

(m) articles of 19°: secured by cushioning materials, not more than 15 per box, in fibreboard boxes. Not more than 144 boxes, arranged in rolls, shall be packed in a second fibreboard box;

(n) articles of 20° (a): secured by cushioning materials, not more than 144 per case, in fibreboard cases;

(o) articles of 20° (b): not more than 75 per box, in fibreboard boxes; not more than 72 boxes shall be wrapped in fibreboard to form a packet;

(p) articles of 21°: in fibreboard boxes or in stout paper. If the ignition point of the articles is not covered by a protective cap, each article must first be wrapped separately in paper. The propellent charge of bombs weighing more than 5 kg shall be protected by a paper case covering the lower part of the bomb;

(q) articles of 22°: in fibreboard boxes or in stout paper. However, large fireworks need not have an inner packaging if their ignition point is covered by a protective cap;

(r) articles of 23°: secured by cushioning materials in boxes made of wood or fibreboard. The ignition heads shall be protected by a protective cap;

(s) articles of 24°: in fibreboard boxes or in stout paper;

(t) articles of 25°: in fibreboard boxes or in stout paper. However, large fireworks need not have an inner packaging if their ignition point is covered by a protective cap;

(u) articles of 26°: in fibreboard boxes. A box must not contain more than 3 glass tubes.

(2) The inner packagings mentioned under (1) shall be placed:

(a) packagings containing articles of 10°, 13° and 14°, in wooden packing cases;

(b) packagings containing substances or articles of 9°, 11°, 12° and 15° - 26°, in wooden packing cases with

well - jointed sides not less than 18 mm thick, lined with stout paper or thin zinc or aluminium sheet. A side thickness of 11 mm is sufficient for a package weighing not more than 35 kg if the case is encircled with an iron band.

The contents of a packing case are to be limited as follows:

for articles of 17°, to 50 outer fibreboard boxes;

for articles of 18°, to 25 packets;

for articles of 20° (a), to 50 fibreboard cases;

for articles of 20° (b), to 50 packets, each of 72 fibreboard boxes; and

for articles of 21°, to a number of articles such that the mass of their total charge does not exceed 56 kg;

(c) packaging containing magnesium flash powders (26°), either in conformity with (b) above, or in wooden packing cases each weighing not more than 5 kg, or, in the case of packagings in the form of paper bags, in strong fibreboard cases each weighing not more than 5 kg.

(3) Wooden cases containing articles with an explosive charge with a phosphorus and chlorate base must be closed by means of screws.

(4) A package containing articles of 9°, 11°, 12°, 15° - 22° or 24° - 26° must not weigh more than 100 kg; it must not weigh more than 50 kg if it contains articles of 23° or more than 35 kg if the sides of the case are only 11 mm thick and the case is encircled with an iron band.

2180 (1) Substances or articles of 27° shall be packed in wooden cases lined with packing paper, oiled paper or corrugated fibreboard. No lining is necessary if these substances and articles are wrapped in paper or fibreboard.

(2) A package must not weigh more than 100 kg.

(3) Smoke-producing cartridges for use as pesticides may, if wrapped in paper or fibreboard, likewise be packed:

(a) in corrugated-fibreboard boxes or in strong fibreboard cases; such a package must not weigh more than 20 kg; or

(b) in ordinary-fibreboard cases; such a package must not weigh more than 5 kg.

3. Mixed packing

2181 (1) Substances and articles grouped under the same item number may be included in the same package. The inner packagings shall conform to what is laid down for each dangerous substance, and the outer packaging shall be that laid down for the dangerous substances of the item number in question. In this connection a fibreboard case containing articles of 20° (a) shall be deemed equivalent to a packet containing articles of 20° (b).

(2) If smaller quantities are not prescribed in the section entitled "Packing of a single substance or of articles of the same kind", dangerous substances of this class, in quantities not exceeding 6 kg for all of the dangerous substances listed under the same item number or the same letter, may be enclosed in the same package either with dangerous substances of another item number or of another letter of the same class, or with dangerous substances belonging to other classes (if mixed packing is likewise permitted in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001 (7) and 2002 (6) and (7) must be observed.

A package must not weigh more than 100 kg, or more than 50 kg if it contains articles of 23°

Special conditions:

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
1°	Matches	5 kg	5 kg	Must not be packed together with substances of Classes 3, 4.1 and 4.2
2° and 3°	Strips of amorces and slow-combustion fuses	Mixed packing not allowed		
4°	Pyroxylin thread		1 500 m of pyroxylin thread	
5° – 8°	All articles	Mixed packing not allowed		
9° – 20°	All articles			Mixed packing allowed only with small wares or non-pyrotechnic toys, from which they must be kept separate. The collective case must meet the requirements laid down for those articles contained therein in respect of which marginal 2179 (2) and (3) imposes the most stringent conditions
21° – 25°	All articles			Mixed packing allowed only with one another. The collective case must meet the requirements laid down for those articles contained therein in respect of which marginal 2179 (2) and (3) imposes the most stringent conditions
26° and 27°	All articles and substances	Mixed packing not allowed		

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing articles of Class 1c, 16° or 21° to 23° shall bear a label conforming to model No. 1.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 12.

B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2171; it must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 1c, 1° (a), ADR]. The wording "Fireworks of ADR, 1c, item number .....", with particulars of the item numbers under which the substances or articles to be carried are listed, is also allowed in the transport document.

(2) In the case of substances or articles of 2°, 4°, 5°, 8°, 9°, 11°, 12° and 15° - 27°, the following must be certified in the transport document: "The nature of the goods, and the packaging, are in conformity with the provisions of ADR".

C. Empty packagings

No provisions.

CLASS 2 GASES: COMPRESSED, LIQUEFIED OR DISSOLVED UNDER PRESSURE

1. List of substances

(1) Among the substances and articles covered by the heading of Class 2, only those listed in marginal 2201 are to be accepted for carriage, and then only subject to the requirements of this Annex and to the provisions of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

(2) Substances having a critical temperature lower than 50°C or, at 50°C, a vapour pressure greater than 300 kPa(3 bar) are deemed to be substances of Class 2.

(3) The substances and articles of Class 2 are classified as follows:

A: Compressed gases having a critical temperature below −10°C;

B: Liquefied gases having a critical temperature of −10°C or above:

a. Liquefied gases having a critical temperature of 70°C or above;

b. Liquefied gases having a critical temperature of −10°C or above, but below 70°C;

C: Deeply-refrigerated liquefied gases;

D: Gases dissolved under pressure;

E: Aerosol dispensers and non-refillable containers of gas under pressure;

F: Gases subject to special requirements; and

G: Empty receptacles and empty tanks.

The substances and articles of Class 2 are subdivided according to their chemical properties, as follows:

(a) non-inflammable;

(a t) non-inflammable, toxic;

(b) inflammable;

(b t) inflammable, toxic;

(c) chemically unstable;

(c t) chemically unstable, toxic.

Unless otherwise specified, chemically unstable substances shall be considered to be inflammable.

The names of corrosive gases and of articles containing such gases shall be followed by the word "corrosive" in brackets.

(4) Substances of Class 2 which are listed among the chemically unstable gases are to be accepted for carriage
2182 only if the necessary steps have been taken to prevent their dangerous decomposition, dismutation or polymerization during carriage.

To this end, care should in particular be taken to ensure that receptacles and tanks do not contain any substances li-
2183 able to promote these reactions.

A. Compressed gases [see also marginal 2201a under 2201
2184 (a)]. For gases of 1° (a) and (b) and 2° (a) in aerosol dispensers or in non-refillable containers for gases under pressure, see under 10° and 11°. Gases having a critical temperature below −10°C are considered to be compressed gases for the purposes of ADR.

1° Pure gases and technically-pure gases

(a) Non-inflammable

Argon; helium; krypton; neon; nitrogen; oxygen; tetrafluoromethane (R 14).

(a t) Non-inflammable, toxic

Boron trifluoride; fluorine (corrosive); silicon tetrafluoride (corrosive).

(b) Inflammable

2185- Deuterium; hydrogen; methane.
2189 (b t) Inflammable, toxic

Carbon monoxide.

2190 (c t) Chemically unstable, toxic

2191- Nitric oxide (nitrogen monoxide) NO (non-inflammable).
2199

2° Mixture of gases

(a) Non-inflammable

Mixtures of two or more of the following gases: rare gases (containing not more than 10 per cent xenon by volume), nitrogen, oxygen, carbon dioxide (not more than 30
2200 per cent by volume); non-inflammable mixtures of two or more of the following gases: hydrogen, methane, nitrogen, rare gases (containing not more than 10 per cent xenon by volume), not more than 30 per cent carbon dioxide by volume; nitrogen containing not more than 6 per cent ethylene by volume; air.

(b) Inflammable

Mixtures of not less than 90 per cent methane by volume with hydrocarbons of 3° (b) and 5° (b); inflammable mixtures of two or more of the following gases: hydrogen, methane, nitrogen, rare gases (containing not more than 10 per cent xenon by volume), not more than 30 per cent carbon dioxide by volume; natural gas.

(b t) Inflammable, toxic

Town gas; mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; water gas; synthesis gas (e.g. from the Fischer-Tropsch process); mixtures of carbon monoxide with hydrogen or with methane.

(c t) Chemically unstable, toxic

Mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume.

B. Liquefied gases [see also marginal 2201a under (b) and (e)]. For gases of 3° to 6° in aerosol dispensers or in non-refillable containers for gases under pressure, see under 10° and 11°. Gases having a critical temperature of −10°C or above are considered to be liquefied gases for the purposes of ADR.

a. Liquefied gases having a critical temperature of 70°C or above:

3° Pure gases and technically-pure gases

(a) Non-inflammable

Bromochlorodifluoromethane (R 12 B 1); chlorodifluoromethane (R 22); chloropentafluoroethane (R 115); 1-chloro-2,2,2-trifluoroethane (R 133a); dichlorodifluoromethane (R 12); dichlorofluoromethane (R 21); 1,2-dichloro-1,1,2,2,-tetrafluoroethane (R 114); octafluorocyclobutane (RC 318).

(a t) Non-inflammable, toxic

Ammonia; boron chloride (corrosive); chlorine (corrosive); chlorine trifluoride (corrosive); hexafluoropropylene (R 1216); hydrogen bromide (corrosive); methyl bromide; nitrosyl chloride (corrosive); nitrogen dioxide NO_2 (nitrogen peroxide, nitrogen tetroxide N_2O_4) (corrosive); phosgene (corrosive); sulphur dioxide; sulphuryl fluoride; tungsten hexafluoride.

(b) Inflammable

Butane; 1-butylene (1-butene); 1-chloro-1,1-difluoroethane (R 142b); cis-2-butylene (cis-2-butene); cyclopropane; 1,1-difluoroethane (R 152a); dimethyl ether; isobutane; isobutylene (isobutene); methylsilane; propane; propylene; trans-2-butylene (trans-2-butene); 1,1,1-trifluoroethane.

(b t) Inflammable, toxic

Arsine; dichlorosilane; dimethylamine; dimethylsilane; ethylamine; ethyl chloride; hydrogen selenide; hydrogen sulphide; methylamine; methyl chloride; methyl mercaptan; trimethylamine; trimethylsilane.

(c) Chemically unstable

1,2-butadiene; 1,3-butadiene; vinyl chloride.

NOTE: In receptacles containing 1,2-butadiene, the oxygen concentration in the gaseous phase shall not exceed 50 ml/m³.

(c t) Chemically unstable, toxic

Cyanogen; cyanogen chloride (non-inflammable) (corrosive); ethylene oxide; methyl vinyl ether; trifluorochloroethylene (R 1113); vinyl bromide.

NOTE: In the case of halogenated hydrocarbons, the use of names customary in the trade, such as the following, is also permitted: Algofrene, Arcton, Edifren, Flugene, Forane, Freon, Fresane, Frigen, Isceon, Kaltron, followed by the substance identification number without the letter R.

4° Mixtures of gases

(a) Non-inflammable

Mixtures of substances listed under 3° (a) with or without hexafluoropropylene of 3° (a t), which as:

mixture F 1, have a vapour pressure at 70°C not exceeding 1.3 MPa(13 bar) and a density at 50°C not lower than that of dichlorofluoromethane (1.30);

mixture F 2, have a vapour pressure at 70°C not exceeding 1.9 MPa(19 bar) and a density at 50°C not lower than that of dichlorodifluoromethane (1.21);

mixture F 3, have a vapour pressure at 70°C not exceeding 3 MPa(30 bar) and a density at 50°C not lower than that of chlorodifluoromethane (1.09);

NOTES: 1. Trichlorofluoromethane (R 11), trichlorotrifluoroethane (R 113) and chlorotrifluoroethane (R 133) are not liquefied gases within the meaning of ADR and thus are not subject to the requirements of ADR. They may, however, enter into the composition of mixtures F 1 to F 3.

2. See NOTE under 3°.

The azeotropic mixture of dichlorodifluoromethane (R 12) and 1,1-difluoroethane (R 152a), known as R 500;

The azeotropic mixture of chloropentafluoroethane (R 115) and chlorodifluoromethane (R 22), known as R 502;

The mixture of 19 to 21 per cent by mass dichlorodifluoromethane (R 12) and 79 to 81 per cent by mass bromochlorodifluoromethane (R 12 B1).

(a t) Non-inflammable, toxic

Mixtures of methyl bromide and chloropicrin having a vapour pressure above 300 kPa(3 bar) at 50°C.

(b) Inflammable

Mixtures of hydrocarbons listed under 3° (b) and of ethane and ethylene of 5° (b), which as:

mixture A, have a vapour pressure at 70°C not exceeding 1.1 MPa(11 bar) and a density at 50°C not lower than 0.525;

mixture A 0, have a vapour pressure at 70°C not exceeding 1.6 MPa(16 bar) and a density at 50°C not lower than 0.495;

mixture A 1, have a vapour pressure at 70°C not exceeding 2.1 MPa(21 bar) and a density at 50°C not lower than 0.485;

mixture B, have a vapour pressure at 70°C not exceeding 2.6 MPa(26 bar) and a density at 50°C not lower than 0.450;

mixture C, have a vapour pressure at 70°C not exceeding 3.1 MPa(31 bar) and a density at 50°C not lower than 0.440;

NOTE: In the case of the foregoing mixtures, the use of the following names customary in the trade is permitted for describing these substances:

Name given under 4° (b)	Name customary in the trade
Mixture A, mixture A 0	butane
Mixture C	propane
Mixtures of hydrocarbons of 3° (b) and 5° (b) containing methane.	

(b t) Inflammable, toxic

Mixtures of two or more of the following gases: methylsilane, dimethylsilane, trimethylsilane; methyl chloride and methylene chloride in mixtures having a vapour pressure above 300 kPa(3bar) at 50°C; mixtures of methyl chloride and chloropicrin and mixtures of methyl bromide and ethylene bromide having in either case a vapour pressure above 300 kPa(3 bar) at 50°C.

(c) Chemically unstable

Mixtures of 1,3-butadiene and hydrocarbons of 3° (b) having a vapour pressure at 70°C not exceeding 1.1 MPa(11 bar) and a density at 50°C not lower than 0.525;

Mixtures of methylacetylene and propadiene with the hydrocarbons of 3° (b), which as:

mixture P 1, contain not more than 63 per cent methylacetylene and propadiene by volume and not more than 24 per cent propane and propylene by volume, the percentage of C_4-saturated hydrocarbons being not less than 14 per cent by volume; and as

mixture P 2, contain not more than 48 per cent methylacetylene and propadiene by volume and not more than 50 per cent propane and propylene by volume, the percentage of C_4-saturated hydrocarbons being not less than 5 per cent by volume.

(c t) Chemically unstable, toxic

Ethylene oxide containing not more than 10 per cent carbon dioxide by mass; ethylene oxide containing not more than 50 per cent methyl formate by mass, with nitrogen up to a total pressure not exceeding 1 MPa(10 bar) at 50°C; ethylene oxide with nitrogen up to a total pressure of 1 MPa(10 bar) at 50°C; dichlorodifluoromethane containing 12 per cent ethylene oxide by mass.

b. Liquefied gases having a critical temperature of −10°C or above, but below 70°C:

5° Pure gases and technically-pure gases

(a) Non-inflammable

Bromotrifluoromethane (R 13 B 1); carbon dioxide; chlorotrifluoromethane (R 13); hexafluoroethane (R 116); nitrous oxide N_2O; sulphur hexafluoride; trifluoromethane (R 23); xenon.

With regard to carbon dioxide, see also marginal 2201a under (c).

NOTES: 1. Nitrous oxide is to be accepted for carriage only if it is not less than 99 per cent pure.

2. See NOTE under 3°.

(a t) Non-inflammable, toxic

Hydrogen chloride (corrosive).

(b) Inflammable

Ethane; ethylene; silane.

(b t) Inflammable, toxic

Germane; phosphine.

(c) Chemically unstable

1,1-difluoroethylene; vinyl fluoride.

(c t) Chemically unstable, toxic

Diborane.

6° Mixtures of gases

(a) Non-inflammable

Carbon dioxide containing not less than 1 per cent and not more than 10 per cent nitrogen, oxygen, air or rare gases by mass; the azeotropic mixture of chlorotrifluoromethane (R 13) and trifluoromethane (R 23) known as R 503.

NOTE: Carbon dioxide containing less than 1 per cent nitrogen, oxygen, air or rare gases by mass in a substance of 5° (a).

(c) Chemically unstable

Carbon dioxide containing not more than 35 per cent ethylene oxide by mass.

(c t) Chemically unstable, toxic

Ethylene oxide containing more than 10 per cent but not more than 50 per cent carbon dioxide by mass.

C. Deeply-refrigerated liquefied gases

7° Pure gases and technically-pure gases

(a) Non-inflammable

Argon; carbon dioxide; helium; krypton; neon; nitrogen; nitrous oxide N_2O; oxygen; xenon.

(b) Inflammable

Ethane; ethylene; hydrogen; methane.

8° Mixtures of gases

(a) Non-inflammable

Air; mixtures of substances of 7° (a)

(b) Inflammable

Mixtures of substances of 7° (b); natural gas.

D. Gases dissolved under pressure

9° Pure gases and technically-pure gases

(a t) Non-inflammable, toxic

Ammonia dissolved in water with more than 35 per cent but not more than 40 per cent ammonia by mass; ammonia dissolved in water with more than 40 per cent but not more than 50 per cent ammonia by mass.

NOTE: Ammonia solution containing not less than 10 per cent but not more than 35 per cent ammonia is a substance of Class 8.

(c) Chemically unstable

Acetylene (dissolved in a solvent (e.g. acetone) absorbed by porous substances.

E. Aerosol dispensers and non-refillable containers of gas under pressure [see also marginal 2201a under (d)]:

NOTES:

1. Aerosol dispensers are receptacles which can be used only once, are equipped with a release valve or dispersal device, and contain, under pressure, a gas or mixture of gases listed in marginal 2208 (2) or contain an active substance (insecticide, cosmetic, etc.) together with such a gas or mixture of gases as a propellent.

2. Non-refillable containers of gas under pressure are receptacles which can be used only once and contain a gas or a mixture of gases listed in marginal 2208 (2) and (3) (e.g. butane for camp-cookers, refrigerant gases, etc.), but are not equipped with a release valve.

3. The term "inflammable substances" means:

(i) gases (propellent in aerosol dispensers; contents of non-refillable containers of gas under pressure) whose mixtures with air can be ignited and have a lower and an upper inflammability limit;

(ii) liquids (active substances in aerosol dispensers) of Class 3.

4. The term "chemically unstable" is applied to contents which in the absence of special precautions undergo dangerous decomposition or self-polymerization at a temperature of not more than 70°C.

10° Aerosol dispensers

(a) Non-inflammable

With non-inflammable contents.

(a t) Non-inflammable, toxic

With non-inflammable toxic contents.

(b) Inflammable

1. With not more than 45 per cent of inflammable contents by mass.

2. With more than 45 per cent of inflammable contents by mass.

(b t) Inflammable, toxic

1. With toxic contents and not more than 45 per cent of inflammable contents by mass.

2. With toxic contents and more than 45 per cent of inflammable contents by mass.

(c) Chemically unstable

With chemically-unstable contents.

(c t) Chemically unstable, toxic

With chemically-unstable toxic contents.

11° Non-refillable containers of gas under pressure

(a) Non-inflammable

With non-inflammable contents.

(a t) Non-inflammable, toxic

With non-inflammable toxic contents.

(b) Inflammable

With inflammable contents.

(b t) Inflammable, toxic

With inflammable toxic contents.

(c) Chemically unstable

With chemically-unstable contents.

(c t) Chemically unstable, toxic

With chemically-unstable toxic contents.

F. Gases subject to special requirements

12° Various mixtures of gases

Mixtures containing gases listed under other item numbers of this Class, and mixtures of one or more gases listed under other item numbers of this Class with one or more vapours of substances not excluded from carriage under ADR, on condition that during carriage:

1. the mixture remains entirely gaseous; and

2. all possibility of a dangerous reaction is excluded.

13° Test gases

Gases and mixtures of gases not listed under other item numbers of this Class and used only in laboratory tests, on condition that during carriage:

(a) the gas or mixture of gases remains entirely gaseous; and

(b) all possibility of a dangerous reaction is excluded.

G. Empty receptacles and empty tanks

14° Empty receptacles and empty tanks, uncleaned, which have contained tetrafluoromethane of 1° (a), substances of 1°, (a t) - (c t); 2°, (b) – (c t); 3° – 6°; carbon dioxide and nitrous oxide of 7° (a); or substances of 7° (b), 8° (b), 9°, 12° or 13°.

NOTES:

1. Receptacles and tanks which after being emptied of substances listed under 14° still contain small residual amounts are regarded as empty receptacles or empty tanks, uncleaned.

2. Empty receptacle or empty tanks, uncleaned, which have contained gases of 1° (a) other than tetrafluoromethane (R 14), or gases of 2° (a), 7° (a) other than carbon dioxide and nitrous oxide, or 8° (a), are not subject to the requirements of ADR.

Gases and articles handed over for carriage in conformity with the following provisions are not subject to the requirements or provisions relating to this Class set out elsewhere in this Annex or in Annex B:

(a) compressed gases which are neither inflammable nor toxic nor corrosive and whose pressure in the receptacle, referred to a temperature of 15°C, does not exceed 200 kPa(2 bar); the same rule applies to mixtures of gases containing not more than 2 per cent inflammable components;

(b) liquefied gases contained, in quantities not exceeding 60 l, or in quantities of less than 5 l with not more than 25 g hydrogen, in freezing appliances (refrigerators, ice machines, etc.) and necessary for their operation;

(c) carbon dioxide of 5° (a) in metal capsules (sodors, sparklets) if the carbon dioxide in the gaseous state does not contain more than 0.5 per cent air and the capsules contain not more than 25 g carbon dioxide and not more than 0.75 g per cm^3 of capacity;

(d) articles of 10° and 11° of a capacity not exceeding 50 cm^3. A package of such articles shall not weigh more than 10 kg;

(e) liquefied petroleum gases contained in motor-vehicle tanks firmly secured to the vehicles; the fuel cock between tank and engine must be closed and the electrical contact open.

2. Provisions

A. Packages

1. General conditions of packing

(1) The materials of which the receptacles and their closures are made must not be liable to attack by the contents or from harmful or dangerous compounds therewith.

NOTE: Care must be taken not to allow any moisture to enter receptacles when they are being filled, and to dry receptacles completely after hydraulic pressure tests (see marginal 2216) carried out with water or with aqueous solutions.

(2) Packagings, including their closures, shall be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. When outer packagings are prescribed, the receptacles shall be firmly secured therein. Unless otherwise specified in the section entitled "Packing of a single substance or of articles of the same kind", inner packagings may be enclosed in outer packagings either singly or in groups.

(3) Metal receptacles intended for the carriage of gases of 1° to 6° and 9° shall contain only the gas for which they have been tested and whose name is inscribed on the receptacle [see marginal 2218 (1) (a)].

Derogations are allowed:

1. for metal receptacles tested for one of the substances of 3° (a) or 4° (a) or for bromotrifluoromethane, chlorotrifluoromethane or trifluoromethane of 5° (a). These receptacles may also be filled with some other substance of the aforesaid items on condition that the minimum test pressure prescribed for that substance does not exceed the test pressure of the receptacle and that the name of the substance and its permissible maximum filling mass are inscribed on the receptacle;

2. for metal receptacles tested for hydrocarbons of 3° (b) or 4° (b). These receptacles may also be filled with some other hydrocarbon on condition that the minimum test pressure prescribed for that substance does not exceed the test pressure of the receptacle and that the name of the substance and its permissible maximum filling mass are inscribed on the receptacle.

For 1 and 2, see also marginals 2215, 2218 (1) (a) and 2220, (1) to (3).

(4) A change in the use to which a receptacle is assigned is allowed in principle if it does not conflict with national regulations; it requires, however, the approval of the competent authority and replacement of the former markings by markings relating to the new use.

2201a

2. Packing of a single substance or of articles of the same kind

NOTE: For carbon dioxide and nitrous oxide of 7° (a), mixtures containing carbon dioxide and nitrous oxide of 8° (a) and the gases of 7° (b) and 8° (b), see Annex B, marginal 21 105.

a. Nature of receptacles

(1) Receptacles intended for the carriage of gases of 1° to 6°, 9°, 12° and 13° shall be so closed and leak-proof as to prevent any escape of the gases. 2203

(2) These receptacles shall be made of carbon steel or of alloy steel (special steels).

The following may, however, be used:

(a) copper receptacles for:

1. compressed gases of 1°, (a), (b) and (b t), and 2°, (a) and (b), whose filling pressure referred to a temperature of 15°C does not exceed 2 MPa (20 bar); and

2. liquefied gases of 3° (a); sulphur dioxide of 3° (a t); dimethyl ether of 3° (b); ethyl cloride and methyl cloride of 3° (b t); vinyl chloride of 3° (c); vinyl bromide of 3° (c t); mixtures F 1, F 2 and F 3 of 4° (a); and ethylene oxide containing not more than 10 per cent carbon dioxide by mass of 4° (c t);

(b) aluminium-alloy receptacles (see Appendix A.2) for:

1. compressed gases of 1°, (a), (b) and (b t); nitric oxide (nitrogen monoxide) NO of 1° (c t); and compressed gases of 2°, (a), (b) and (b t);

2202 2. liquefied gases of 3° (a); sulphur dioxide of 3° (a t); liquefied gases of 3° (b) other than methylsilane; hydrogen selenide, and methyl mercaptan of 3° (b t); ethylene oxide of 3° (c t); liquefied gases of 4°, (a) and (b); ethylene oxide containing not more than 10 per cent carbon dioxide by weight, of 4° (c t); and liquefied gases of 5°, (a) and (b), and 6°, (a) and (c). Sulphur dioxide of 3° (a t) and substances of 3° (a) and 4° (a) shall be dry; and

3. dissolved acetylene of 9° (c).

All gases which are to be carried in aluminium-alloy receptacles shall be free from alkaline impurities.

2204 (1) Receptacles for dissolved acetylene of 9° (c) shall be entirely filled with a porous material, uniformly distributed, of a type approved by the competent authority and which

(a) does not attack the receptacles or form harmful or dangerous compounds either with acetylene or with the solvent;

(b) does not shake down, even after prolonged use or through jolting, at temperatures up to 60°C;

(c) is capable of preventing the spread of decomposition of the acetylene in the mass.

(2) The solvent must not attack the receptacles.

2205 (1) The following liquefied gases may, in addition, be carried in thick-walled glass tubes on condition that the quantity of substance in each tube and the degree of filling of the tubes do not exceed the figures indicated below:

Names of gases	Quantity of substance	Degree of filling of tube
Carbon dioxide, nitrous oxide N_2O of 5° 3(a), ethane, ethylene of 5° (b)	3g	one-half of capacity
Ammonia, chlorine, methyl bromide of 3° (a t), cyclopropane of 3° (b), ethyl chloride of 3° (b t)	20g	two-thirds of capacity
Phosgene, sulphur dioxide of 3° (a t),	100g	three-quarters of capacity

(2) The glass tubes shall be flame-sealed and secured separately by infusorial-earth cushioning in closed sheet-metal capsules which shall be placed in a wooden case or in

some other outer packaging of sufficient strength (see also marginal 2222).

(3) For sulphur dioxide of 3° (a t) stout glass siphons containing not more than 1.5 kg of substance and filled to not more than 88 per cent of their capacity are also allowed. The siphons shall be secured by infusorial earth, sawdust or powdered carbonate of lime, or by a mixture of the two latter, in strong wooden cases or in some other outer packaging of sufficient strength. A package shall not weigh more than 100 kg. If it weighs more than 30 kg, it shall be fitted with means of handling.

2206 (1) Gases of 3° (a); 3° (b) other than methylsilane; 3° (b t) other than arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane; 3° (c); 3° (c t) other than cyanogen chloride; and mixtures of 4° (a) and 4° (b), may also, on condition that the mass of liquid per litre of capacity does not exceed either the maximum mass of contents indicated in marginal 2220 or 150 g per tube, be contained in thick-walled glass tubes, or in thick-walled metal tubes made of a metal allowed by marginal 2203 (2). The tubes shall be free from faults liable to impair their strength; in particular, internal stresses in glass tubes shall have been suitably relieved and the thickness of the tube walls shall not be less than 2 mm. The leakproofness of the closure system shall be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage. The tubes shall be secured by cushioning material in small boxes made of wood or fibreboard, the number of tubes per box being such that the mass of the liquid contained in a box does not exceed 600 g. These small boxes shall be placed in wooden cases or in some other outer packaging of sufficient strength; if the liquid contents of a case weigh more than 5 kg, the case shall be lined with soft-soldered sheet-metal.

(2) A package shall not weigh more than 75 kg.

2207 (1) Gases of 7° (a) other than carbon dioxide and nitrous oxide, and of 8° (a) other than mixtures containing carbon dioxide and nitrous oxide, shall be enclosed in closed, double-walled metal receptacles which are so insulated that they cannot become coated with dew or hoar-frost and which are fitted with safety valves.

(2) Gases of 7° (a) other than carbon dioxide and nitrous oxide, and of 8° (a) other than mixtures containing carbon dioxide and nitrous ocide, may also be enclosed in receptacles which are not hermetically closed and which are:

(a) double-walled vacuum-jacketed glass receptacles surrounded by an absorbent insulating material; these receptacles shall be protected by iron-wire baskets and placed in metal cases; or

(b) metal receptacles protected against heat transmission in such a way that they cannot become coated with dew or hoar-frost; the capacity of these receptacles shall not exceed 100 litres.

(3) Th metal cases referred to in subparagraph (2)(a) and the receptacles referred to in subparagraph (2)(b) above shall be fitted with means of handling. The openings of the receptacles referred to in subparagraphs (2)(a) and (b) shall be fitted with devices allowing gases to escape, preventing any splashing out of the liquid, and so fixed that they cannot fall out. In the case of oxygen of 7° (a) and mixtures containing oxygen of 8° (a), the devices referred to above and the absorbent insulating material surrounding the receptacles referred to in subparagraph (2)(a) shall be made of incombustible materials.

2208 (1) Aerosol dispensers (10°) and non-refillable containers for gas under pressure (11°) shall satisfy the following requirements;

(a) aerosol dispensers containing only a gas or a mixture of gases, and non-refillable containers for gas under pressure, shall be made of metal. This requirement shall not apply to non-refillable containers for gas under pressure with a maximum capacity of 100 ml for butane. Other aerosol dispensers shall be made of metal, a plastics material or glass. Receptacles made of metal and having an outside diameter of not less than 40 mm shall have a concave bottom;

(b) receptacles made of materials liable to shatter, such as glass or certain plastics materials, shall be enclosed in a device (close-mesh wire netting, flexible cover made of a plastics material, etc.) affording protection against fragments and their dispersal. Receptacles whose capacity does not exceed 150 cm^3 and whose internal pressure at 20°C is below 0,15 MPa (1.5 bar) are exempted from this requirement;

(c) the capacity of receptacles made of metal shall not exceed 1,000 cm^3; that of receptacles made of a plastics material or of glass shall not exceed 500 cm^3;

(d) each model of receptacle shall, before being put into service, satisfy a hydraulic pressure test carried out in conformity with Appendix A.2, marginal 3291. The internal pressure to be applied (test pressure) shall be 1.5 times the internal pressure at 50°C, with a minimum pressure of 1 MPa (10 bar);

(e) the release valves of aerosol dispensers, and their dispersal devices, shall ensure that the dispensers are so closed as to be leak-proof and shall be protected against accidental opening. Valves and dispersal devices which close only by the action of the internal pressure are not to be accepted.

(2) The following gases shall be accepted as propellants, or as constituents of propellants, or as filler gases, for aerosol dispensers: gases of 1°, (a) and (b); 2°, (a) and (b); 3°, (a) and (b) other than methylsilane; ethyl chloride of 3° (b t); 1,3-butadiene of 3° (c); trifluorochloroethylene of 3° (c t); gases of 4°, (a) and (b); gases of 5°, (a) and (b) other than silane; gases of 5° (c) and 6° (a) and (c).

(3) All the gases listed under (2) and, in addition, the following gases shall be accepted as filling gases for non-refillable containers for gas under pressure; methyl bromide of 3° (a t); dimethylamine, ethylamine, methylamine, methyl mercaptan and trimethylamine of 3° (b t); ethylene oxide, methyl vinyl ether and vinyl bromide of 3° (c t); ethylene oxide containing not more than 10 per cent carbon dioxide by mass, of 4° (c t).

2209 (1) The internal pressure at 50°C of aerosol dispensers and of non-refillable containers of gas under pressure shall exceed neither two-thirds of the test pressure of the receptacle nor 1.2 MPa (12 bar).

(2) Aerosol dispensers and non-refillable containers of gas under pressure shall be so filled that at 50°C the liquid phase does not exceed 95 per cent of their capacity. The capacity of aerosol dispensers is the available volume in a closed dispenser fitted with the valve support, the valve and the dip tube.

(3) All aerosol dispensers and non-refillable containers for gas under pressure shall satisfy a tightness (leakproofness) test in conformity with Appendix A.2, marginal 3292.

2210 (1) Aerosol dispensers and non-refillable containers of gas under pressure shall be placed in wooden cases or strong fibreboard or metal boxes; aerosol dispensers made of glass or a plastics material and liable to shatter shall be separated from one another by interposed sheets of fibreboard or of another suitable material.

(2) A package shall not weigh more than 50 kg if fibreboard boxes are used or more than 75 kg if other packagings are used.

(3) Where carriage is by full load, each load comprising only aerosol dispensers made of metal, the dispensers may be grouped together and secured on trays with the aid of an appropriate plastics material, by means of a shrinkage and heat-sealing process, on condition that the groups of dispensers are then stacked and suitably secured on pallets.

b. Conditions governing metal receptacles

(These conditions are not applicable to the metal tubes referred to in marginal 2206, to the receptacles referred to

in marginal 2207 (2)(b), or to the aerosol dispensers or non-refillable metal containers for gas under pressure referred to in marginal 2208).

1. Construction and fittings (see also marginal 2238).

2211 (1) At the test pressure, the stress in the metal at the most severely stressed point of the receptacle (marginals 2215, 2219 and 2220) shall not exceed three-quarters of the guaranteed minimum yield stress (Re). By "yield stress" is meant the stress at which a permanent elongation of 2°/oo (i.e. 0.2 per thousand) or, for austenitic steels, 1 per cent of the gauge length on the test-piece, has been produced.

NOTE: In the case of sheet-metal the axis of the tensile test-piece shall be at right angles to the direction of rolling. The permanent elongation at fracture (l = 5 d) shall be measured on a test-piece of circular cross-section in which the gauge length l is equal to five times the diameter d; if test-pieces of rectangular cross-section are used, the gauge length shall be calculated by the formula $l = 5.65 \sqrt{F_0}$, where F_0 indicates the initial cross-sectional area of the test-piece.

(2) (a) Steel receptacles whose test pressure exceeds 6 MPa (60 bar) shall be of seamless construction or welded. For welded receptacles, steels (carbon or alloy) of fully satisfactory weldability shall be used.

(b) Receptacles whose test pressure does not exceed 6 MPa (60 bar) shall either conform to the provisions of subparagraph (a) above, or be riveted or hard-soldered on condition that the manufacturer guarantees the workmanship of the riveting and hard-soldering and that the competent authorities of the country of origin have given their approval.

(3) Aluminium-alloy receptacles shall be seamless or welded.

(4) Welded receptacles are to be accepted only on condition that the manufacturer guarantees the workmanship of the welding and that the competent authorities of the country of origin have given their approval.

2212 (1) A distinction is made between the following types of receptacles:

(a) cylinders of a capacity not exceeding 150 litres;

(b) receptacles of a capacity of not less than 100 litres [with the exception of cylinders in conformity with subparagraph (a)] and not more than 1 000 litres (e.g. cylindrical receptacles equipped with rolling hoops, and receptacles on skids);

(c) tanks (see Annex B);

(d) assemblies, known as "frames", of cylinders in conformity with subparagraph (1)(a), the cylinders being interconnected by a manifold and held firmly together by a metal fitting.

(2) (a) If under the regulations of the country of departure the cylinders referred to in subparagraph (1)(a) are required to be fitted with a device to prevent rolling, this device shall not be integral with the valve cap (marginal 2213 (2)).

(b) Receptacles in conformity with subparagraph (1) (b) which are capable of being rolled shall be equipped with rolling hoops or be otherwise protected against damage due to rolling (e.g. by corrosion-resistant metal sprayed on to the receptacle's outer surface).

Receptacles in conformity with subparagraphs (1) (b) and (1) (c) which are not capable of being rolled shall be fitted with devices (skids, rings, straps) ensuring that they can be safely handled by mechanical means and so arranged as not to impair the strength of, nor cause undue stresses in, the wall of the receptacle.

(c) Frames of cylinders in conformity with subparagraph (1) (d) shall be fitted with devices ensuring that they can be handled safely. The manifold and the master cock shall be situated within the frame and be so mounted as to be protected against any damage.

(3) (a) With the exceptions of gases of 7° and 8°, gases of Class 2 may be carried in cylinders in conformity with subparagraph (1) (a).

NOTE: For possible limitations on the capacity of cylinders for certain gases, see marginal 2219.

(b) With the exception of fluorine and silicon tetrafluoride of 1° (a t); nitric oxide (NO) of 1° (c t); mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume of 2° (b t); mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume of 2° (c t); boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride of 3° (a t); methylsilane of 3° (b); arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane of 3° (b t); cyanogen chloride, cyanogen and ethylene oxide of 3° (c t); mixtures of methylsilanes of 4° (b t); ethylene oxide containing not more than 50 per cent methylformate by mass, of 4° (c t); nitrous oxide of 5° (a); silane of 5° (b); and substances of 5° (b t), 5° (c t), 7°, 8°, 12° and 13°, gases of Class 2 may be carried in receptacles in conformity with subparagraph (1) (b).

(c) With the exception of silicon tetrafluoride of 1° (a t); nitric oxide of 1° (c t); mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume of 2° (b t); mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume of 2° (c t); boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride of 3° (a t); methylsilane of 3° (b); arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane of 3° (b t); cyanogen chloride, cyanogen and ethylene oxide of 3° (c t); mixtures of methylsilanes of 4° (b t); substances of 4° (c) and 4° (c t) other than dichlorodifluoromethane containing 12 per cent ethylene oxide by mass; nitrous oxide of 5° (a); silane of 5° (b); and substances of 5° (b t), 5° (c t), 7°, 8°, 12° and 13°, gases of Class 2 may be carried in frames of cylinders in conformity with subparagraph (1)(d). The individual cylinders in a frame of cylinders shall contain only one and the same compressed gas, liquefied gas or gas dissolved under pressure. Each cylinder in a frame of cylinders for fluorine of 1° (a t) or dissolved acetylene of 9° (c) shall, however, be fitted with a cock. The cylinders in a frame of cylinders for acetylene shall all contain the same porous material (marginal 2204).

2213 (1) Openings for filling and emptying receptacles shall be fitted with flap valves or needle-valves. Valves of other types may, however, be allowed if they present equivalent guarantees of safety and have been approved in the country of origin. Nevertheless, whatever the type of valve adopted, its system of attachment shall be strong and such that its satisfactory condition can be verified easily before each filling.

Apart from a manhole, which if provided shall be closed by an effective closure, and from the necessary orifice for the removal of deposits, receptacles and tanks in conformity with marginal 2212 (1) (b) and (c) shall not be equipped with more than two openings, for filling and discharge respectively. Nevertheless, receptacles of a capacity of not less than 100 l intended for the carriage of dis-

solved acetylene of 9° (c) may have more than two openings for filling and discharge.

Similarly, receptacles and tanks in conformity with marginal 2212 (1), (b) and (c), intended for the carriage of substances of 3° (b) and 4° (b) may be provided with other openings intended in particular for verifying the level of the liquid and the gauge pressure.

(2) Valves (cocks) shall be effectively protected by caps or fixed flanges. Caps shall possess vent-holes of sufficient cross-sectional area to evacuate gases if leakage occurs at the valves. The caps or flanges shall adequately protect the valve if the cylinder falls and during carriage and stacking. Valves placed inside the neck of the receptacles and protected by a screw-threaded plug, and receptacles carried packed in protective cases, shall not require a cap. Likewise, no protective cap shall be required for valves (cocks)on frames of cylinders.

(3) Receptacles containing fluorine of 1° (a t); clorine trifluoride of 3° (a t); or cyanogen cloride of 3° (c t) shall, whether or not they are carried packed in protective cases, be fitted with steel caps. These caps shall have no openings and shall, throughout carriage, be fitted with a gasket ensuring gas-tightness and made of a material not liable to attack by the contents of the receptacle.

(1) In the case of receptacles containing boron 2214
trifluoride or fluorine of 1° (a t); chlorine trifluoride or liquefied ammonia of 3° (a t); ammonia dissolved in water of 9° (a t); nitrosyl chloride of 3° (a t); or dimethylamine, ethylamine, methylamine or trimethylamine of 3° (b t), valves made of copper or of any other metal liable to be attacked by these gases are not to be accepted.

(2) The use of substances containing grease or oil for ensuring the leakproofness of joints (seams) or for maintaining the closure devices of receptacles used for oxygen of 1° (a); fluorine of 1° (a t); mixtures with oxygen of 2° (a); nitrogen dioxide, chlorine trifluoride of 3° (a t); nitrous oxide of 5° (a); or mixtures of 12° containing more than 10 per cent oxygen by volume is prohibited.

(3) The following requirements shall apply to the construction of the receptacles referred to in marginal 2207 (1):

(a) The materials and construction of the receptacles shall be in conformity with the requirements of Appendix A.2, B, marginals 3250 to 3254. All the mechanical and technological characteristics of the material used shall be established for each receptacle at the first test; with regard to the impact strength and the bending coefficient, see Appendix A.2, B, marginals 3265 to 3285.

(b) Receptacles shall be fitted with a safety valve which shall be capable of opening at the working pressure shown on the receptacle. The valves shall be so constructed as to work perfectly even at their lowest working temperature. Their reliability of functioning at that temperature shall be established and checked by testing each valve or a sample of valves of the same type of construction.

(c) The vents and safety valves of receptacles shall be so designed as to prevent the liquid from splashing out.

(d) The closing devices shall be so arranged that they cannot be opened by unqualified persons.

(e) Receptacles whose filling is measured by volume shall be provided with a level indicator.

(f) The receptacles shall be thermally insulated. The thermal insulation shall be protected against impact by means of continuous metal sheathing. If the space between the receptacle and the metal sheathing is airless (vacuum insulation), the protective sheathing shall be designed to withstand without deformation an external pressure of at least 100 kPa (1 bar). If the sheathing is so closed as to be gas-tight (e.g. in the case of vacuum insulation), a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the receptacle or its fittings. The device shall prevent moisture from penetrating into the insulation.

(4) In the case of receptacles containing mixtures P1 or P2 of 4° (c) or dissolved acetylene of 9° (c), metal parts of closing devices in contact with the contents shall not contain more than 70 per cent copper. Receptacles for dissolved acetylene of 9° (c) may also have stop-valves taking yoke connectors.

(5) Receptacles containing oxygen of 1° (a) or 7° (a) and fitted in fish-tanks are likewise to be accepted if they are provided with appliances enabling the oxygen to escape gradually.

2. Official test of receptacles (for aluminium-alloy receptacles, see also Appendix A.2).

(1) Metal receptacles shall be subjected to initial and periodic tests under the supervision of an expert approved by the competent authority. The nature of these tests is specified in marginals 2216 and 2217. 2215

(2) In order to ensure compliance with the requirements of marginals 2204 and 2221 (2), tests of receptacles intended to contain dissolved acetylene of 9° (c) shall include, in addition, examination of the nature of the porous material and of the quantity of solvent.

(1) The initial test of new or unused receptacles shall 2216
comprise:

A. On an adequate sample of receptacles:

(a) testing of the material of construction in respect at least of yield stress, tensile strength, and permanent elongation at fracture; the values yielded by these tests shall comply with national regulations;

(b) measurement of wall thickness at the thinnest point, and calculation of the stress;

(c) checking the homogeneity of the material for each manufacturing batch, and inspection of the external and internal condition of the receptacles;

B. For all receptacles:

(d) a hydraulic pressure test in conformity with the provisions of marginals 2219 to 2221;

(e) an inspection of the markings on the receptacles (see marginal 2218).

C. In addition, for receptacles intended for the carriage of dissolved acetylene of 9° (c):

(f) an inspection as required by national regulations.

(2) Receptacles shall withstand the test pressure without undergoing permanent deformation or exhibiting cracks.

(3) At the periodic inspections the following shall be repeated: the hydraulic pressure test; check of the external and internal condition of the receptacle (e.g. by weighing, internal inspection, checks of wall thickness); verification of the equipment and markings and, if necessary, verification of the characteristics of the material by suitable tests.

Periodic inspections shall be carried out:

(a) every 2 years in the case of receptacles intended for the carriage of gases of 1° (a t) and 1° (c t); town gas of 2° (b t); gases of 3° (a t) other than ammonia, hexafluoropropylene and methyl bromide; cyanogen chloride of 3° (c t); and substances of 5° (a t);

(b) every 5 years in the case of receptacles intended for the carriage of other compressed and liquified gases (subject to the provisions of subparagraph (c) below) and of receptacles for the carriage of ammonia dissolved under pressure of 9° (a t);

(c) every 10 years in the case of receptacles intended for the carriage of gases of 1° (a) other than oxygen; of mixtures of nitrogen with rare gases, of 2° (a); of gases of 3° (a) and 3° (b) other than 1-chloro-1,1-difluoroethane, 1,1-difluoroethane, dimethyl ether, methylsilane and 1,1,1-trifluoroethane, and of mixtures of gases of 4° (a) and 4° (b), if the receptacles have a capacity of not more than 150 litres and the country of origin does not prescribe a shorter interval;

(d) in the case of receptacles intended for the carriage of dissolved acetylene of 9° (c), marginal 2217 (1) shall apply, and in that of receptacles conforming to marginal

2207 (1), marginal 2217 (2) shall apply.

(1) The external condition (corrosion, deformation) of, and the condition (loosening, settlement) of the porous material in, receptacles intended for the carriage of dissolved acetylene of 9° (c) shall be examined every 5 years. Sampling shall be performed by cutting up, if considered necessary, a suitable number of receptacles and inspecting them internally for corrosion and for any changes that may have occurred in the constituent materials and in the porous material. 2217

(2) Receptacles conforming to marginal 2207 (1) shall be subjected every 5 years to external inspection and to a tightness (leakproofness) test. The tightness (leakproofness) test shall be carried out with the gas contained in the receptacle or with an inert gas at a pressure of 0.2 MPa (2 bar). Checking shall be performed by means of a pressure gauge or by vacuum measurement. The thermal insulation shall not be removed. The pressure shall not decline during the 8-hour test period. Changes resulting from the nature of the test gas or from variations in temperature shall be taken into account.

3. Marks on receptacles

(1) Metal receptacles shall bear the following particulars in clearly legible and durable characters: 2218

(a) one of the names of the gas or of the mixture of gases in full, as given in marginal 2201, 1° to 9°; the names or mark of the maker or owner; and the number of the receptacle [see also marginal 2202 (3)]. In the case of halogenated hydrocarbons of 1° (a), 3° (a), 3° (a t), 3° (b), 3° (c t), 4° (a), 5° (a) and 6° (a), the use of the letter R followed by the substance identification number is also permitted;

(b) the tare of the receptacle without fittings and accessories;

(c) in addition, in the case of receptacles intended for liquefied gases, the tare of the receptacle including such fittings and accessories as valves, metal plugs, etc., but excluding the protective cap;

NOTE to (b) and (c): Those particulars of the mass, in so far as they are not already marked on the receptacle, shall be so marked at the next periodic test.

(d) the test pressure (see marginals 2219 to 2221) and the date (month, year) of the last test undergone (see marginals 2216 and 2217);

(e) the stamp of the expert who carried out the tests and inspections; and, in addition:

(f) in the case of compressed gases or mixtures of compressed gases of 1°, 2°, 12° and 13°: the maximum filling pressure at 15° C allowed for the receptacle in question (see marginal 2219);

(g) in the case of boron fluoride of 1° (a t), liquefied gases of 3° to 6° and ammonia dissolved in water of 9° (a t): the maximum filling allowed, and the capacity. In the case of deeply-refrigerated gases of 7° and 8°: the capacity;

(h) in the case of acetylene dissolved in a solvent of 9° (c): the permitted filling pressure [see marginal 2221 (2)], and the mass of the empty receptacle, including the mass of the fittings and accessories, of the porous material, and of the solvent;

(i) in the case of mixtures of gases of 12° and test gases of 13°, the words "mixtures of gases" or "test gases", as the case may be, shall be engraved on the receptacle as a general indication of the contents. An exact description of the contents shall be shown in a durable form throughout carriage;

(k) in the case of metal receptacles which, under marginal 2202 (3), are accepted for the carriage of a number of different gases (multi-purpose receptacles), an exact description of the contents shall be shown in a durable form during carriage.

(2) The marks shall be engraved either on a reinforced part of the receptacle, or on a ring, or on a data plate, immovably affixed to the receptacle. In addition, the name of the substance may be indicated on the receptacle by an adherent and clearly-visible inscription applied by painting or by any other, equivalent process.

c. Test pressure, degree of filling, and limitation of capacity, of receptacles (see also marginals 2238, 211 180, 211 184 and 212 180).

(1) In the case of receptacles intended for the carriage of compressed gases of 1°, 2° and 12°, the internal pressure (test pressure) to be applied in the hydraulic pressure test shall be at least one and one-half times the filling pressure at 15°C indicated on the receptacle, but shall not be less than 1 MPa (10 bar). 2219

(2) In the case of receptacles used for the carriage of substances of 1° (a) other than tetrafluoromethane; of deuterium and hydrogen of 1° (b); or of gases of 2° (a), the filling pressure shall not exceed 30 MPa (300 bar) referred to a temperature of 15°C. In the case of tanks, the filling pressure shall not exceed 25 MPa (250 bar) referred to a temperature of 15°C.

In the case of receptacles and tanks intended for the carriage of other gases of 1° and 2°, the filling pressure shall not exceed 20 MPa (200 bar) referred to a temperature of 15°C.

(3) In the case of receptacles intended for the carriage of fluorine of 1° (a t), the internal pressure (test pressure) to be applied in the hydraulic pressure test shall be 20 MPa (200 bar) and the filling pressure shall not exceed 2.8 MPa (28 bar) at a temperature of 15°C; in addition, no receptacle may contain more than 5 kg fluorine.

In the case of receptacles intended for the carriage of boron trifluoride of 1° (a t), the hydraulic pressure to be applied in the test (test pressure) shall be either 30 MPa (300 bar), in which case the maximum mass of the contents per litre of capacity shall not exceed 0.86 kg, or 22.5 MPa (225 bar), in which case the maximum mass of the contents per litre of capacity shall not exceed 0.715 kg.

(4) In the case of receptacles intended for the carriage of nitric oxide NO of 1° (c t), the capacity shall be limited to 50 l; the hydraulic pressure to be applied in the test (test pressure) shall be 20 MPa (200 bar); and the filling pressure shall not exceed 5 MPa (50 bar) at a temperature of 15°C.

(5) In the case of receptacles intended for the carriage of mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; of mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume, of 2° (b t); of mixtures of hydrogen with not more than 10 per cent diborane by volume; or of mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume, of 2° (c t), the capacity shall be limited to 50 l; the hydraulic pressure to be applied in the test (test pressure) shall be not less than 20 MPa (200 bar); and the filling pressure shall not exceed 5 MPa (50 bar) at a temperature of 15°C.

(6) Receptacles in conformity with marginal 2207 (1) shall not, at the filling temperature and at a pressure of 0.1 MPa (1 bar), be filled beyond 98 per cent of their capacity.

Where oxygen of 7° (a) is carried, steps shall be taken to prevent any spillage of the liquid phase.

(7) Where dissolved acetylene of 9° (c) is carried in receptacles in conformity with marginal 2212 (1) (b), the capacity of the receptacles shall not exceed 150 l.

(8) The capacity of receptacles intended for the carriage of mixtures of gases of 12° shall not exceed 50 l. The pressure of the mixture shall not exceed 15 MPa (150 bar) at a temperature of 15°C.

(9) The capacity of receptacles intended for the carriage

of test gases of 13° shall not exceed 50 l. The filling pressure at a temperature of 15°C shall not exceed 7 per cent of the test pressure of the receptacle.

(10) In the case of tungsten hexafluoride of 3° (a t), the capacity of the receptacles shall be limited to 60 l.

The capacity of receptacles for silicon tetrafluoride of 1° (a t); boron chloride, nitrosyl chloride and sulphuryl fluoride of 3° (a t); methylsilane of 3° (b); arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane, of 3° (b t); cyanogen chloride and cyanogen of 3° (c t); mixtures of methylsilanes of 4° (b t); ethylene oxide containing not more than 50 per cent methyl formate by mass, of 4° (c t); silane, of 5° (b); and substances of 5° (b t) and (c t), shall be limited to 50 l.

(11) In the case of receptacles intended for chlorine trifluoride of 3° (a t), the capacity shall be limited to 40 l. After filling, a receptacle containing chlorine trifluoride of 3° (a t) shall, before being handed over for carriage, be held back for not less than seven days in order to verify that it is leak-proof.

(1) In the case of receptacles intended for the carriage of liquefied gases of 3° to 6°, and of receptacles intended for the carriage of gases dissolved under pressure of 9°, the hydraulic pressure to be applied in the test (test pressure) shall be not less than 1 MPa (10 bar). 2220

(2) In the case of liquified gases of 3° and 4°, the following values shall be complied with for the hydraulic pressure to be applied to the receptacles in the test (test pressure) and for the maximum degree of filling allowed:*

* See the end of the table.

Description of substance	Item No.	Minimum test pressure MPa	Maximum mass of contents per litre of capacity (kg)
Bromochlorodifluoromethane (R12 B1)	3°(a)	1	1.61
Chlorodifluoromethane (R 22)	3°(a)	2.9	1.03
Chloropentafluoroethane (R 115)	3°(a)	2.5	1.06
1-chloro-2,2,2-trifluoroethane (R 133a)	3°(a)	1	1.18
Dichlorodifluoromethane (R 12)	3°(a)	1.8	1.15
Dichlorofluoromethane (R 21)	3°(a)	1	1.23
1,2-Dichloro-1,1,2,2-tetrafluoroethane (R 114)	3°(a)	1	1.30
Octafluorocyclobutane (RC 318)	3°(a)	1.1	1.34
Ammonia	3°(a t)	3.3	1.53
Boron chloride	3°(a t)	1	1.19
Chlorine	3°(a t)	2.2	1.25
Chlorine trifluoride	3°(a t)	3	1.40
Hexafluoropropylene (R 1216)	3°(a t)	2.2	1.11
Hydrogen bromide	3°(a t)	6	1.54
Methyl bromide	3°(a t)	1	1.51
Nitrogen dioxide	3°(a t)	1	1.30
Nitrosyl chloride	3°(a t)	1.3	1.10
Phosgene	3°(a t)	2	1.23
Sulphur dioxide	3°(a t)	1.4	1.23
Sulphuryl fluoride	3°(a t)	5	1.10
Tungsten hexafluoride	3°(a t)	1	2.70
Butane	3°(b)	1	0.51
1-Butene	3°(b)	1	0.53
1-Chloro-1,1-difluoroethane (R 142b)	3°(b)	1	0.99
Cis-2-butene	3°(b)	1	0.55
Cyclopropane	3°(b)	2	0.53
1,1-Difluoroethane (R 152a)	3°(b)	1.8	0.79
Dimethyl ether	3°(b)	1.8	0.58
Isobutane	3°(b)	1	0.49
Isobutene	3°(b)	1	0.52
Methylsilane	3°(b)	22.5	0.39
Propane	3°(b)	2.5	0.42
Propylene	3°(b)	3	0.43
Trans-2-butene	3°(b)	1	0.54
1,1,1-Trifluoroethane	3°(b)	3.5	0.75
Arsine	3°(b t)	4.2	1.10
Dichlorosilane	3°(b t)	1	0.90
Dimethylamine	3°(b t)	1	0.59
Dimethylsilane	3°(b t)	22.5	0.39
Ethylamine	3°(b t)	1	0.61
Ethyl chloride	3°(b t)	1	0.80
Hydrogen selenide	3°(b t)	3.1	1.60
Hydrogen sulphide	3°(b t)	5.5	0.67
Methylamine	3°(b t)	1.3	0.58
Methyl chloride	3°(b t)	1.7	0.81
Methyl mercaptan	3°(b t)	1	0.78
Trimethylamine	3°(b t)	1	0.56
Trimethylsilane	3°(b t)	22.5	0.39
1,2-Butadiene	3°(c)	1	0.59
1,3-Butadiene	3°(c)	1	0.55

Description of substance	Item No.	Minimum test pressure MPa	Maximum mass of contents per litre of capacity (kg)
Vinyl chloride	3°(c)	1.2	0.81
Cyanogen	3°(c t)	10	0.70
Cyanogen chloride	3°(c t)	2	1.03
Ethylene oxide	3°(c t)	1	0.78
Methyl vinyl ether	3°(c t)	1	0.67
Trifluorochloroethylene (R 1113)	3°(c t)	1.9	1.13
Vinyl bromide	3°(c t)	1	1.37
Mixture F 1	4°(a)	1.2	1.23
Mixture F 2	4°(a)	1.8	1.15
Mixture F 3	4°(a)	2.9	1.03
Mixture of gases R 500	4°(a)	2.2	1.01
Mixture of gases R 502	4°(a)	3.1	1.05
Mixture of 19 to 21 per cent by mass dichlorodifluoromethane (R 12) and 79 to 81 per cent by mass bromochlorodifluoromethane (R 12 B 1)	4°(a)	1.2	1.50
Mixtures of methyl bromide and chloropicrin	4°(a t)	1	1.51
Mixture A (trade name: butane)	4°(b)	1	0.50
Mixture A 0 (trade name: butane)	4°(b)	1.5	0.47
Mixture A 1	4°(b)	2	0.46
Mixture B	4°(b)	2.5	0.43
Mixture C (trade name: propane)	4°(b)	3	0.42
Mixtures of hydrocarbons containing methane	4°(b)	22.5	0.187
		30	0.244
Mixtures of methylsilanes	4°(b t)	22.5	0.39
Mixtures of methyl chloride and methylene chloride	4°(b t)	1.7	0.81
Mixtures of methyl chloride and chloropicrin	4°(b t)	1.7	0.81
Mixtures of methyl bromide and ethylene bromide	4°(b t)	1	1.51
Mixtures of 1,3-butadiene and hydrocarbons of 3°(b)	4°(c)	1	0.50
Mixtures of methylacetylene/propadiene and hydrocarbons			
Mixture P 1	4°(c)	3	0.49
Mixture P 2	4°(c)	2.4	0.47
Ethylene oxide containing not more than 10 per cent carbon dioxide by mass	4°(c t)	2.8	0.73
Ethylene oxide containing not more than 50 per cent methyl formate by mass with nitrogen up to a maximum total pressure of 1 MPa (10 bar) at 50°C	4°(c t)	2.5	0.80
Ethylene oxide with nitrogen up to a total pressure of 1 MPa (10 bar) at 50°C	4°(c t)	1.5	0.78
Dichlorodifluoromethane containing 12 per cent ethylene oxide by mass	4°(c t)	1.8	1.09

1. The test pressures prescribed are at least equal to the vapour pressures of the liquids at 70°C, reduced by 0.1 MPa (1 bar), the minimum test pressure required being, however, 1 MPa (10 bar).
2. In view of the high degree of toxicity of phosgene (carbonyl chloride) of 3° (a t) and of cyanogen chloride of 3° (c t), the minimum test pressure for these gases has been fixed at 2 MPa (20 bar).
3. The maximum values prescribed for the degree of filling in kg/litre have been determined as follows: maximum mass of contents per litre of capacity = 0.95 times the density of the liquid phase at 50°C; in addition, the vapour phase must not disappear below 60°C.

(3) In the case of receptacles intended to contain liquefied gases of 5° and 6°, the degree of filling shall be such that the internal pressure at 65°C does not exceed the test pressure of the receptacles. The following values shall be complied with, see also paragraph (4):

Description of substance	Item No.	Minimum test pressure MPa	Maximum mass of contents per litre of capacity (kg)
Bromotrifluoromethane (R 13 B 1)	5°(a)	4.2	1.13
		12	1.44
		25	1.60
Carbon dioxide	5°(a)	19	0.66
		25	0.75
Chlorotrifluoromethane (R 13)	5°(a)	10	0.83

Description of substance	Item No.	Minimum test pressure MPa	Constituents (mass per cent)		Maximum mass of contents per litre of capacity (kg)
		12			0.90
		19			1.04
		25			1.10
Hexafluoroethane (R 116)	5°(a)	20			1.10
Nitrous oxide N_2O	5°(a)	18			0.68
		22.5			0.74
		25			0.75
Sulphur hexafluoride	5°(a)	7			1.04
		14			1.33
		16			1.37
Trifluoromethane (R 23)	5°(a)	19			0.87
		25			0.95
Xenon	5°(a)	13			1.24
Hydrogen chloride	5°(a t)	10			0.30
		12			0.56
		15			0.67
		20			0.74
Ethane	5°(b)	9.5			0.25
		12			0.29
		30			0.39
Ethylene	5°(b)	22.5			0.34
		30			0.37
Silane	5°(b)	22.5			0.32
		25			0.41
Germane	5°(b t)	25			1.02
Phosphine	5°(b t)	22.5			0.30
		25			0.51
1.1-Difluoroethylene	5°(c)	25			0.77
Vinyl fluoride	5°(c)	25			0.64
Diborane	5°(c t)	25			0.072
Carbon dioxide containing 1-10 per cent nitrogen, oxygen, air or rare gases by mass	6°(a)	19	1	0.64	
		19	1-10	0.48	
		25	1	0.73	
		25	1-10	0.59	
Mixture of gases R 503	6°(a)	3.1		0.11	
		4.2		0.20	
		10		0.66	
Carbon dioxide containing not more than 35 per cent ethylene oxide by mass	6°(c)	19		0.66	
		25		0.75	
Ethylene oxide containing more 10 per cent but not more than 50 per cent carbon dioxide by mass	6°(c t)	19		0.66	
		25		0.75	

(4) For substances of 5° other than hydrogen chloride of 5° (a t); germane and phosphine of 5° (b t); and diborane of 5° (c t), and for substances of 6°, the use of receptacles tested at a lower pressure thanthat indicated in paragraph (3) for the substance in question is allowed, but the quantity of substance per receptacle shall not exceed that which at 65°C would produce inside the receptacle a pressure equal to the test pressure. In such a case the permissible maximum load shall be prescribed by the expert approved by the competent authority.

(1) In the case of gases dissolved under pressure, of 9°, the following values shall be complied with for the hydraulic pressure to be applied to the receptacles in the test (test pressure), and for the maximum degree of filling allowed: 2221

Description of substance	Item No.	Minimum test pressure MPa	Maximum mass of contents per litre of capacity (kg)
Ammonia dissolved under pressure in water with more than 35 per cent but not more than 40 per cent ammonia by mass	9°(a t)	1	0.80
with more than 40 per cent but not more than 50 per cent ammonia by mass	9°(a t)	1.2	0.77
Dissolved acetylene	9°(c)	6	see under (2)

(2) In the case of dissolved acetylene of 9°(c), once equilibrium has been achieved at 15°C the cylinder-filling pressure shall not exceed the value prescribed by the competent authority for the porous mass, which value shall be engraved on the cylinder. The quantity of solvent and the quantity of acetylene shall likewise correspond to the figures specified in the approval.

3. Mixed packing

(1) Substances of this Class other than substances of 7° and 8° may be enclosed in the same package with one another if they are contained: 2222

(a) in metal pressure-receptacles of a volume not exceeding 10 litres;

(b) in thick-walled glass tubes or glass syphons in accordance with marginals 2205 and 2206, on condition that these fragile receptacles are secured in accordance with the provisions of marginal 2001 (7). The cushioning materials shall be suited to the properties of the contents. Inner packagings shall be placed in an outer packaging in which they shall be effectively kept apart from one another.

(2) Articles of 10° and 11° may be enclosed in the same package with one another under the conditions prescribed in marginal 2210.

(3) In addition, substances packed in accordance with marginal 2205 and 2206 may be enclosed in the same package with one another subject to the following special conditions.

(4) A package which meets the requirements of (1) and (3) shall not weigh more than 100 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions:

Item No. or letter	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special Provisions
	Gases packed in accordance with marginal 2205 All gases listed in this marginal	In the quantities prescribed in marginal 2205	6 kg	Chlorine of 3° (a t) shall not be packed together with sulphur dioxide of 3° (a t)
(a)	Non-inflammable gases			Shall not be packed together with substances of Classes 1a, 1b, 1c, 3, 4.2, 5.2 or 7
(a t)	Non-inflammable toxic gases			
(b)	Inflammable gases			Shall not be packed together with substances of Classes 1a, 1b, 1c, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 7 or 8
	Gases packed in accordance with marginal 2206 All gases listed in the marginal except ammonia and cyclopropane			
(a)	Non-inflammable gases			
(a t)	Non-inflammable toxic gases	150 g	6 kg	Shall not be packed together with substances of Classes 1a, 1b, 1c, 3, 4.2, 5.2 or 7
(b) (b t) (c) (c t)	Inflammable gases Inflammable toxic gases Chemically unstable gases Chemically unstable toxic gases			Shall not be packed together with substances of Classes 1a, 1b, 1c, 3, 4.1, 4.2, 4.3, 5.1, 5.2 or 7
3°(a t) 3°(b)	Ammonia Cyclopropane	20 g	6 kg	

4. Markings and labels on packages (see Appendix A.9)

(1) Every package containing receptacles holding gases of 1° to 9°, 12° or 13° or non-refillable containers of gas under pressure of 11° shall be marked legibly and indelibly with an indication of its contents, with the addition: "Class 2". This marking shall be in an official language of the country of departure, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise. 2223

This provision need not be complied with if the receptacles and their markings are clearly visible.

(2) Packages containing aerosol dispensers of 10° shall be marked with the word "AEROSOL" in clearly legible and indelible characters.

(3) Where a consignment constitutes a full load, the markings referred to in paragraph (1) are not mandatory.

(1) Packages which contain receptacles made of materials liable to shatter, such as glass or certain plastics materials, shall bear a label conforming to model No. 12. 2224

(2) Every package containing gases of 7° (a) or 8° (a) shall bear, on two opposite sides, labels conforming to model No. 11, and if the substances it contains are enclosed in glass receptacles [marginal 2207 (2)(a)], it shall, in addition, bear a label conforming to model No. 12.

Every package containing aerosol dispensers of 10o (b) 2., 10° (b t) 2., 10° (c) or 10° (c t), or non-refillable containers of gas under pressure of 11° (b), 11° (b t), 11° (c) or 11° (c t), shall bear a label conforming to model No. 3. 2225

B. Particulars in the transport document

(1) The description of the goods in the transport document must be: 2226

(a) in the case of pure and technically-pure gases of 1°, 3°, 5°, 7° or 9°, of aerosol dispensers of 10°, of non-refillable containers of gas under pressure of 11°: one of

the names underlined in marginal 2201;

(b) in the case of mixtures of gases of 2°, 4°, 6°, 8°, 12° or 13°: "mixture of gases". This description must be supplemented by an indication of the composition of the mixture of gases in volume per cent or mass per cent. Constituents below one per cent need not be indicated. In the case of mixtures of gases of 2° (a), 2° (b), 2° (bt), 4° (a), 4° (b), 4° (c), 6° (a), 8° (a) or 8° (b), the descriptions or names customary in the trade which are underlined in marginal 2201 may likewise be used, without indication of the composition.

These descriptions must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g., 2, 5° (a t), ADR].

(2) In the case of consignments of gases which are listed among the chemically unstable gases, the sender shall certify as follows in the transport document: "The necessary steps have been taken to satisfy the requirements of ADR marginal 2200 (4)". In the case of consignments of mixtures of gases of 12° or test gases of 13°, the sender shall certify as follows in the transport document: "The conditions laid down in ADR marginal 2201, 12° or 13°, have been complied with".

(3) In the case of consignments of chlorine trifluoride of 3° (a t), the sender shall certify as follows in the transport document: "After filling with chlorine trifluoride, the receptacle has been kept under observation for not less than seven days and its leakproofness has been verified".

(4) In the case of tanks containing gases of 7° (a) or 8° (a), other than carbon dioxide and nitrous oxide, the transport document shall bear the following entry:

"The tank is in permanent communication with the atmosphere»

2227 - 2236

C. Empty packagings

(1) Receptacles and tanks of 14° shall be closed in the same manner as if they were full. 2237

(2) The description in the transport document shall conform to one of the names given in 14°, (e.g. "Empty receptacle, uncleaned, 2, 14°, ADR"). This text shall be underlined. The description shall be completed by adding the words "Last load", together with the name and item number of the goods last loaded, e.g., Last load: argon, 1° (a).

(3) The receptacles of 14° referred to in marginal 2212 (1) (a), (b) and (d) may be transported after the expiry of the time-limit set for the periodic test prescribed in marginal 2215, for the purpose of undergoing the tests.

D. Transitional provisions

The following transitional provisions shall apply to receptacles for compressed or liquefied gases or gases dissolved under pressure: 2238

(a) receptacles already in service shall, subject to the following exceptions, be accepted in international traffic so long as the requirements of the contracting country in which the tests in accordance with marginal 2216 were carried out so permit and as the intervals prescribed in marginals 2216 (3) and 2217 for the periodic inspections are observed;

(b) in the case of receptacles manufactured under the previous system (permissible stress two-thirds, instead of three quarters, of the yield stress), no increase in either the test pressure or the filling pressure shall be permitted [see marginal 2211 (1)];

(c) transitional measures for tanks: see marginals 211 180 and 211 184.

(d) transitional measures for tank-containers: see marginal 212 180

2239 - 2299

CLASS 3 INFLAMMABLE LIQUIDS

1. List of substances

(1) Among the inflammable substances and mixtures which are liquid or viscous at a temperature not exceeding 35° C,[1] those listed in marginal 2301 or which fall under a collective heading of that marginal are subject to the conditions prescribed in marginals 2300 (2) to 2322 and the provisions of this Annex and of Annex B. They are then considered as substances of ADR.[2] 2300

(2) Inflammable liquids, within the meaning of ADR, have a vapour pressure not exceeding 300 kPa (3 bar) at a temperature of 50°C and a flash - point not exceeding 100° C, except those infammable liquids which, because of supplementary dangerous properties, are listed in, or assigned to, other classes. The flash - point shall be determined as indicated in Appendix A.3, marginals 3300 to 3302.

(3) Substances of Class 3, other than those of 12° and 13°, classified under the various item numbers of marginal 2301 shall be assigned to one of the following groups designated by the letter (a), (b) or (c) according to their degree of danger:

letter (a): Very dangerous substances: inflammable liquids having a boiling point or initial boiling point not exceeding 35°C, and inflammable liquids having a flash - point below 21°C, which are either highly toxic according to the criteria of marginal 2600 or highly corrosive according to the criteria of marginal 2800;

letter (b): Dangerous substances: inflammable liquids having a flash - point below 21°C which are not classified under letter (a), with the exception of substances of marginal 2301, 5° (c);

letter (c): Substances presenting a minor danger: inflammable liquids having a flash - point of 21°C to 100°C and substances of marginal 2301, 5° (c).

(4) When, as a result of additions, the flash-point, boiling point, initial boiling point or vapour pressure of a substance of Class 3 is not within the limits prescribed for the various items of marginal 2301, such a mixture shall be classified under the item number to which it belongs on the basis of its flash - point, boiling point, initial boiling point or vapour pressure as actually determined.

(5) Substances of Class 3 which are liable to form peroxides easily (as happens with ethers or with certain heterocyclic oxygenated substances) are not to be handed over for carriage unless their peroxide content, calculated as hydrogen peroxide (H_2O_2), does not exceed 0.3 per cent. The peroxide content shall be determined as indicated in Appendix A.3, marginal 3303.

(6) Chemically unstable substances of Class 3 are not to be handed over for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end, care should in particular be taken to ensure that receptacles do not contain any substance liable to promote these reactions.

NOTE: Even where no substance is listed under letters (a), (b) or (c) of the various items of this marginal, substances, solutions, mixtures and preparations may be classified under these letters in accordance with the criteria set out in marginal 2300. 2301

A. Substances having a flash-point below 21°C, not toxic and not corrosive.

---

[1] Determination of the viscous state at 35°C shall be based on the penetrometer test criteria, see Appendix A.3, marginals 3310 and 3311.

[2] For the quantities of substances of marginal 2301 which are not subject to the provisions for this Class, either in this Annex or in Annex B, see marginal 2301a.

1° Substances having a vapour pressure at 50°C of more than 175 kPa (1.75 bar) such as:

(a) acetaldehyde (aldehyde), 2-chloropropene, vinylidene chloride, crotonylene (2-butyne), methyl isopropyl ether, methyl formate, isopentane, 2-methyl-1-butene, 3-methyl-1-butene (isopropylethylene), 1,4-pentadiene, normal amylene (1-pentene).

2° Substances having a vapour pressure at 50°C of more than 110 kPa (1.10 bar) but not more than 175 kPa (1.75 bar), such as:

(a) ethyl ether, isoprene, propylene oxide;

(b) 1-chloropropane (propyl chloride), 2-chloropropane (isopropyl chloride), cyclopentene, dimethoxymethane (methylal), vinyl ethyl ether, methyl propyl ether, 2-methyl-2-butene, normal pentane, 2-pentene, dimethyl sulphide.

3° Substances having a vapour pressure at 50°C of not more than 110 kPa (1.10 bar), such as:

(b) certain crude petroleums and other crude oils, volatile products from the distillation of petroleum and of other crude oils (of the tars of coal, lignite, shale, wood or peat), e.g. petrol (gasoline), petroleum ether, condensation products of natural gas,

NOTE: While in some climatic conditions petrol (gasoline) may have a vapour pressure at 50°C of more than 110 kPa (1.10 bar) but not more than 150 kPa (1.50 bar), it is to continue to be classified under this item number.

Hydrocarbons, such as:

benzene, cycloheptane, cyclohexane, cyclohexene, cyclopentane, ethylbenzene, technical, heptanes, heptenes, hexanes, octanes, octenes, toluene;

Halogenated substances, such as:

normal butyl bromide, amyl chloride, butyl chlorides (chlorobutanes), 1, 1-dichloroethane (ethylidene chloride), propylene dichloride;

NOTE: Toxic halogenated substances are substances of 16°; corrosive halogenated substances are substances of 21° or 23°.

Alcohols, such as:

tertiary amyl alcohol, tertiary butanol (tertiary butyl alcohol), technical diacetone alcohol, ethanol (ethyl alcohol) and its aqueous solutions containing more than 70 per cent alcohol, isopropanol (isopropyl alcohol):

Ethers, such as:

acetal (1,1-diethoxyethane), 1,2-dimethoxyethane, dioxane, dioxolane, ethyl butyl ether, vinyl isobutyl ether, diisopropyl ether, tetrahydrofuran;

Aldehydes, such as:

butyraldehyde, propionaldehyde;

Ketones, such as:

acetone, ethyl methyl ketone, methyl isobutyl ketone, methyl propyl ketone, methyl vinyl ketone;

Esters, such as:

secondary butyl acetate, ethyl acetate, isobutyl acetate, isopropyl acetate, methyl acetate, normal propyl acetate, vinyl acetate, ethyl acrylate, methyl acrylate, triethyl borate, trimethyl borate, methyl butyrate, dimethyl carbonate, ethyl formate, propyl formates, methyl methacrylate, ethyl propionate, methyl propionate;

Substances containing sulphur, such as:

amyl mercaptan, butyl mercaptan, propyl mercaptan, thiophene.

NOTE: Toxic substances containing sulphur are substances of 18°.

4° Mixtures of substances of 1° to 3° containing not more than 55 per cent nitrocellulose with a nitrogen content not exceeding 12.6 per cent (collodion solutions, semi-collodion solutions, other nitrocellulose solutions, and nitrocellulose paints, lacquers and varnishes).

(a) having a boiling point or initial boiling point not exceeding 35°C;

(b) having a boiling point or initial boiling point exceeding 35°C.

NOTE: Mixtures having a flash-point below 21°C and

containing more than 55 per cent nitrocellulose, whatever its nitrogen content; or

containing not more than 55 per cent nitrocellulose with a nitrogen content above 12.6 per cent,

are substances of Class 1a, (see marginal 2101, 1°), or of Class 4.1 (see marginal 2401, 7° (a)).

5° Viscous substances such as: adhesives, enamels, paints, polishes, varnishes, and certain colours for leathers and for rotogravures, with the exception of mixtures containing nitrocellulose:

(a) having a boiling point or initial boiling point not exceeding 35°C, provided that they do not come under (c);

(b) having a boiling point or initial boiling point exceeding 35°C, provided that they do not come under (c);

(c) if they meet the following requirements:

1. that less than 3 per cent of the clear solvent layer separates in the solvent - separation test; [1/] and

2. that the viscosity [2/] and flash - point are in accordance with the following table:

Kinematic viscosity v (extrapolated) (at near-zero shear rate) mm^2/s at 23°C	Flow time t in accordance with ISO 2431-1980		Flash-point
	in s	Jet diameter in mm	in °C
$20 < v \leqslant 80$	$20 < t \leqslant 60$	4	above 17
$80 < v \leqslant 135$	$60 < t \leqslant 100$	4	above 10
$135 < v \leqslant 220$	$20 < t \leqslant 32$	6	above 5
$220 < v \leqslant 300$	$32 < t \leqslant 44$	6	above -1
$300 < v \leqslant 700$	$44 < t \leqslant 100$	6	above -5
$700 < v$	$100 < t \leqslant$	6	-5 and below

6° Harmful substances and preparations used as pesticides and having a flash - point below 21°C:

(a) having a boiling point or initial boiling point not exceeding 35°C;

(b) having a boiling point or initial boiling point exceeding 35°C;

NOTE: The classification of substances and preparations of this item is based on the criteria for harmful substances in footnote[1/] to marginal 2600 (1), and the Notes to 71° to 88° of marginal 2601.

B. Toxic substances having a flash-point below 21°C

NOTES: 1. Toxic substances having a flash-point of 21°C or above, hydrocyanic acid and solutions thereof, and metal carbonyls, are substances of Class 6.1

[1/] Solvent - separation test: This test is carried out at 23°C using a 100 ml graduated measuring cylinder of the stoppered type of approximately 25 cm total height and of a uniform internal diameter of approximately 3 cm over the calibrated section. The substance should be stirred to obtain a uniform consistency and poured into the measuring cylinder up to the 100-ml mark. The stopper should be inserted and the cylinder left standing undisturbed for 24 hours. After 24 hours the height of the upper separated layer should be measured and the layer's height as a percentage of the total height of the sample should be calculated.

[2/] Viscosity determination: Where the substance concerned is non-Newtonian, or where a flow cup method of viscosity determination is otherwise unsuitable, a variable shear-rate viscometer should be used to determine the coefficient of dynamic viscosity of the substance, at 23°C, at a number of shear rates, the values obtained are plotted against shear rate and then extrapolated to zero shear rate. The dynamic viscosity thus obtained, divided by the density, gives the apparent kinematic viscosity at near-zero shear rate.

2. For toxicity criteria, see footnote[1/] to marginal 2600 (1).

3. Harmful substances having a flash-point below 21°C are substances of 1° to 6° of this class.

11° Nitriles and isonitriles (isocyanides), such as:

(a) acrylonitrile, tertiary butyl isocyanide;

(b) acetonitrile, butyronitrile, 2-chloroacrylonitrile, isobutyronitrile, methacrylonitrile, pivalonitrile, propionitrile.

12° Imines, such as:

ethyleneimine, propyleneimine

NOTE: Special packing conditions are applicable for these substances (see marginal 2303).

13° Ethyl isocyanate, methyl isocyanate

NOTE: Special packing conditions are applicable for these substances (see marginal 2304).

14° Other isocyanates, such as:

(a) tertiary butyl isocyanate, methoxymethyl isocyanate, propyl isocyanates;

(b) normal, butyl isocyanate, isobutyl isocyanate, solutions of isocyanates having a flash-point below 21°C (cf. Class 6.1, marginal 2601, 18° and 19°).

15° Other substances containing nitrogen, such as:

(a) allylamine, 1,2-dimethylhydrazine;

(b) pyridine.

16° Halogenated organic substances, such as:

(a) allyl bromide, ethyl chloroformate, methyl chloroformate, chloroprene, allyl chloride;

(b) methyl chlorothioformate, 1,2-dichloroethane (ethylene dichloride), methyl chloromethyl ether.

17° Oxygenated organic substances, such as:

(a) acrolein, methyl orthosilicate (tetramethoxysilane);

(b) allyl acetate, diallyl ether, methanol, (methyl alcohol), methacrylaldehyde.

18° Organic substances containing sulphur, such as:

(a) isopropyl isothiocyanate, carbon disulphide;

(b) ethyl mercaptan, diethyl sulphide, solutions of isothiocyanates having a flash-point below 21°C (cf. Class 6.1, marginal 2601, 20° (b)).

19° Highly toxic or toxic substances and preparations used as pesticides having a flash-point below 21°C:

(a) with a boiling point or initial boiling point not exceeding 35°C and/or highly toxic;

(b) with a boiling point or initial boiling point exceeding 35°C and toxic.

NOTES: 1. The classification of substances and preparations under 19° (a) or (b) shall be based on the criteria for highly toxic or toxic substances contained in footnote[1/] to marginal 2600 (1) and in the Notes to 71° to 88° of marginal 2601.

2. Harmful substances and preparations used as pesticides having a flash-point below 21°C are substances of 6° (a) or (b).

20° Highly toxic or toxic substances, solutions, mixtures and preparations, having a flash-point below 21°C which cannot be classified under other collective headings:

(a) with a boiling point or initial boiling point not exceeding 35°C and/or highly toxic;

(b) with a boiling point or initial boiling point exceeding 35°C, and toxic.

NOTE: The classification of substances, solutions, mixtures and preparations under 20° (a) or (b) shall be based on the criteria applicable to highly toxic or toxic substances contained in footnote[1/] to marginal 2600 (1).

C. Corrosive substances having a flash-point below 21°C

NOTES: 1. Corrosive substances having a flash-point of 21°C or above and some acid halides having a flash-point below 21°C are substances of Class 8.

2. For corrosivity criteria, see footnote[1/] to marginal 2800 (1).

21° Chlorosilanes, such as:

(a) dimethyldichlorosilane, ethyltrichlorosilane, methyltrichlorosilane, trimethylchlorosilane, vinyltrichlorosilane.

NOTE: Chlorosilanes which give off inflammable gases on contact with water or moist air are substances of Class 4.3 and are not to be accepted for carriage unless specifically listed thereunder.

22° Amines and their solutions, such as:

(a) isopropylamine, aqueous solutions of dimethylamine, of ethylamine, of methylamine and of trimethylamine, having a boiling point not exceeding 35°C;

(b) n-amylamine, n-butylamine, diallylamine, diethylamine, diisopropylamine, dimethyl-N-propylamine, isobutylamine, n-propylamine, pyrrolidine, triethylamine, aqueous solutions of dimethylamine, of ethylamine, of methylamine and of trimethylamine, having a boiling point exceeding 35°C.

NOTE: Anhydrous dimethylamine, ethylamine, methylamine and trimethylamine are substances of Class 2 (see marginal 2201, 3° (b t).

23° Alkylhydrazines, such as:

(a) 1,1-dimethylhydrazine, methylhydrazine.

24° Solutions of alcoholates, such as:

(b) alcoholic solutions of sodium methylate.

25° Other halogenated corrosive substances, such as:

(a) isopropyl chloroformate, allyl iodide;

(b) acetyl chloride, propionyl chloride.

26° Highly corrosive or corrosive substances, solutions, mixtures or preparations having a flash-point below 21°C which cannot be classified under other collective headings:

(a) with a boiling point or initial boiling point not exceeding 35°C and/or highly corrosive;

(b) with a boiling point or initial boiling point exceeding 35°C and corrosive.

NOTE: The classification of substances, solutions, mixtures or preparations under 26° (a) or (b) shall be based on the criteria applicable to highly corrosive and corrosive substances contained in footnote[1/] to marginal 2800 (1).

D. Non-toxic and non-corrosive substances, having a flash-point between 21°C and 100°C inclusive

NOTE: Non-toxic and non-corrosive solutions and homogeneous mixtures having a flash-point of 21°C or over (such as certain paints or varnishes, excluding substances containing nitrocellulose) shall not be subject to the requirements of ADR if, in the solvent-separation test, as described in footnote[1/] to 5°, the height of the separated layer of solvent is less than 3 per cent of the total height, and if the substances at 23° C have, in the flow cup conforming to ISO 2431 - 1980 having a jet 6 mm in diameter, a flow time of:

(a) not less than 60 seconds, or

(b) not less than 40 seconds and contain not more than 60 per cent of substances of Class 3.

31° Substances having a flash-point between 21°C and 55°C inclusive.

(c) certain petroleums and other crude oils, semi-heavy products from the distillation of petroleum or other crude oils (of the tars of coal, lignite, shale, wood or peat), such as:

kerosene, petroleum, solvent naphtha, white spirit (turpentine substitute):

Hydrocarbons, such as:

cumene (isopropylbenzene), cymenes (methyl isopropyl benzenes), n-decane, dicyclopentadiene, ethylbenzene, chemically pure, mesitylene (1, 3, 5-trimethylbenzene), nonane, pentamethylheptane (isododecane), styrene (vinylbenzene), turpentine, m-xylene (1,3-dimethylbenzene), o-xylene (1,2-dimethyl benzene), p-xylene (1,4-dimethylbenzene);

Halogenated substances, such as:

chlorobenzene (phenyl chloride), dichloropentanes, 1,3-dichloropropene;

Alcohols, such as:

N-amyl alcohol, sec-amyl alcohol, methyl amyl alcohol (methyl isobutyl carbinol), butanol (n-butyl alcohol), n-butanol-2 (sec-butyl alcohol), cyclopentanol, diacetone alcohol, chemically pure, 2-ethoxyethanol (ethylene glycol monoethyl ether), isobutanol (isobutyl alcohol), methoxyethanol, n-propanol, aqueous solutions of ethyl alcohol in a concentration from 24 per cent up to and including 70 per cent.

NOTE: Aqueous solutions of ethyl alcohol in a concentration less than 24 per cent are not subject to the provisions of ADR.

Ethers, such as:

1,2-diethoxyethane (ethylene glycol diethyl ether), di-n-butyl ether (n-butyl ether), diisoamyl ether, phenyl methyl ether (anisole).

Aldehydes, such as:

2-ethyl hexaldehyde, hexaldehyde, paraldehyde;

Ketones, such as:

cyclohexanone, cyclopentanone, diisobutyl ketone, mesityl oxide;

Esters, such as:

amyl acetates, n-butyl acetate, ethylene glycol monomethyl ether acetate, 2-ethoxyethyl acetate (ethylene glycol monoethyl ether acetate), 2-ethylbutyl acetate, methyl amylacetate, n-butyl acrylate, ethyl butyrate, isoamyl formate, ethyl lactate, triethyl phosphite, trimethyl phosphite, tetraethyl silicate.

Nitrogenous substances, such as:

dimethyl ethanolamine (dimethylaminoethanol), morpholine, amyl nitrate, nitromethane, nitropropanes, picolines (methylpyridines).

32° Substances having a flash-point above 55 °C, up to and including 100 °C.

(c) Certain petroleums and other crude oils, heavy products from the distillation of petroleum or other crude oils, certain gas oils, certain tars and their distillation products, heating oils, diesel oils;

Hydrocarbons, such as:

decahydronaphthalene (decalin), diethyl benzenes, tetrahydronaphthalene, undecane;

Oxygenated substances, such as:

cyclohexyl acetate, di isobutyl carbinol (2,6-dimethyl heptanol) furfural (furfuraldehyde), hexanols;

Halogenated substances, such as:

2-ethyl hexyl chloride;

Nitrogenous substances, such as:

N,N-dimethyl formamide;

33° (c) Mixtures of substances of 31° (c) containing not more than 55 per cent nitrocellulose with a nitrogen content not exceeding 12.6 per cent (solutions of collodions, of semi-collodions, other nitrocellulose solutions and nitrocellulose paints, varnishes and lacquers.

NOTE: Mixtures containing more than 55 per cent nitrocellulose, whatever its nitrogen content, or containing not more than 55 per cent nitrocellulose with a nitrogen content above 12.6 per cent, are substances of Class 1a (see marginal 2101, 1°) or of Class 4.1 (see marginal 2401, 7° (a)).

34° (c) Mixtures of substances of 32° (c) containing not more than 55 per cent nitrocellulose with a nitrogen content not exceeding 12.6 per cent (solutions of collodions, of semi-collodions, other nitrocellulose solutions and nitrocellulose paints, varnishes and lacquers).

NOTE: Mixtures containing more than 55 per cent nitrocellulose, whatever its nitrogen content, or containing not more than 55 per cent nitrocellulose with a nitrogen content above 12.6 per cent, are substances of Class 1a (see marginal 2101, 1°) or of Class 4.1 (see marginal 2401, 7° (a)).

E. Empty packagings

41° Empty packagings, empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, which have contained substances of Class 3.

Substances of 1° to 6°, 21° to 26° and 31° to 34° carried in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B. 2301a

(1) (a) Substances classified under (a) of each item:

Not more than 500 ml per inner packaging and not more than 1 litre per package;

(b) Substances classified under (b) of each item:

Not more than 3 litres per inner packaging and not more than 6 litres per package;

(c) Substances classified under (c) of each item:

Not more than 3 litres per inner packaging and not more than 45 litres per package.

These quantities of substances shall be carried in combination packaging which at least meet the conditions of marginal 3538.

The "General conditions of packing" of Appendix A.5, marginal 3500, (1), (2) and (4) to (7) shall be observed.

NOTE: In the case of homogeneous mixtures containing water, the quantities specified relate only to the substances of this Class contained in those mixtures.

(2) The motor-fuel contained in the tanks of transport vehicles for their propulsion or the operation of their specialized equipment (refrigerators, for example). The fuel cocks between the engine and the fuel tank of motorcycles and motor-assisted pedal cycles whose tanks contain fuel, must be closed during transport; in addition, these motorcycles and motor-assisted pedal cycles must be loaded upright and secured against falling.

2. Provisions

A. Packages

1. General conditions of packing

(1) Packagings shall satisfy the conditions of Appendix A.5, unless special conditions for the packing of certain substances are prescribed in marginals 2303-2310. 2302

(2) In accordance with the provisions of marginals 2300 (3) and 3511 (2), the following shall be used:

Packagings of packing group I, marked with the letter "X", for the very dangerous substances classified under the letter (a) of each item;

Packagings of packing group II or I, marked with the letter "Y", or "X", for the dangerous substances classified under the letter (b) of each item;

Packagings of packing group III, II or I, marked with the letter "Z", "Y" or "X", for the less dangerous substances classified under the letter (c) of each item.

NOTE: For the carriage of substances of Class 3 in tank-vehicles, demountable tanks or tank containers, see Annex B.

2. Special conditions of packing

(a) Imines of 12° shall be packed in steel receptacles of sufficient thickness, which shall be closed by a screw-threaded bung or plug rendered leakproof both to liquid and to vapour by means of a suitable gasket. The receptacles shall initially and periodically, at least every five years, be tested at a pressure of not less than 0.3 MPa (3 bar) gauge pressure in accordance with marginal 2216. Each receptacle shall be secured by absorbent cushioning materials in a strong leakproof protective metal packaging. The protective packaging shall be hermetically closed and its closure shall be secured against any inadvertent opening. The mass of the contents shall not exceed 0.67 kg per litre of capacity. A package shall not weigh more than 75 kg. Packages weighing more than 30 kg, other than those forwarded as a full load, shall be fitted with means of handling. 2303

(b) Imines of 12° may also be packed in steel recepta-

cles of sufficient thickness, which shall be closed by a screw-threaded bung and a screw-threaded protective cap or equivalent device leakproof both to liquid and to vapour. The receptacles shall initially and periodically, at least every five years, be tested at a pressure of at least 1 MPa (10 bar) gauge pressure in accordance with marginal 2216. The mass of the contents shall not exceed 0.67 kg per litre of capacity. A package shall not weigh more than 75 kg.

2304 Methyl isocyanate and ethyl isocyanate of 13° shall be packed:

(a) in hermetically closed receptacles made of pure aluminium and having a capacity not exceeding one litre, which shall not be filled beyond 90 per cent of their capacity. The receptacles shall be secured, not more than 10 to a box, with appropriate cushioning material in a wooden box. Packages of this kind shall satisfy the test requirements for combination packagings conforming to marginal 3538 for packing group I, and shall not weigh more than 30 kg; or

(b) in receptacles made of pure aluminium having a wall thickness of not less than 5 mm or in receptacles of stainless steel. The receptacles shall be fully welded and shall initially and periodically, at least every five years, be tested at a pressure of at least 0.5 MPa (5 bar) gauge pressure in accordance with marginal 2216. They shall be so closed as to be leakproof by means of two closures one above the other, one of which shall be screw-threaded or secured in an equally effective manner.

The degree of filling shall be not more than 90 per cent. Drums weighing more than 100 kg shall be fitted with expanded (pressed out) rolling hoops or separate (fitted) rolling hoops.

2305 Substances classified under (a) of the various items of marginal 2301 shall be packed:

(a) in non-removable head steel drums conforming to marginal 3520, or

(b) in non-removable head aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in non-removable head plastics drums of a capacity not exceeding 60 litres or plastics jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings with inner packagings of glass, plastics material or metal conforming to marginal 3538.

2306 (1) Substances classified under (b) of the various items of marginal 2301 shall be packed:

(a) in steel drums conforming to marginal 3520, or

(b) in aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in plastics drums or jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings conforming to marginal 3538.

NOTE to (a), (b) and (d): Removable-head drums are only permitted for viscous substances having a viscosity above 200 mm^2/s at 23°C.

(2) Substances classified under (b) of 3°, 6°, 15°, 17°, 22°, 24° and 25° may also be packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539.

2307 Substances classified under (c) of the various items of marginal 2301 shall be packed:

(a) in steel drums conforming to marginal 3520, or

(b) in aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in plastics drums or jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings conforming to marginal 3538, or

(g) in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539.

NOTES: 1. To (a), (b) and (d): Removable-head drums are only permitted for viscous substances having a viscosity above 200 mm^2/s at 23°C.

2. Packagings conforming to marginal 2307 containing substances of 32° (c) and 34° (c) need only meet the requirements of marginal 3500 (1), (2) and (4) to (7).

2308 (1) Ethyl alcohol and its aqueous solutions of 3° (b) and 31° (c) may also be packed in bung-type wooden barrels conforming to marginal 3524.

(2) Substances of 3° (b), 4° (b), 5° (b) and (c), 6° (b), 31° (c), 32° (c), 33° (c) and 34° (c) may also be packed in light gauge metal packagings conforming to marginal 3540. Removable-head light gauge metal packagings are permitted only for viscous substances having a viscosity above 200 mm^2/s at 23°C, and for substances of 5° (c).

NOTE: Packagings conforming to marginal 2308 (2) containing substances of 32° (c) and 34° (c) need only meet the requirements of marginal 3500 (1), (2) and (4) to (7).

2309 The openings of packagings for substances of 6° (a) and (b), 11° (a) and (b), 14° (a) and (b), 15° (a) and (b), 16° (a) and (b), 17° (a) and (b), 18° (a) and (b), 19° (a) and (b), 20° (a) and (b), shall be so closed as to be leakproof by means of two closures in series, one of which must be screw-threaded or secured in an equally effective manner.

2310 Packagings containing preparations of 31° (c) or 32° (c) which give off small quantities of carbon dioxide and/or nitrogen, shall be vented, in accordance with marginal 3500 (8).

3. Mixed packing

2311 (1) Substances covered by the same item number may be packed together in a combination packaging conforming to marginal 3538.

(2) Substances of different items of Class 3 in quantities not exceeding five litres per packaging may be packed together and/or with goods not subject to the provisions of ADR, in a combination packaging conforming to marginal 3538, provided they do not react dangerously with one another.

(3) Except as otherwise specially provided below, substances of Class 3, in quantities not exceeding five litres per packaging, may be packed together in a combination packaging conforming to marginal 3538 with substances or articles of other classes, provided that mixed packing is also permitted for substances or articles of these classes, and/or with goods which are not subject to the provisions of ADR, provided they do not react dangerously with one another.

(4) The following are considered dangerous reactions:

(a) combustion and/or giving off considerable heat;

(b) emission of inflammable and/or toxic gases;

(c) formation of corrosive liquids;

(d) formation of unstable substances.

(5) The mixed packing of acid substances with basic substances in a package shall not be permitted if the two substances are packed in fragile packagings.

(6) The provisions of marginals 2001 (7), 2002 (6) and (7) and 2302 shall be complied with.

(7) If wooden or fibreboard boxes are used, a package shall not weigh more than 100 kg.

Special conditions:

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
12°	Imines			
13°	Methyl and ethyl isocyanate	Mixed packing not permitted		
	Substances classified under (a) in each item	0.5 litre	1 litre	Shall not be packed together with substances or articles of Classes 1a, 1b, 1c, 5.2 (other than hardeners and compound systems) and 7.

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of 1° to 6°, 11° to 26°, 31° and 33° shall bear a label conforming to model No.3. However, if substances are packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539 of a capacity exceeding five litres, the packages shall bear two labels conforming to model No.3 (see marginal 3901 (2)). 2312

(2) Packages containing substances of 6° shall in addition bear a label conforming to model No.6.1A; those containing substances of 11° to 20°, a label conforming to model No.6.1, and those containing substances of 21° to 26°, a label conforming to model No.8.

(3) Packages containing fragile packagings not visible from the outside shall bear on two opposite sides a label conforming to model No.12.

(4) Packages containing packagings the closures of which are not visible from the outside and packages containing vented packagings or vented packagings without outer packaging shall bear on two opposite sides a label conforming to model No.11.

B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2301. If the substance is not mentioned by name, the chemical name must be entered. For substances and preparations of 6° and 19°, this name shall be entered for the most dangerous component, both of the pesticide element [1/] and of the inflammable element (e.g. parathion in hexane). The description of the goods must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials «ADR» (or «RID») e.g., 3, 14° (a), ADR. 2314

(2) For consignments of chemically unstable substances, the sender shall certify in the transport document: «Measures taken in accordance with marginal 2300 (6)».

2315
-2321

[1/] For the description of the pesticide element, the name according to ISO Standard R.1/50-1981 (see also marginal 2601, 71° to 88°) should be used, if it appears therein.

C. Empty packagings

(1) Empty packagings, uncleaned, of 41°, shall be closed in the same way and with the same degree of leakproofness as if they were full. 2322

(2) Empty packagings, uncleaned, of 41°, shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the names underlined in 41°, e.g.: Empty packaging 3, 41°, ADR. This description shall be underlined. In the case of empty tank - vehicles, empty demountable tanks and empty tank - containers, uncleaned, this description shall be completed by adding the words «Last load», together with the name and item number of the goods last loaded, e.g. Last load: Petrol, 3° (b).

2323
2399

CLASS 4.1. INFLAMMABLE SOLIDS

1. List of substances

Among the substances covered by the heading of Class 4.1, those listed in marginal 2401 are subject to the provisions of this Annex and of Annex B. These substances to be accepted for carriage under certain conditions are to be considered as substances of ADR. 2400

1° Substances which can easily be ignited by sparks, such as wood flour, sawdust, wood shavings, wood fibre, wood charcoal, wood parings and wood cellulose, old paper and waste paper, paper fibres, cane (except Spanish broom), reeds, hay, straw, also when damp (including maize, rice and flax straw), vegetable textile substances and waste of vegetable textile substances, cork in powder or granular form, expanded or not, with or without an admixture of tar or of other substances not subject to spontaneous oxidation, and cork waste in small lumps. See also Class 4.2, marginal 2431, 8°-10°, and marginal 2431a, under (b). 2401

NOTES: 1. These substances are included in the list only for the purposes of the prohibitions on mixed loading. For this purpose the provisions of marginal 2416 (1) apply. No other clause, either of this Annex or of Annex B, is applicable to them.

2. Hay still having a degree of humidity which might lead to fermentation is not to be accepted for carriage.

3. Wrappings and slabs of expanded cork, manufactured under pressure, with or without an admixture of tar or of other substances not subject to spontaneous oxidation, are not subject to any of the provisions of ADR.

4. Cork impregnated with substances still subject to spontaneous oxidation is a substance of Class 4.2 (see marginal 2431, 9°).

2° (a) Sulphur (including flowers of sulphur);

(b) sulphur in the melted state.

3° Celloidin, produced by incomplete evaporation of the alcohol contained in collodion and consisting mainly of collodion cotton.

4° Celluloid in slabs, sheets, rods or tubes, and fabrics coated with nitrocellulose.

5° Film celluloid, i.e. the raw material for films, without emulsion, in rolls and developed celluloid films.

6° Celluloid waste and celluloid - film waste.

NOTE: Nitrocellulose-film waste, free from gelatine, in reels, sheets or strips, is a substance of Class 4.2 (see marginal 2431, 4°).

7° (a) Weakly nitrated nitrocellulose (such as collodion cotton), i.e. with a nitrogen content not exceeding 12.6 per cent, well stabilized and containing in addition not less than 25 per cent, water or alcohol (methyl, ethyl, normal propyl or isopropyl, butyl or amyl alcohol, or mixtures thereof), also if denatured, solvent naphtha, benzene, toluene,

xylene, mixtures of denatured alcohol and xylene, mixtures of water and alcohol, or alcohol containing camphor in solution;

NOTES: 1. Nitrocellulose with a nitrogen content exceeding 12.6 per cent is a substance of Class 1a (see marginal 2101, 1°).

2. When the nitrocellulose is wetted with denatured alcohol, the denaturing substance must not have a detrimental effect on the stability of the nitrocellulose.

(b) plasticized nitrocellulose, non - pigmented, containing not less than 18 per cent plasticizer (butyl phthalate or a plasticizer at least equivalent in effect) and in which the nitrocellulose has a nitrogen content not exceeding 12.6 per cent; the nitrocellulose may be in the form of chips;

NOTE: Plasticized nitrocellulose, non-pigmented, containing not less than 12 per cent and less than 18 per cent butyl phthalate or a plasticizer at least equivalent in effect is a substance of Class 1a (see marginal 2101, 4°).

(c) plasticized nitrocellulose, pigmented, containing not less than 18 per cent plasticizer (butyl phthalate or a plasticizer at least equivalent in effect), in which the nitrocellulose has a nitrogen content not exceeding 12.6 per cent and which contains not less than 40 per cent nitrocellulose; the nitrocellulose may be in the form of chips.

NOTE: Plasticized nitrocellulose, pigmented, containing less than 40 per cent nitrocellulose is not subject to the provisions of ADR.

For (a), (b) and (c): weakly - nitrated nitrocellulose and plasticized nitrocellulose, pigmented or not, are not to be accepted for carriage unless they satisfy the stability and safety conditions of Appendix A.1 or the conditions set forth above regarding the nature and quantity of the additional substances.

For (a), see also Appendix A.1, marginal 3101; for (b) and (c), see also Appendix A.1, marginal 3102, 1.

8° Red phosphorus (amorphous), phosphorus sesquisulphide and phosphorus pentasulphide.

NOTE: Phosphorus pentasulphide not free from white or yellow phosphorus is not to be accepted for carriage.

9° Ground rubber, rubber dust.

10° Dust of coal, lignite, lignite coke and peat, artificially prepared (e.g. by pulverization or other processes), and coke from carbonized lignite rendered inert (i.e. not liable to spontaneous ignition).

NOTES: 1. Natural dusts obtained as residues in the production of coal, coke, lignite or peat are not subject to the provisions of ADR.

2. Coke from carbonized lignite not rendered completely inert is not to be accepted for carriage.

11° (a) Crude naphthalene with a melting point below 75°C;

(b) pure naphthalene and crude naphthalene with a melting point of 75° C or over;

(c) naphthalene in the melted state.

For (a) and (b) see also marginal 2401 a.

12° Expandable polystyrenes, giving off inflammable vapour having a flash - point not above 55° C.

Naphthalene in balls or flakes of 11° (a) and (b) is subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B if it is packed, not more than 1 kg per box, in tightly closed fibreboard or wooden boxes and these boxes are enclosed, not more than 10 per case, in wooden cases. 2401a

2. Provisions

A. Packages

1. General conditions of packing

(1) Packagings shall be so closed and arranged as to prevent any loss of the contents. 2402

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirement of carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled «Packing of a single substance», inner packagings may be enclosed in outer packagings either singly or in groups.

2. Packing of a single substance

(1) Sulphur of 2° (a) shall be packed in stout bags made of paper or of closely woven jute. 2403

(2) Sulphur in the melted state, of 2° (b), may not be carried otherwise than in tanks.

Celloidin of 3° shall be so packed as to prevent its desiccation. 2404

(1) Celluloid in slabs, sheets, rods or tubes, and fabrics coated with nitrocellulose, of 4°, shall be enclosed: 2405

(a) in firmly closed wooden packagings, or

(b) in strong paper wrappings which shall be placed.

1. in crates; or

2. between frames made of boards, the edges of the frames extending beyond the paper wrapping and the frames being bound together with iron bands; or

3. in wrappings of closely woven fabric.

(2) A package must not weigh more than:

75 kg in the case of celluloid in slabs, sheets or tubes and of fabrics coated with nitrocellulose, if the outer packaging is made of fabric in conformity with (1) (b) 3;

120 kg in all other cases.

Film celluloid in rolls and developed celluloid films of 5° shall be enclosed in wooden packagings or in fibreboard boxes. 2406

(1) Celluloid waste and celluloid - film waste of 6° shall be enclosed in wooden packagings or in two strong bags made of coarse, closely woven jute canvas, the bags being fireproofed so as not to ignite even on contact with a flame and having strong and continuous seams. These bags shall be placed one inside the other; after filling, their openings shall be separately and several times folded over and closely stitched so as to prevent any escape of the contents. However, celluloid waste may be packed in a single bag if the celluloid waste is first packed in strong packing paper or in a suitable plastics material and it is certified in the transport document that the celluloid waste does not contain any waste in the form of dust. 2407

(2) Packages having a raw - canvas or jute packaging must not weigh more than 40 kg in single packaging nor more than 80 kg in double packaging.

(3) For the particulars in the transport document, see marginal 2416 (2).

(1) Substances of 7° (a) shall be packed: 2408

(a) in wooden receptacles or in drums made of impermeable fibreboard; these receptacles and drums shall have a lining impermeable to the liquids they contain; their closures must be leakproof; or

(b) in bags impermeable to the vapours from the liquids they contain (e.g. bags made of rubber or of a suitable plastics material not readily inflammable), placed in a wooden box or in a metal receptacle; or

(c) in zinc - lined or lead - lined iron drums; or

(d) in receptacles made of tin - plate, zinc sheet or aluminium sheet and secured by cushioning materials in wooden boxes.

(2) Nitrocellulose of 7° (a), if wetted exclusively with water, may be packed in fibre drums which have undergone special treatment to render them completely impermeable; the closures of the drums shall be water - vapour proof.

(3) Nitrocellulose of 7° (a), with added xylene, may not be packed otherwise than in metal receptacles.

(4) Substances of 7° (b) and (c) shall be packed:

(a) in wooden packagings lined with stout paper or zinc sheet or aluminium sheet; or

(b) in strong fibre drums or, provided that the substances are dust - free and that this is certified in the transport document, in fibreboard boxes which have been rendered impermeable; or

(c) in sheet - metal packagings.

(5) For substances of 7°, metal receptacles must be so constructed that, by reason of the method of assembly of their walls, of their mode of closure, or of the presence of a safety device, they yield when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must nor impair the strength of the receptacle not impair its closure.

(6) A package must not weigh more than 75 kg or, if it can be rolled, not more than 300 kg; however, a fibre drum must not weigh more than 75 kg and a fibreboard box not more than 35 kg.

(7) For the particulars in the transport document, see marginal 2416 (3).

2409 (1) Red phosphorus and phosphorus pentasulphide (8°) shall be packed:

(a) in receptacles made of sheet iron or tin - plate, which shall be placed in a strong wooden case; a package must not weigh more than 100 kg; or

(b) in receptacles made of glass or stoneware not less than 3 mm thick, or of a suitable plastics material, each containing not more than 12.5 kg of substance. These receptacles shall be secured with cushioning materials in a strong wooden box; a package must not weigh more than 100 kg; or

(c) in metal receptacles which, if with their contents they weigh more than 200 kg, shall be fitted with reinforcing hoops at their ends, and with rolling hoops.

(2) Phosphorus sesquisulphide (8°) shall be packed in leakproof metal receptacles, which shall be secured by cushioning materials in wooden boxes with closely-fitting sides. A package must not weigh more than 75 kg.

2410 Substances of 9° shall be packed in metal or wooden receptacles or in strong bags.

(2) Wooden receptacles and bags are not, however, to be accepted for coal dust, lignite dust or peat dust artificially prepared unless the dust has been completely cooled after drying by heat.

(3) For the particulars in the transport document, see marginal 2416 (4).

2412 (1) Naphthalene of 11° (a) shall be packed in firmly closed wooden or metal receptacles.

(2) Naphthalene of 11° (b) shall be packed in wooden or metal receptacles, or in stout fibreboard boxes or in strong bags made of textile or of four - ply paper or of a suitable plastics material.

Where fibreboard boxes are used, a package must not weigh more than 30 kg.

(3) Naphthalene in the melted state of 11° (c) must not be carried otherwise than in tanks.

(4) Expandable polystyrenes of 12° shall be packed in securely closed leakproof packagings.

3. Mixed packing

2413 (1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question. A package containing celluloid rods and tubes packed together in a textile wrapping must not weigh more than 75 kg.

(2) If smaller quantities are not prescribed in the section entitled «Packing of a single substance», substances of this Class, in quantities not exceeding 6 kg for all of the substances listed under the same item number or the same letter, may be enclosed in the same package, either with substances of another item number or of another letter of the same class, or with dangerous substances belonging to other classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions:

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001 (7) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions

Item no	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
2°(a)	Sulphur	5kg	5kg	Must not be packed together with chlorates, permanganates, perchlorates, or peroxides (other than solutions of hydrogen peroxide)
7°(a)	Weakly nitrated nitrocellulose (such as collodion cotton)	100 g	1 kg	Must not be packed together with substances of Classes 4.2 and 5.1
8°	Red (amorphous) phosphorus	5kg	5kg	
8°	Phosphorus sesquisulphide	Mixed packing not allowed		

2414 4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of 4° to 8° shall bear a label conforming to model No 4.1.

However, if substances of 4° to 7° are packed in wrappings made of closely woven fabric in accordance with marginal 2405 (1) (b) 3., in fibreboard boxes in accordance with marginals 2406 and 2408 (4) (b), in jute bags in accordance with marginal 2407 (1) or in fibre drums in accordance with marginal 2408 (1) (a), (2) an 4 (b), the packages shall bear two labels conforming to model No 4.1.

Packages containing expandable polystyrenes of 12° shall bear the following marking: «Keep away from any source of ignition». This marking shall be in an official language of the country of departure, and also, if that language is not English, French, or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No. 12. If the fragile receptacles contain liquids, the packages shall, in addition, except in the case of sealed ampoules, bear labels conforming to model No 11; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

2415

B. Particulars in the transport document

2416 (1) The description of the goods in the transport document must conform to one of the names underlined in marginal 2401. Where the name of the substance is not indicated in the case of 1°, the trade name must be used. The

description of the goods must be underlined and followed by particulars of the Class, the item number (together with the letter, if any), and the initials «ADR» or «RID» (e.g. 4.1, 7° (a), ADR).

(2) In the case of celluloid waste of 6° packed in stout packing paper or in a suitable plastics material and placed, so packed, in bags made of closely - woven raw canvas or jute, the following must be certified in the transport document: «Contains no waste in dust form».

(3) In the case of substances of 7° (b) and (c) packed in fibreboard boxes, the following must be certified in the transport document: «Substances free from dust».

(4) In the case of coal dust, lignite dust or peat dust (10°) artificially prepared and packed in wooden receptacles or in bags (see marginal 2411 (2)), the following must be certified in the transport document: «Substances completely cooled after drying by heat».

2417 -2423

C. Empty packagings

No provisions

2424 2425 -2429

CLASS 4.2 SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION

1. List of substances

Among the substances and articles covered by the heading of Class 4.2, only those listed in marginal 2431 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

2430

1° White or yellow phosphorus.

2431

2° Compounds of phosphorus with alkali metals or alkaline-earth metals, e.g., sodium phosphide, calcium phosphide, strontium phosphide.

NOTES: 1. Phosphides of aluminium, magnesium and zinc are substances of Class 6.1 (see marginal 2601, 43° (a) or (b)).

2. Other compounds of phosphorus with heavy metals such as iron, copper, tin, etc. are not subject to the provisions of ADR.

3° Organo-metallic compounds liable to spontaneous combustion, such as: aluminium alkyls, aluminium alkyl halides, aluminium alkyl hydrides, lithium alkyls, magnesium alkyls, zinc alkyls, gallium alkyls and boron alkyls, and their solutions liable to spontaneous combustion.

NOTES: 1. Organo-metallic compounds and their solutions which are not liable to spontaneous combustion but which on contact with water give off inflammable gases are substances of Class 4.3 (see marginal 2471, 2° (e)).

2. Inflammable solutions of substances of 3° in concentrations which are not liable to spontaneous combustion and which on contact with water do not give off inflammable gases are substances of Class 3. The sender shall enter in the transport document the words: "Substance not liable to spontaneous combustion». (See also Class 4.3, marginal 2471, 2° (d), NOTE 2.).

4° Nitrocellulose-film waste, free from gelatine, in reels, sheets or strips.

NOTE: Nitrocellulose-film waste free from gelatine is not to be accepted for carriage if it is dusty or includes dusty portions.

5° (a) Used rags and waste:

(b) greasy or oily fabrics, wicks, cord or thread:

(c) the following greasy or oily substances: wool, hair (and horsehair), artificial wool, reclaimed wool (also called wool shoddy), cotton, recarded cotton, artificial fibres (rayon, etc.), silk, flax, hemp and jute, also in the form of spinning or weaving waste.

For (a), (b) and (c), see also marginal 2431a under (a).

NOTE: Wetted substances of 5° (b) and (c) are not to be accepted for carriage.

6° (a) Metals in pyrophoric form, such as:

dust and powder of aluminium, magnesium, nickel, titanium, zinc or zirconium, also mixtures of powders and powders of alloys; dust from blast-furnace filters;

NOTE: Dust and powder of metals in a non-pyrophoric form which, on contact with water, give off inflammable gases, are substances of Class 4.3 (see marginal 2471, 1° (d)).

(b) salts of dithionous (hydrosulphurous) acid ($H_2S_2O_4$) such as: dithionites (hydrosulphites of sodium, potassium, calcium and zinc;

(c) anhydrous potassium sulphide and anhydrous sodium sulphide, and their hydrates containing less than 30 per cent water of crystallization; sodium hydrosulphide containing less than 25 per cent water of crystallization.

NOTE: Potassium sulphide and sodium sulphide containing not less than 30 per cent water of crystallization, and sodium hydrosulphide containing not less than 25 per cent water of crystallization are substances of Class 8 (see marginal 2801, 45° (b)).

For (a), see also marginal 2431a under (b); for (b), see also marginal 2431a under (a).

7° Freshly calcined soot. See also marginal 2431a under (a).

8° Newly-quenched charcoal, powdered, granulated or in lumps.

See also marginal 2431a under (a) and Class 4.1, marginal 2401, 1°.

NOTE: By "newly-quenched charcoal" is meant:

in the case of charcoal in lumps, charcoal which has been quenched less than four days previously;

in the case of powdered charcoal and of granulated charcoal in a granule size of less than 8 mm, charcoal which has been quenched less than eight days previously and has been air-cooled in thin layers or by a process ensuring an equivalent degree of cooling.

9° Mixtures of granulated or porous combustible substances with constituents still liable to spontaneous oxidation, such as linseed oil or other natural drying oils, boiled or with added drying compounds, resin, resin oil, petroleum residues, etc. (e.g. the substance known as cork waste, lupuline), and oily residues from the bleaching of soya oil.

See also marginal 2431a under (a) and Class 4.1, marginal 2401, 1°.

10° Paper, cardboard and products made of paper or cardboard (e.g., cardboard wrappings and cardboard rings), wood-fibre sheets, skeins of thread, fabrics, string, thread, spinning or weaving wastes, all impregnated with oils, greases, natural drying oils, boiled or with added drying compounds or other impregnating substances liable to spontaneous oxidation. See also marginal 2431a under (a) and Class 4.1, marginal 2401, 1°.

NOTE: Substances of 10° are not to be accepted for carriage if their humidity exceeds the hygroscopic humidity.

11° The substance with an iron oxide base having been used for purifying lighting gas (spent oxide of iron).

NOTE: If the substance which has been used for purifying lighting gas (spent oxide of iron) is, after storage and aeration, no longer liable to spontaneous ignition, and if this is certified in the transport document by the entry: "Substance not liable to spontaneous ignition", it is not subject to the provisions of ADR.

12° Used yeast bags, uncleaned. See also marginal 2431a under (a).

13° Empty sodium nitrate bags made of a textile fabric.

NOTE: Textile bags from which all the nitrate impregnating them has been completely removed by washing are

not subject to the provisions of ADR.

14° Empty packagings, empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, having contained phosphorus of 1°.

15° Empty packagings, empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, having contained substances of 3°.

NOTE: With reference to 14° and 15°: empty packagings which have contained other substances of Class 4.2 are not subject to the provisions of ADR.

2431a Dangerous substances handed over for carriage in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B:

(a) Substances of 5°, 6° (b), 7° to 10° and 12°, if their condition is such as to exclude any danger of spontaneous ignition and if this is certified by the sender in the transport document by the entry: "Substances not liable to spontaneous ignition"; for substances of 8° and certain substances of 9° and 10°, see, however, Class 4.1, marginal 2401. 1°;

(b) Dust and powder of aluminium or zinc of 6° (a), e.g. packed together with varnish for use in the manufacture of colours, if packed with care in quantities not exceeding 1 kg.

2. Provisions

A. Packages

1. General conditions of packing

2432 (1) Packagings shall be so closed and arranged as to prevent any loss of the contents.

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents nor form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, in the case of substances in the liquid state or immersed in a liquid or in solution, receptacles and their closures must, unless the section headed "Packing of a single substance or of articles of the same kind" provides otherwise, be able to withstand any pressure which, the pressure of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of a single substance or of articles of the same kind", inner packagings may be enclosed in outer packagings either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength, in particular, internal stresses must have been suitably relieved. The thickness of the walls must be not less than 3 mm in the case of receptacles which, with their contents, weigh more than 35 kg, and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) When receptacles made of glass, porcelain, stoneware or similar materials are prescribed or allowed, they must be secured by cushioning materials in protective packagings.

Cushioning materials shall be suited to the nature of the contents; in particular, they shall be dry and absorbent when the contents are liquid or might exude liquid.

2. Packing of a single substance or of articles of the same kind

2433 (1) Phosphorus of 1° shall be packed:

(a) in leakproof tin-plate receptacles hermetically closed and placed in wooden cases; or

(b) in sheet-iron drums closing hermetically. Press-on lids shall not be allowed. The sheet-iron constituting the body, bottom and lid shall not be less than 1.5 mm thick. A package must not weigh more than 500 kg. If it weighs more than 100 kg, it shall be fitted with rolling hoops or strengthening ribs, and shall be welded; or

(c) not more than 250 g per receptacle, in hermetically closed glass receptacles secured by cushioning materials in leakproof tin-plate receptacles closed by soldering and secured, likewise by cushioning materials, in wooden cases.

(2) Receptacles and drums containing phosphorus shall be filled with water.

2434 (1) Substances of 2° shall be packed in leakproof tin-plate receptacles hermetically closed and placed in wooden cases.

(2) Substances of 2° may also be packed, not more than 2 kg per receptacle, in receptacles made of glass, percelain, stoneware or similar materials, secured by cushioning materials in wooden cases.

2435 (1) Substances of 3° shall be packed in hermetically closed metal receptacles not liable to be attacked by the contents, of a capacity not exceeding 450 litres.

The receptacles shall either:

be secured in outer packagings of fire-resistant materials; or

have a wall thickness of not less than 3 mm, with the closure of the fillings and discharge device secured by a protective cap.

Receptacles shall be subjected to the initial test and to periodical tests every five years with an inert test substance at a test pressure of not less than 1 MPa (10 bar) (gauge pressure).

The receptacles shall not be filled to more than 90 per cent of their capacity; a space of 5 per cent shall remain empty for safety when the liquid is at a temperature of 50° C. When handed over for carriage, the liquid shall be under a layer of inert gas, the pressure of which shall not exceed 50 kPa (0.5 bar) gauge pressure.

The following particulars shall be stamped on the data plate of the receptacle:

(a) "Organo-metallic compounds, Class 4.2";

(b) the tare of the receptacle, including fittings and accessories;

(c) the test pressure and date (month, year) of the last test undergone;

(d) the stamp of the expert who carried out the tests;

(e) the capacity of the receptacle and the maximum degree of filling allowed.

The exact designation of the contents and the words: "Do not open during carriage: liable to spontaneous ignition" shall be durably marked in an official language of the country of departure, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

A package shall not weigh more than 1000 kg.

(2) Substances of 3° may also be packed in hermetically closed glass receptacles of not more than 5 litres' capacity, which shall be secured with cushioning materials in sheet-metal receptacles. The glass receptacles shall not be filled to more than 90 per cent of their capacity.

2436 (1) Substances of 4° shall be packed in bags placed in drums made of impermeable fibreboard or in receptacles made of zinc sheet or aluminium sheet. The sides of metal receptacles shall be lined with fibreboard. The bottoms and lids of fibre drums and metal receptacles shall be lined with wood.

(2) Metal receptacles shall be fitted with closures or safety devices yielding when the internal pressure reaches a value not greater than 0.3 MPa (3 bar); the presence of these closures or safety devices must not impair the strength of the receptacle nor impair its closure.

(3) A package must not weigh more than 75 kg.

2437 (1) Substances of 5° (a) shall be tightly compressed and be placed in leakproof metal receptacles.

(2) Substances of 5° (b) and (c) shall be tightly compressed and be packed either in wooden or fibreboard cases or in paper or textile wrappings firmly secured.

2438 (1) Substances of 6° (a) shall be packed in hermetically closed receptacles made of metal, glass or a suitable plastics material. The substances shall be dispatched under a protective liquid or gas. The receptacle shall if necessary be fitted with a suitable pressure-compensating device.

Glass receptacles shall be secured with cushioning materials in fibreboard or metal packagings; cushioning materials shall be incombustible. Receptacles made of a plastics material shall be placed in fibreboard or metal packagings. Packagings containing receptacles made of glass or a plastics material shall be placed in a wooden packing case. A package shall not weigh more than 75 kg.

(2) Substances of 6° (b) and (c) shall be packed in hermetically closed sheet-metal receptacles or steel drums. In the case of sheet-metal receptacles, a package shall not weigh more than 50 kg.

2439 Substances of 7° - 10° and 12° shall be enclosed in tightly-closing packages. Wooden packagings used for substances of 7° and 8° shall be provided with a leakproof lining.

2440 The substance having been used for purifying lighting gas (spent oxide of iron) of 11° shall be packed in tightly closing sheet-metal receptacles.

2441 Empty sodium nitrate bags of 13° shall be made up into tightly packed bundles securely fastened with string and placed either in a wooden case or in a wrapping consisting either of several thicknesses of stout paper or of waterproofed fabric.

3. Mixed packing

2442 (1) Substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section entitled "Packing of a single substance or of articles of the same kind", substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same class, or with dangerous substances belonging to other classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions of marginals 2001 (7) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
1° 2° 3°	White or yellow phosphorus Phosphides Zinc alkyls, etc.	Mixed packing not allowed		
6° (a)	Metals in pyrophoric form	3 kg	3 kg	Shall not be packed together with weakly nitrated nitrocellulose and red phosphorus of Class 4.1, nor with bifluorides
4°, 5° 6° (b) 7° - 12°	All substances			

4. Marking and danger labels on packages (See Appendix A.9)

2443 (1) Packages containing substances of 1° to 4° and 6° shall bear a label conforming to model No. 4.2. Packages containing substances of 3° shall in addition bear a label conforming to model No. 4.3.

When substances of 4° are packed in waterproof fibre drums conforming to marginal 2436 (1), the packages shall nevertheless bear two labels conforming to model No. 4.2 (see marginal 3901).

(2) Drums containing phosphorus of 1° and having a screw-cap lid shall, unless they are fitted with a device maintaining them upright, bear, in addition, high up in two diametrically opposite places, two labels conforming to model No. 11.

(3) Packages containing receptacles fitted with vents, and receptacles fitted with vents without outside packaging, containing substances of 6° (a), shall bear on two opposite sides a label conforming to model No. 11. Packages containing fragile receptacles not visible from outside shall bear labels conforming to model No. 12. If fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No. 11; the labels shall be placed on the upper part of the two opposite sides of a case, or in an equivalent manner for other types of packaging.

B. Particulars in the transport document 2444

2445 The description of the goods in the transport document shall conform to one of the names underlined in marginal 2431. Where the name of the substance is not indicated, for 2°, 3°, 9° or 10°, the trade name shall be given. The description of the goods shall be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" (or "RID"), e.g. 4.2, 5° (a), ADR.

2446
2452

C. Empty packagings

(1) Empty packagings, uncleaned, of 14° and 15°, 2453
shall be closed in the same manner and be leakproof to the same degree as if they were full.

(2) Empty packagings, uncleaned, of 14° and 15°, shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the names underlined in 14° and 15°, e.g. Empty packaging, 4.2, 14°, ADR. This text shall be underlined. In the case of empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, this description shall be completed by adding the words "Last load", together with the name and item number of the goods last carried, e.g. Last load: white phosphorus, 1°.

2454
2469

CLASS 4.3. SUBSTANCES WHICH GIVE OFF INFLAMMABLE GASES ON CONTACT WITH WATER

1. List of substances

Among the substances and articles covered by the heading of Class 4.3, only those listed in marginal 2471 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR. 2470

1° (a) Alkali and alkaline-earth metals, e.g. sodium, potassium, calcium, as well as alkali metal alloys, alkaline-earth metal alloys and alloys of alkali and alkaline-earth metals; 2471

(b) alkali metal amalgams and alkaline-earth metal amalgams;

(c) alkali metal dispersions.

(d) other metals and alloys of metals which give off inflammable gases on contact with water, such as:

dust, powder and fine shavings of aluminium, zinc, magnesium and magnesium alloys containing more than 50 per cent magnesium, all being free from particles likely to promote ignition, magnesium granules, coated, of a particle size not less than 149 μm.

NOTE: Dust and powder of metals in pyrophoric form are substances of Class 4.2 (see marginal 2431, 6° (a)).

For (d) see also marginal 2471a under (b).

2° (a) Calsium carbide and aluminium carbide;

(b) alkali metal and alkaline-earth metal hydrides (e.g. lithium hydride, calcium hydride), mixed hydrides, and boron hydrides and aluminium hydrides of alkali metals and alkaline-earth metals;

(c) alkali silicides;

(d) calcium silicide, in powder, grains or lumps, containing more than 5 per cent silicon, manganese calcium silicide (silico- manganese - calcium);

(e) organo-metallic compounds which give off inflammable gases on contact with water, such as: aluminium alkyls, aluminium alkyl halides, aluminium alkyl hydrides, lithium alkyls, magnesium alkyls, zinc alkyls, gallium alkyls, boron alkyls and solutions of these substances which give off inflammable gases on contact with water.

NOTES: 1. Organo-metallic compounds and their solutions which are liable to spontaneous ignition are substances of Class 4.2 (see marginal 2431, 3°)

2. Inflammable solutions of substances of 2° (e) in concentrations which are not liable to spontaneous ignition and which do not give off inflammable gases on contact with water are substances of Class 3. The sender shall enter in the transport document the words: "Substances not giving off inflammable vapour when in contact with water". (See also Class 4.2, marginal 2431, 3°, NOTE 2).

3° Amides of alkali metals and alkaline-earth metals, e.g. sodamide (sodium amide). See also marginal 2471a under (a).

NOTE: Calcium cyanamide is not subject to the provisions of ADR.

4° (a) Trichlorosilane (silicochloroform).

(b) methyldichlorosilane and ethyldichlorosilane

5° Boron trifluoride dimethyletherate

6° Empty packagings, empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, having contained substances of Class 4.3.

Substances carried in conformity with the following provisions are subject neither to the provision for this Class contained in this Annex nor to those contained in Annex B: 2471a

(a) Sodamide of 3° in quantities not exceeding 200 g per package, packed in receptacles which are so closed as to be leakproof and which cannot be attacked by the contents, if these receptacles are packed with care in a strong, leakproof wooden packaging with a leakproof closure;

(b) Dust and powder of aluminium or zinc of 1° (d), e.g. packed together with varnish for use in the manufacture of colours, if packed with care in quantities not exceeding 1 kg.

2. Provisions

A. Packages

1. General conditions of packing

(1) Packagings shall be so closed and leakproof as to prevent the ingress of moisture and any loss of the contents. 2472

(2) The materials of which the receptacles and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith. Receptacles must in all cases be free from moisture.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, in the case of solids immersed in a liquid, receptacles and their closures must, unless the section headed "Packing of a single substance" provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Solid substances shall be firmly secured in their packagings, and inner packagings shall be firmly secured in outer packagings.

Unless otherwise specified in the section entitled "Packing of a single substance", inner packagings may be enclosed in outer packagings either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The thickness of the walls must in no case be less than 2 mm.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) Cushioning materials shall be suited to the nature of the contents.

2. Packing of a single substance

(1) Substances of 1° (a) to (c) shall be packed: 2473

(a) in receptacles made of sheet-iron, lead-lined sheet-iron or tin-plate. For substances of 1° (b), however, receptacles made of lead-lined sheet-iron or of tin-plate are not to be accepted. These receptacles, with the exception of iron drums, must be placed in wooden packing cases or in protective iron hampers; or

(b) not more than 1 kg per receptacle, in receptacles made of glass or stoneware. Not more than 5 of these receptacles shall be packed in a wooden packing case having

a leakproof lining of ordinary sheet-iron, lead-lined sheet-iron, or tin-plate, assembled by soldering. For glass receptacles containing quantities not exceeding 250 g, the lined wooden case may be replaced by an outer receptacle made of ordinary sheet-iron, lead-lined sheet-iron, or tin-plate. Glass receptacles shall be secured in the outer packagings by incombustible cushioning materials.

(2) If a substance of 1° (a) is not packed in a welded metal receptacle with a lid hermetically closed by soldering, then:

(a) it must be completely covered by mineral oil whose flash-point is above 50°C, or be sufficiently sprinkled to ensure that the lumps are coated with this oil, or

(b) the air in the receptacle must be completely replaced by a protective gas (e.g. nitrogen) and the receptacle so closed as to be gas-tight; or

(c) the substance must be poured into the receptacle, which must be filled to the brim and so closed, after cooling, as to be gas-tight.

(3) Iron receptacles must have sides not less than 1.25 mm thick. If, with their contents, they weigh more than 75 kg, they must be hard-soldered or welded. If they weigh more than 125 kg, they must in addition be fitted with end and rolling hoops or with rolling flanges.

(4) Substances of 1° (d) shall be packed in hermetically closed receptacles of metal, glass or a suitable plastics material or in waterproof bags. Glass receptacles and bags shall be secured with cushioning materials in an outer packaging of wood, metal or fibreboard. A package shall not weigh more than 115 kg.

(1) Substances of 2° (a) to (d) shall be packed: 2474

(a) in receptacles made of sheet-iron, lead-lined sheet-iron or tin-plate. For substances of 2° (b) and (c), a receptacle must not contain more than 10 kg. Those receptacles, with the exception of iron drums, must be placed in wooden packing cases or in protective iron hampers; or

(b) not more than 1 kg per receptacle, in receptacles made of glass or stoneware or of a suitable plastics material. Not more than 5 of these receptacles shall be packed in a wooden packing case with a leakproof lining of ordinary sheet-iron, lead-lined sheet-iron or tin-plate, assembled by soldering. For glass receptacles containing quantities not exceeding 250 g, the lined wooden case may be replaced by an outer receptacle made of ordinary sheet-iron, lead-lined sheet-iron or tin-plate. Glass receptacles shall be secured in the packing cases by incombustible cushioning materials.

(2) A package shall not weigh more than 75 kg if it contains substances of 2° (b) or (c) and not more than 125 kg if it contains substances of 2° (d).

(3) Substances of 2° (e) shall be packed in hermetically closed metal receptacles not liable to be attacked by the contents, of a capacity not exceeding 450 litres.

The receptacles shall either:

be secured in outer packagings of fire-resistant materials; or

have a wall thickness of not less than 3 mm, with the closure of the fillings and discharge device secured by a protective cap.

Receptacles shall be subjected to the initial test and to periodical tests every five years with an inert test substance at a test pressure of not less than 1 MPa (10 bar) (gauge pressure).

The receptacles shall not be filled to more than 90 per cent of their capacity; a space of 5 per cent shall remain empty for safety when the liquid is at a temperature of 50°C. When handed over for carriage, the liquid shall be under a layer of inert gas, the pressure of which shall not exceed 50 kPa (0.5 bar) (gauge presure).

The following particulars shall be stamped on the data plate of the receptacle:

(a) "Organo-metallic compounds, Class 4.3";

(b) the tare of the receptacle, including fittings and accessories;

(c) the test pressure and date (month, year) of the last test undergone;

(d) the stamp of the expert who carried out the tests;

(e) the capacity of the receptacle and the maximum degree of filling allowed.

The exact designation of the contents and the words: "Do not open during carriage. Gives off inflammable gases on contact with water" shall be durably marked in an official language of the country of departure, and, also, if that language is not English, French or German, in English, French or German, unless any agreement concluded between the countries concerned in the transport operation provides otherwise.

A package shall not weigh more than 1,000 kg.

(4) Substances of 2° (e) may also be packed in hermetically closed glass receptacles of not more than 5 l capacity, which shall be secured with cushioning materials in sheet-metal receptacles. The glass receptacles shall not be filled to more than 90 per cent of their capacity.

Amides of 3° shall be packed, not more than 10 kg per box or drum, in hermetically closed metal boxes or drums, which shall be placed in wooden cases. A package must not weigh more than 75 kg. 2475

(1) Trichlorosilane (silicochloroform) of 4° (a), methyldichlorosilane and ethyldichlorosilane of 4° (b) shall be packed in receptacles made of corrosion-resistant steel and having a capacity not exceeding 500 litres. The receptacles must be hermetically closed; the closing device must be specially protected by a cap. The receptacles must be constructed as pressure vessels for a working pressure of 0.4 MPa (4 bar) and be tested in conformity with the regulations governing pressure vessels in force in the country of departure. Receptacles with a capacity not exceeding 250 litres must have a wall thickness of not less than 2.5 mm, and those with a higher capacity a wall thickness of not less than 3 mm. 2476

(2) If filling is based on mass, the degree of filling shall not exceed:

1.14 kg/l for trichlorosilane;

0.95 kg/l for methyldichlorosilane;

0.93 kg/l for ethyldichlorosilane.

If carried out by visual check, the degree of filling shall not exceed 85 per cent.

Boron trifluoride dimethyl etherate of 5° shall be packed: 2477

(a) in amounts of not more than 1 litre per receptacle in hermetically sealed receptacles made of glass, stoneware or a suitable plastics material placed in wood or fibreboard packing cases. Glass or stoneware receptacles shall be secured in the packing cases with appropriate absorbent, inert and non-combustible cushioning materials or placed in closely fitting packagings made of preformed inert plastics materials. A package shall not weigh more than 55 kg if the packing case is of fibreboard and not more than 125 kg if the packing case is of wood;

(b) in hermetically sealed receptacles made of a suitable plastics material and having a capacity not exceeding 250 litres, each receptacle placed in a fitted steel protective packaging with complete walls;

(c) in hermetically sealed corrosion-resistant steel drums of a capacity not exceeding 450 litres.

3. Mixed packing

(1) The substances grouped under the same item number may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question. 2478

(2) If smaller quantities are not prescribed in the section entitled "Packing of a single substance", substances of this Class, in quantities not exceeding 6kg in the case of solids or 3 litres in the case of liquids for all of the sub-

stances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same class, or with dangerous substances belonging to other classes (if mixed packing is likewise permitted in the case of such substances), or with other goods, subject to the following special conditions.

Special conditions:

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions contained in marginals 2001 (7) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
1° (a)	Alkali and alkaline-earth metals (e.g. sodium, potassium, calcium, barium) – in fragile receptalces – in other receptacles	500 g 1 kg	500 g 1 kg	The limits of 500 g or 1 kg apply to alkali metals and alkaline-earth metals of 1° (a), and to alkali metal and alkaline-earth metal hydrides of 2° (b), in respect of the aggregate mass of these substances. Alkali metals and alkaline-earth metals, and substances of 2° (b), may not be packed together with acids, nor with liquids containing water.
2° (a)	Calcium carbide	Mixed packing not allowed		
2° (b)	Alkali metal and alkaline-earth metal hydrides (e.g. lithium hydride, calcium hydride), mixed hydrides, boron hydrides and aluminium hydrides – in fragile receptacles – in other receptacles	500 g 1 kg	500g 1 kg	
4°	All substances	Mixed packing not allowed		
5°	Boron trifluoride dimethyl etherate	Mixed packing not allowed		

4. Marking and danger labels on packages (see Appendix A.9): 2479

(1) Packages containing substances of Class 4.3 shall bear a label of model No. 4.3 and a label conforming to model No.10.

(2) Packages containing substances of 4° and 5° shall bear, in addition, labels conforming to model Nos. 3 and 8.

(3) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No.12. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No.11; these labels shall be affixed high up on two oposite sides of cases or in an equivalent manner when other packagings are used.

B. Particulars in the transport document

2480

The description of the goods in the transport document shall conform to one of the names underlined in marginal 2471. If the name of substance is not given, for substances of 1°, the trade name shall be entered. The description of 2481

the goods shall be underlined and followed by particulars of class, item number and letter if any, and the initials "ADR" or "RID", e.g. 4.3, 2° (a), ADR.

2482
–2497

C. Empty packagings

(1) Empty packagings, uncleaned, of 6° shall be closed in the same manner and be leakproof to the same degree as if they were full. 2498

(2) Empty packagings, uncleaned, of 6° shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the names underlined in 6° (e.g., "Empty packaging, 4.3, 6°, ADR"). This text shall be underlined. In the case of empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, this description shall be completed by adding the words "Last load" together with the name and item number of the goods last loaded, e.g. Last load: trichlorosilane, 4° (a).

2499

CLASS 5.1 OXIDIZING SUBSTANCES

1. List of substances

Among the substances and articles covered by the heading of Class 5.1, those listed in marginal 2501 are subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

NOTE: Unless specifically listed in Class 1a or Class 1c, mixtures of oxidizing substances with combustible substances are not to be accepted for carriage if they are capable of exploding on contact with a flame or are more sensitive to shock and to friction than dinitrobenzene.

2500 1° Aqueous solutions of hydrogen peroxide containing more than 60 per cent hydrogen peroxide, stabilized, and hydrogen peroxide, stabilized.

NOTES: 1. For aqueous solutions of hydrogen peroxide containing not more than 60 per cent hydrogen peroxide, see marginal 2801, 62°.

2. Aqueous solutions of hydrogen peroxide containing more than 60 per cent hydrogen peroxide, not stabilized, and hydrogen peroxide, not stabilized, are not to be accepted for carriage.

2° Tetranitromethane, free from combustible impurities.

NOTE: Tetranitromethane not free from combustible impurities is not to be accepted for carriage.

3° Perchloric acid in aqueous solutions containing more than 50 per cent but not more than 72.5 per cent perchloric acid ($HClO_4$).

See also marginal 2501a, under (a).

NOTE: Perchloric acid in aqueous solutions containing not more than 50 per cent perchloric acid ($HClO_4$) is a substance of Class 8 (see marginal 2801, 4°). Aqueous solutions of perchloric acid containing more than 72.5 per cent perchloric acid are not to be accepted for carriage; the same applies to mixtures of perchloric acid with any liquid other than water.

4° (a) Chlorates; inorganic chlorate weed-killers consisting of mixtures of sodium chlorate, potassium chlorate or calcium chlorate with a hygroscopic chloride (such as magnesium chloride or calcium chloride);

NOTE: Ammonium chlorate is not to be accepted for carriage.

(b) perchlorates (with the exception of ammonium perchlorate, see 5°);

(c) sodium and potassium chlorites;

(d) mixtures of chlorates, perchlorates and chlorites of (a), (b) and (c) with one another.

For (a), (b), (c) and (d), see also marginal 2501a, under (b).

5° Ammonium perchlorate. See also marginal 2501a, under (b).

6° (a) Ammonium nitrate containing not more than 0.2 per cent combustible substances (including any organic substance calculated as carbon) to the exclusion of any other added substance.

NOTES: 1. Ammonium nitrate containing more than 0.2 per cent combustible substances (including any organic substance calculated as carbon) is not to be accepted for carriage unless it is a constituent of an explosive of Class 1a (see marginal 2101, 12° or 14°).

2. Aqueous solutions of ammonium nitrate, in a concentration not exceeding 80 per cent, are not subject to the requirements of ADR.

(b) Ammonium nitrate fertilizers, type A1: uniform non-segregating mixtures containing 90 per cent or more ammonium nitrate with added matter which is inorganic and chemically inert towards ammonium nitrate, and not more than 0.2 per cent of combustible material (including organic material calculated as carbon), or mixtures containing less than 90 per cent but more than 70 per cent ammonium nitrate and not more than 0.4 per cent of combustible material.

(c) Ammonium nitrate fertilizers, type A2: uniform non-segregating mixtures of ammonium nitrate with calcium carbonate and/or dolomite, containing more than 80 per cent but less than 90 per cent ammonium nitrate and not more than 0.4 per cent total combustible material.

(d) Ammonium nitrate fertilizers, type A3: uniform non-segregating mixtures of ammonium nitrate/ammonium sulphate containing more than 45 per cent but not more than 70 per cent ammonium nitrate and not more than 0.4 per cent of total combustible material.

(e) Ammonium nitrate fertilizers, type A4: uniform 2501 non-segregating mixtures (compound fertilizers) of nitrogen/phosphate or nitrogen/potash types, or complete fertilizers of nitrogen/phosphate/potash type, containing more than 70 per cent but less than 90 per cent ammonium nitrate and not more than 0.4 per cent total combustible material.

NOTES: 1. In determining the ammonium nitrate content, all nitrate ions for which a molecular equivalent of ammonium ions is present in the mixture shall be calculated as ammonium nitrate.

2. Fertilizers having an ammonium nitrate content or a content in combustible substances exceeding the values shown in 6° (b) to 6 (e) respectively are not to be accepted for carriage except under the conditions applicable to Class 1a (see marginal 2101, 12° (a)). See also NOTE 4.

3. Fertilizers having an ammonium nitrate content below the limit values indicated in 6° (c) to 6° (e) respectively are not subject to the requirements of ADR.

4. Fertilizers having an ammonium nitrate content of not more than 45 per cent and whose content of combustible substances is more than 0.4 per cent, are not subject to the provisions of ADR provided that the molecular excess of nitrate over ammonium ions (calculated as potassium nitrate) is not more than 10 per cent by mass.

For (a) to (e), see also marginal 2501a under (b).

7° (a) Sodium nitrate;

(b) mixtures of ammonium nitrate with nitrates of sodium, potassium, calcium or magnesium;

(c) barium nitrate, lead nitrate.

For (a), (b) and (c), see also marginal 2501a, under (b).

NOTES: 1. If they do not contain more than 10 per cent ammonium nitrate, mixtures of ammonium nitrate with calcium nitrate or with magnesium nitrate or with both are not subject to the provisions of ADR.

2. Empty textile bags which have contained sodium nitrate and have not been entirely freed from the nitrate impregnating them are articles of Class 4.2 (see marginal 2431, 13°).

8° Inorganic nitrites. See also marginal 2501a, under (b).

NOTE: Ammonium nitrite and mixtures of an inorganic nitrite with an ammonium salt are not to be accepted for carriage.

9° (a) Peroxides of alkali metals and mixtures containing peroxides of alkali metals which are not more dangerous than sodium peroxide;

(b) peroxides of alkaline-earth metals, e.g. barium dioxide;

(c) permanganates of sodium, potassium, calcium and barium.

For (a), (b) and (c), see also marginal 2501a, under (b).

NOTES: 1. Ammonium permanganate, and mixtures of a permanganate with an ammonium salt, are not to be accepted for carriage.

2. Solutions of chromic acid are substances of Class 8 (see marginal 2801, 11° (b)).

10° Chromium trioxide (chromic anhydride; also called chromic acid).

See also marginal 2501a. under (b).

11° Empty packagings, empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, having contained substances of Class 5.1.

NOTE: Empty packagings and empty tanks which have contained a chlorate, a perchlorate, a chlorite of 4° and 5°, an inorganic nitrite of 8° or substances of 9° and 10°, with residues from their previous contents adhering to the outside, are not to be accepted for carriage.

Substances handed over for carriage in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B:

(a) substances of 3°, in quantities not exceeding 200 g per receptacle, on condition that they are packed in receptacles so closed as to be leakproof and not capable of being attacked by the contents, and that receptacles are packed, not more than 10 per case, in a wooden case with inert absorbent cushioning materials;

(b) substances of 4°-10°, in quantities not exceeding 10 kg, packed not more than 2 kg per receptacle in receptacles so closed as to be leakproof and not capable of being attacked by the contents, these receptacles being enclosed in strong, leakproof packagings made of sheet-metal and having leakproof closures.

2. Provisions

A. Packages

1. General conditions of packing

(1) Receptacles shall be so closed and arranged as to prevent any loss of the contents. 2502

(2) The materials of which the packagings and their closures are made must not be liable to attack by the contents, or cause the contents to decompose, of form harmful or dangerous compounds therewith.

(3) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, where substances are in the liquid state, receptacles and their closures must, unless the section headed "Packing of a single substance" provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage. Unless otherwise specified in the section entitled "Packing of a single substance", inner packagings may be enclosed in outer packagings either singly or in groups.

(4) Bottles and other glass receptacles must be free from faults liable to impair their strength; in particular, internal stresses must have been suitably relieved. The walls must be not less than 3 mm thick in the case of receptacles weighing, with their contents, more than 35 kg and not less than 2 mm in the case of other receptacles.

The tightness of the closure system must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any loosening of the closure system during carriage.

(5) When receptacles made of glass, porcelain, stoneware or similar materials are prescribed or allowed, they must be secured by cushioning materials in protective packagings. Cushioning materials must be incombustible (glass wool, absorbent earth, infusorial earth, etc.) and incapable of forming dangerous compounds with the contents of the receptacles. If the contents are liquid, the cushioning materials shall also be absorbent and proportionate in quantity to the volume of the liquid; this interior absorbent layer must not, however, be less than 4 cm thick at any point.

Packing of a single substance

(1) Aqueous solutions of hydrogen peroxide, and hydrogen peroxide of 1°, shall be packed in drums or other receptacles made of aluminium of at least 99.5 per cent purity or of special steel not liable to cause the hydrogen peroxide to decompose. These receptacles shall be fitted with means of handling; they must be able to remain upright in a stable fashion and must: 2503

(a) be fitted in their upper part with a closing device ensuring equality of the internal and the atmospheric pressure; this closing device must in all circumstances prevent any escape of the liquid and any entry of foreign matter into the receptacle and must be protected by a vented cap; or

(b) be able to withstand an internal pressure of 0.25 MPa (2.5 bar) and be fitted in the upper part with a safety device yielding when the excess of internal pressure is 0.1 MPa (1 bar) at most.

(2) Receptacles shall not be filled beyond 90 per cent of their capacity.

(3) A package must not weigh more than 90 kg.

Tetranitromethane (2°) shall be contained in bottles made of glass, porcelain, stoneware of similar materials or of a suitable plastics material, with incombustible stoppers, placed inside a wooden case with complete sides; fragile receptacles shall be secured therein by absorbent - earth cushioning. Receptacles shall not be filled beyond 93 per cent of their capacity. 2504

Perchloric acid in aqueous solutions (3°) shall be contained in glass receptacles, which shall be filled to not more than 93 per cent of their capacity. The receptacles shall be secured by absorbent and incombustible cushioning materials in incombustible protective packagings impermeable to liquids and capable of retaining the contents of the receptacles. The closure of the receptacles shall be protected by caps if the protective packagings are not completely closed. 2505

Glass bottles closed by glass stoppers may also be secured by absorbent and incombustible cushioning materials in wooden cases with complete sides.

Packages containing fragile receptacles and carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

(1) Substances of 4° and 5° and solutions of substances of 4° shall be packed in receptacles made of glass, of a suitable plastics material, or of metal; solid substances of 4° (b) may also be enclosed in hardwood casks. 2506

(2) Fragile receptacles and receptacles made of a plastics material must be secured by cushioning materials in wooden or metal protective packagings. They may also be secured separately by incombustible cushioning materials in non-fragile intermediate receptacles which must in turn be firmly placed or secured by cushioning materials in protective packagings. Each receptacle must contain not more than 5 kg of substance. In the case of receptacles whose contents are liquid, the cushioning materials must be absorbent.

(3) In the case of receptacles made of a plastics material and containing solutions of substances of 4°, the protective packagings may be dispensed with if the walls are not less than 4 mm thick at every point, the walls are strengthened by strong reinforcing rims, the ends are strengthened, the upper part is provided with two strong handholds, and the opening is fitted with a screw-threaded closure.

(4) Receptacles for liquids shall not be filled beyond 95 per cent of their capacity.

(5) Packages containing fragile receptacles or receptacles made of a plastics material [see (2) and (3)], if they contain liquids, and packages containing fragile receptacles or receptacles made of a plastics material [see (2)], if they contain only solid substances and are carried otherwise than as a full load, must not weigh more than 75 kg. Packages carried otherwise than as a full load shall be fitted with means of handling.

(6) Packages which can be rolled must not weigh more than 400 kg; if they weigh more than 275 kg, they shall be fitted with rolling hoops.

(7) Receptacles containing solid chlorates other than those referred to under (8) must not contain any combustible material other than a small pad of waxed paper.

(8) If the chlorate is in the form of tablets, with or without a suitable binder, and is packed in bottles containing not more than 200 g, a sufficient quantity of cotton-wool may be used to prevent excessive movement of the tablets in the bottle. The bottles shall be packed in fibreboard boxes placed in an intermediate packaging separate from the outer packaging. An intermediate packaging may not contain more than 1 kg or a package more than 6 kg of chlorate.

2507 (1) Substances of 6°, 7° and 8° shall be packed.

(a) in drums or cases; or

(b) in strong bags made of closely woven fabric or of stout paper of at least five plies or, in quantities not exceeding 50 kg, in bags made of a suitable plastics material sufficiently thick and strong to prevent any loss of the contents.

If the substance is more hygroscopic than sodium nitrate, bags made of closely woven fabric or of stout paper of five plies must be lined with a suitable plastics material or be rendered impermeable by suitable means.

Packages which can be rolled must not weigh more than 400 kg; if they weigh more than 275 kg, they shall be fitted with rolling hoops.

2508 (1) Substances of 9° (a) shall be packed:

(a) in steel drums; or

(b) in receptacles made of sheet-metal, lead-lined sheet-iron, or tin-plate, secured in wooden packing cases having a metal lining rendered leakproof, e.g. by soldering.

When carried as a full load, substances of 9° (a) may be packed in tin-plate receptacles placed solely in protective iron hampers.

(2) Receptacles containing substances of 9° (a) must be so closed and leakproof as to prevent moisture from entering.

(3) Substances of 9° (b) and (c) shall be packed:

(a) in incombustible receptacles fitted with an incombustible hermetic closure. If the incombustible receptacles are fragile, each shall be secured separately by cushioning materials in a wooden case lined with stout paper; or

(b) in hardwood casks with closely fitting staves, lined with stout paper.

(4) Packages containing fragile receptacles and carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

Packages capable of rolling must not weigh more than 400 kg; they must be fitted with rolling hoops if they weigh more than 275 kg.

2509 (1) Chromium trioxide (10°) shall be packed:

(a) in receptacles made of glass, porcelain, stoneware or similar materials, tightly stoppered, and secured in a wooden case by inert and absorbent cushioning materials; or

(b) in metal drums.

(2) Packages containing fragile receptacles carried otherwise than as a full load must not weigh more than 75 kg and shall be fitted with means of handling.

Packages capable of rolling must not weigh more than 400 kg; they must be fitted with rolling hoops if they weigh more than 275 kg.

3. Mixed packing

2510 (1) Substances groups under the same letter may be included in the same package. The inner packagings shall conform to what is prescribed for each substance, and the outer packaging shall be that laid down for the substances of the item number in question.

(2) If smaller quantities are not prescribed in the section entitled "Packing of a single substance", substances of this Class, in quantities not exceeding 6 kg in the case of solids or 3 litres in the case of liquids for all of the substances listed under the same item number or the same letter, may be enclosed in the same package either with substances of another item number or of another letter of the same class, or with dangerous substances belonging to other classes (if mixed packing is likewise allowed in the case of such substances), or with other goods, subject to the following special conditions.

The inner packagings must satisfy the general and special conditions of packing. In addition, the general provisions of marginals 2001 (7) and 2002 (6) and (7) must be observed.

A package must not weigh more than 150 kg, or more than 75 kg if it contains fragile receptacles.

Special conditions:

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
1°	Hydrogen peroxide and aqueous solutions of hydrogen peroxide containing more than 60% hydrogen peroxide	Mixed packing not allowed		
2°	Tetranitromethane			
3°	Perchloric acid			
4°	Solutions of substances of 4°			
4° (a)	Chlorates			Must not be packed together with weakly - nitrated nitrocellulose, red phosphorus, bifluorides, liquid halogenated irritants, hydrochloric acid, sulphuric acid, chlorosulphonic acid, acetic acid, benzoic acid, salicylic acid, formic acid, nitric acid, free sulphonic acids, mixed nitrating
	– in fragile receptacles	1 kg	2.75 kg	
	– in other receptacles	3 kg	5 kg	

Item No.	Description of substance	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
				acids, sulphur, hydrazine. Must be separated from uncombined carbon (in any form), hypophosphites, ammonia and its compounds, triethanolamine, aniline, xylidine, toluidine, or inflammable liquids having a flashpoint below 21 °C.
4° (b) and 5°	Perchlorates	5 kg	5kg	Must not be packed together with weakly nitrated nitrocellulose, red phosphorus, bifluorides, liquid halogenated irritants, hydrochloric acid, chlorosulphonic acid, nitric acid, mixed nitrating acids, aniline, pyridine, xylidine, toluidine, sulphur, hydrazine
4° (c) an (d) 6°, 7°, 8°	xrAll substances			Must not be packed together with weakly nitrated nitrocellulose or red phosphorus.
9° (a) and (b)	Peroxide In fragile receptacles In other receptacles	 500 g 5 kg	 2.5 kg 5 kg	Same substances prohibited as in the case of perchlorates, and also: aluminium dust, powder or granules, acetic acid; aqueous liquids, inflammable liquids of Classes 3 and 6.1; substances of Class 4.1; metallic peroxides must not be packed in the same package with solutions of hydrogen peroxide. The limitation of 2.5-kg applies to peroxides of 9° (a) and (b) for all of these substances. The use of sawdust or other organic filling materials is prohibited.
9° (c)	Permanganates	5 kg	5 kg	Same substances prohibited as in the case of chlorates, and also: solutions of hydrogen peroxide, glycerine, glycols. Must be separated from the same substances as indicated in the case of chlorates.
10°	Chromic anhydride (chromic acid)	4.5 kg	4.5 kg	The use of sawdust or other organic filling materials is prohibited.

B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2501; it must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 5.1, 4° (a), ADR]. 2513

2514 - 2520

C. Empty packagings

(1) Empty packagings, uncleaned, of 11° shall be closed in the same manner and be leakproof to the same degree as if they were full. 2521

(2) Empty packagings, uncleaned, of 11° shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the names underlined in 11°, e.g. Empty packaging, 5.1, 11°, ADR. This text shall be underlined. In the case of empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, this description shall be completed by adding the words "Last load" together with the name and item number of the goods last loaded, e.g. Last load: hydrogen peroxide, 1°.

(4) Empty textile bags, uncleaned, which have contained sodium nitrate of 7° (a) are subject to the provisions of Class 4.2 (see marginal 2441).

2522 - 2549

CLASS 5.2 ORGANIC PEROXIDES

1. List of substances

Among the substances and articles covered by the heading of Class 5.2, only those listed in marginal 2551 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR.

NOTE: Organic peroxides which may explode on contact with a flame or which are more sensitive to shock and to friction than dinitrobenzene are not to be accepted for carriage unless they are specifically listed in Class 1a (see marginal 2101, 10° and Appendix A.1, marginal 3112: also marginal 2551, Group E, below).

2550

Group A

1° Ditertiary butyl peroxide.

2° Tertiary butyl hydroperoxide with not less than 20 per cent ditertiary butyl peroxide and not less than 20 per cent phlegmatizer.

NOTE: Tertiary butyl hydroperoxide with not less than 20 per cent ditertiary butyl peroxide but without phlegmatizer is listed under 31°.

3° Tertiary butyl peracetate with not less than 30 per cent phlegmatizer.

4° Tertiary butyl perbenzoate.

5° Tertiary butyl permaleate with not less than 50 per cent phlegmatizer.

6° Ditertiary butyl diperphthalate with not less than 50 per cent phlegmatizer.

7° 2,2-bis (tertiary butyl peroxy) butane with not less than 50 per cent phlegmatizer.

8° Benzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

NOTES: 1. Benzoyl peroxide in the dry state or with less than 10 per cent water or less than 30 per cent phlegmatizer is a substance of Class 1a [see marginal 2101, 10° (a)].

2. Benzoyl peroxide containing not less than 70 per cent dry and inert solids is not subject to the provisions of ADR.

9° Cyclohexanone peroxides [1-hydroxy-1'-hydroperoxydicyclohexyl peroxide and bis (1-hydroxycyclohexyl) peroxide and mixtures of these two compounds]:

(a) with not less than 5 per cent water;

(b) with not less than 30 per cent phlegmatizer.

NOTES: 1. Cyclohexanone peroxides and their mixtures in the dry state or with less than 5 per cent water or less than 30 per cent phlegmatizer are substances of Class 1a [see marginal 2101, 10° (b)].

2. Cyclohexanone peroxides and their mixtures containing not less than 70 per cent dry and inert solids are not subject to the provisions of ADR.

10° a,a-Dimethylbenzyl hydroperoxide (cumyl hydroperoxide) with a peroxide content not exceeding 95 per cent.

11° Dilauroyl peroxide.

12° 1,2,3,4-Tetrahydro-1-naphthyl hydroperoxide.

13° 2,4-Dichlorobenzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

14° p-Menthanyl hydroperoxide with a peroxide content not exceeding 95 per cent (remainder: alcohols and ketones).

15° 2,6,6-Trimethyl norpinanyl hydroperoxide (pinanyl hydroperoxide; pinane hydroperoxide) with a peroxide content not exceeding 95 per cent (remainder: alcohols and ketones).

16° Di (a,a-dimethylbenzyl) peroxide (dicumyl peroxide) with a peroxide content not exceeding 95 per cent.

NOTE: Dicumyl peroxide containing 60 per cent or more dry and inert solids is not subject to the provisions of ADR.

17° Parachlorobenzoyl peroxide:

(a) with not less than 10 per cent water;

(b) with not less than 30 per cent phlegmatizer.

NOTE: 1. Parachlorobenzoyl peroxide in the dry state or with less than 10 per cent water or less than 30 per cent phlegmatizer is a substance of Class 1a [see marginal 2101, 10° (c)].

2. Parachlorobenzoyl peroxide containing 70 per cent or more dry and inert solids is not subject to the provisions of ADR.

18° Di-isopropylbenzene hydroperoxide (isopropylcumyl hydroperoxide) with 45 per cent of a mixture of alcohol and ketone.

2551

19° 4-Methylpentan-2-one peroxide (isobutylmethylketone peroxide) with not less than 40 per cent phlegmatizer.

20° Tertiary-butyl (cumyl) peroxide with not more than 95 per cent peroxide.

21° Diacetyl peroxide with not less than 75 per cent phlegmatizer.

22° Acetyl benzoyl peroxide with not less than 60 per cent phlegmatizer.

NOTE For 1° to 22°: substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling-point not lower than 150°C are deemed to be phlegmatizing substances; substances of Group A may also be diluted with solvents which are inert to these substances.

Group B

30° Butanone peroxide (ethyl methyl ketone peroxide):

(a) with not less than 50 per cent phlegmatizer;

(b) in solutions containing not more than 12 per cent of this peroxide in solvents which are inert to it.

31° Tertiary butyl hydroperoxide:

(a) with not less than 20 per cent ditertiary butyl peroxide, without phlegmatizer;

(b) in solutions containing not more than 12 per cent of this hydroperoxide in solvents which are inert to it.

NOTE: For 30° and 31° substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling-point not lower than 150°C are deemed to be phlegmatizing substances.

Group C

35° Peracetic acid containing not more than 40 per cent peracetic acid and not less than 45 per cent acetic acid and not less than 10 per cent water.

NOTE: re Groups A, B and C. Mixtures of products listed in Groups A, B and C are to be accepted for carriage subject to the conditions laid down for Group C if they contain peracetic acid, and in other cases subject to the conditions laid down for Group B.

Group D

40° Samples of phlegmatized organic peroxides not listed in Groups A, B or C, or of their solutions, are to be accepted in quantities not exceeding 1 kg per package on condition that their stability in storage is at least equal to that of the substances listed in Groups A and B.

Group E

NOTE: Group E comprises organic peroxides which decompose easily at normal temperatures and must therefore be carried only under conditions of adequate refrigeration. Although of an explosive nature as defined by the Note on

Class 5.2, a few organic peroxides are included in Group F because they can be safely carried in a refrigerated state and in order to avoid any confusion regarding their handling.

45° Dioctanoyl peroxide (dicaprylyl peroxide) of technical purity.

46° Acetyl cyclohexane sulphonyl peroxide:

(a) containing not less than 30 per cent water:

(b) in solution with not less than 80 per cent solvent:

(c) in solution with not less than 70 per cent phlegmatizer.

47° Diisopropyl peroxydicarbonate:

(a) of technical purity:

(b) in solution with not less than 50 per cent phlegmatizer or solvent.

48° Dipropionyl peroxide in solution with not less than 75 per cent solvent.

49° Tertiary butyl perpivalate:

(a) of technical purity:

(b) in solution with not less than 25 per cent phlegmatizer or solvent.

50° Bis-(3,5,5-trimethylhexanoyl) peroxide in solution with not less than 20 per cent phlegmatizer.

51° Dipelargonyl peroxide of technical purity.

52° Tertiary butyl per-2-ethylhexanoate of technical purity.

53° Di-2-ethylhexyl-peroxydicarbonate in solution with not less than 55 per cent phlegmatizer or solvent.

54° Didecanoyl peroxide of technical purity.

55° Tertiary butyl perisobutyrate in solution with not less than 25 per cent solvent.

NOTES: 1. Substances which are inert to organic peroxides and have a flash-point not lower than 100°C and a boiling point not lower than 150°C are deemed to be phlegmatizing substances.

2. The solvents referred to are substances which are inert to organic peroxides and which also satisfy one of the following conditions:

(a) they are not inflammable and have a boiling point of not less than 85°C; or

(b) they are not inflammable and have a boiling point of less than 85°C but not less than 60°C, in which case hermetically-closed containers must be used; or

(c) they have a flash-point of not less than 21°C and a boiling point of not less than 85°C; or

(d) they have a flash-point of less than 21°C but not less than 5°C and a boiling point of not less than 60°C, in which case hermetically closed containers must be used.

Group F

99° Empty packagings, empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, having contained substances of Class 5.2.

2. Provisions

A. Packages

1. General conditions of packing

(1) The materials of which the packagings and their closures are made must not be liable to attack by the contents or form harmful or dangerous compounds therewith. 2552

(2) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. Inner packagings shall be firmly secured in outer packagings. Unless otherwise specified in the section entitled "Packing of a single substance", inner packagings may be enclosed in outer packagings, either singly or in groups.

(3) Cushioning materials must not be readily inflammable; in addition, they shall be suited to the nature of the contents and must not cause the peroxides to decompose.

2. Packing of a single substance

a. Packing of substances of Group A

Receptacles shall be so closed and leakproof as to prevent any loss of the contents. 2553

(1) Substances of 1° to 7°, 8° (b), 9° (b), 10° to 12°, 13° (b), 14° to 16°, 17° (b) and 18° to 22° and their solutions must be packed: 2554

(a) in hot-dipped tinned receptacles or in receptacles made of aluminium not less than 99.5 per cent pure; or

(b) in receptacles, made of suitable plastics material, which shall be placed in protective packagings; or

(c) not more than 2 litres per bottle, in tightly closing glass bottles which shall be secured by cushioning materials in a protective packaging so as to be protected against breakage.

(2) Substances of 1° to 3°, 5° to 7°, 8° (b), 9° (b), 10° to 12°, 13° (b), 16°, 18° and 20° may also be packed in hot-dipped galvanized receptacles.

(3) Substances of 8° (a), 9° (a), 13° (a) and 17° (a) shall be contained, not more than 5 kg per packaging, in water-tight packagings placed in a wooden case.

(4) Pasty and solid peroxides may also be packed in bags, made of a suitable plastics material, placed in suitable protective packagings. The thickness of the packing material shall be sufficient to prevent any loss of the contents from the bags in normal carriage. Solid peroxides may be packed, not more than 1 kg per receptacle, in paraffin-waxed fibreboard receptacles placed in a wooden case; however, in the case of cyclohexanone peroxides of 9° (a) the contents of a receptacle shall be limited to 500 g.

(5) Substances of 10° and of 14° to 18° may also be packed in receptacles made of sheet-steel.

(6) With the exception of bags made of a suitable plastics material, receptacles containing liquid or pasty organic peroxides must not be filled beyond 93 per cent of their capacity.

(7) A package must not weigh more than 50 kg. Packages weighing more than 15 kg shall be fitted with means of handling.

b. Packing of substances of Group B

(1) Receptacles filled with substances of 30° (a) and 31° (a) shall be fitted with a venting device allowing compensation between the internal pressure and the atmospheric pressure and in all circumstances - even in the event of expansion of the liquid through heating - preventing the liquid from splashing out and impurities from entering the receptacle. For substances of 30° (b) and 31° (b), only receptacles so closed and leakproof as to prevent any loss of the contents shall be accepted. 2555

(2) Packages shall be fitted with a base which keeps them securely upright without danger of falling.

(1) Substances of 30° (a) and 31° (a) shall be packed: 2556

(a) in hot-dipped tinned or hot-dipped galvanized receptacles or in receptacles made of aluminium not less than 99.5 per cent pure; or

(b) in receptacles, made of a suitable plastics material, placed in protective packagings. The strength of these receptacles shall be sufficient to prevent any loss of the contents in normal carriage; or

(c) not more than 2 litres per bottle, in glass bottles, which shall be secured by cushioning materials in protective packagings so as to be protected against breakage.

(2) Receptacles containing liquid or pasty organic peroxides must not be filled beyond 90 per cent of their capacity.

(3) A package must not weigh more than 40 kg. Packages weighing more than 15 kg shall be fitted with means of handling.

(4) Substances of 30° (b) and 31° (b) may be forwarded only in quantities not exceeding 5 kg in receptacles as specified in (1) but not equipped with a venting device (in glass bottles, only in quantities not exceeding 1.5 litre).

The receptacles must not be filled beyond 75 per cent of their capacity.

c. Packing of substances of Group C

2557 (1) Substances of 35° and mixtures containing peracetic acid shall be packed, not more than 25 kg per receptacle, in thick-walled glass receptacles, or in receptacles made of a suitable plastics material, fitted with a special closure made of a suitable plastics material, capable of being sealed, in communication with the atmosphere through an opening situated above the level of the liquid, and in all circumstances - even in the event of expansion of the liquid through heating - preventing the liquid from splashing out and impurities from entering the receptacle.

(2) Glass receptacles shall be firmly secured, by clean mica powder or glass wool used as cushioning materials, in protective packagings made of sheet steel or of aluminium, capable of being closed, and fitted with means of handling and with a base which keeps them securely upright without risk of falling; the receptacles shall be secured even if the walls of the protective packagings are not complete. Receptacles made of a suitable plastics material must be placed in close-fitting protective packagings made of sheet-steel and capable of being closed.

d. Packing of substances of Group D

2558 Substances of Group D shall be packed, in quantities not exceeding 1 kg per package, in hot-dipped tinned receptacles, or in receptacles made of aluminium not less than 99.5 per cent pure, or in bottles made of a suitable plastics material injection moulded or blown and having a sufficient wall thickness, or in glass bottles placed in protective packagings made of sheet steel, aluminium or wood. The glass bottles shall be firmly secured in the protective packagings by clean mica powder or glass wool used as cushioning materials. Solid compounds may also be packed in bags, made of a suitable plastics material of sufficient thickness, likewise placed in protective packagings made of sheet-steel, aluminium, or wood. If the peroxides give off gases at a temperature lower than 40°C, the receptacles must satisfy the conditions of marginal 2555.

e. Packing of substances of Group E

2559 (1) Packages containing substances of Group E shall be fitted with a venting device allowing compensation between the internal pressure and the atmospheric pressure and in all circumstances – even in the event of expansion of the liquid through heating – preventing the liquid from splashing out and impurities from entering the receptacle.

(2) Receptacles containing liquid organic peroxides must not be filled beyond 95 per cent of their capacity.

2560 (1) Substances of 45°, 51° and 54° shall be packed, not more than 50 kg per receptacle or bag, in receptacles or bags, made of a suitable plastics material, which shall be placed in suitable protective packagings in quantities not exceeding 50 kg per packaging.

(2) Substances of 46° (a) shall be packed, not more than 5 kg per bag, in bags made of a suitable plastics material, which shall be placed, not more than 20 kg per packaging and either singly or in groups, in suitable protective packagings.

(3) Substances of 47° (a)shall be packed:

(a) not more than 1 kg per receptacle, in receptacles made of a suitable plastics material;

(b) not more than 3 kg per bowl, in bowls made of aluminium not less than 99.5 per cent pure, with plastics lids.

The protective packaging must not contain more than 10 kg of the substance.

(4) Substances of 46° (b) and (c), 47° (b), 48°, 49° (b), 50°, 52°, 53° and 55° shall be packed, not more than 25 kg per receptacle, in receptacles made of a suitable plastics material, which shall be placed, not more than 50 kg per packaging (but not more than 25 kg per packaging in the case of substances of 52°), in protective packagings.

(5) Substances of 49° (a) shall be packed, not more than 10 kg per receptacle, in receptacles made of a suitable plastics material, which shall be placed, not more than 40 kg per packaging, in protective packagings.

(6) Packages weighing more than 35 kg which contain substances of Group E shall be fitted with means of handling.

f. Packing of substances in small quantities

2561 Substances of 1° to 22°, 30° and 31°, forwarded in small quantities, may also be packed as follows:

(a) liquids

not more than 1 kg per package, in bottles, made of aluminium, a suitable plastics material, or glass, with stoppers, made of a suitable plastics material or with yoke or screw closures having, in either case, an elastic gasket. The bottles shall be secured, by clean mica powder or glass wool used as cushioning materials, in fibreboard or wooden boxes. The filling material must be sufficient in quantity to absorb the whole of the liquid. The bottles must not be filled beyond 75 per cent of their capacity;

(b) pasty or powdered substances

not more than 1 kg per package, in aluminium boxes or in fibreboard or wooden boxes (the two latter being lined with aluminium or with a suitable plastics material) with a strong closure. A free space of 10 per cent shall be left in the packagings.

3. Mixed packing

2562 Substances of Class 5.2 may not be included in the same package either with other substances or articles of ADR or with other goods. Substances of Group C must not be included in the same package with substances of Groups A, B or E.

4. Marking and danger labels on packages (see Appendix A.9)

2563 (1) Every package containing substances of Class 5.2 shall bear two labels conforming to model No.5.

Packages containing substances of 46° (a), 47° (a) and 49° (a) shall also bear a label conforming to model No.1.

(2) Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No.12. If the fragile receptacles contain liquids, the packages shall in addition, except in the case of sealed ampoules, bear labels conforming to model No.11; packages containing substances of 30°, 31°, 35°, 40° and 45° to 55° shall also bear labels conforming to model No.11; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used.

2564

B. Particulars in the transport document

2565 The description of the goods in the transport document must conform to one of the names underlined in marginal 2551; it must be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 5.2, 8° (a), ADR].

2566
-2569

C. Empty packagings

2570 (1) Empty packagings of 99°, uncleaned, shall be closed in the same manner and be leakproof to the same degree as if they were full.

(2) Empty packagings of 99°, uncleaned, shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the names underlined in 11°, e.g. Empty packaging, 5.2, 99°, ADR. This text shall be underlined. In the case of empty tank-vehicles, empty demountable tanks and empty tank-containers, uncleaned, this description shall be completed by adding the words "Last load" together with the name and item number of the goods last loaded, e.g. Last load: 2,6,6-trimethyl norpinanyl hydroperoxide, 5.2, 15°.

2571
-2599

CLASS 6.1 TOXIC SUBSTANCES

1. List of substances

(1) Among the substances and articles covered by the heading of Class 6.1,[1/] those which are listed in marginal 2601 or are covered by a collective heading of that marginal are subject to the conditions set out in marginals 2600(2) to 2622 and the provisions of this Annex and of Annex B. They are then considered as substances and articles of ADR;[2/] 2600

Substances of Class 6.1 (other than the substances of 1° to 3°) which are classified under the various items of marginal 2601 shall be assigned to one of the following groups designated by the letter (a), (b) or (c) according to their degree of toxicity:

letter (a): Highly toxic substances

letter (b): toxic substances

letter (c): Harmful substances

When, as a result of additions, substances of Class 6.1 pass into categories of toxicity or boiling point other than those to which the substances specified in marginal 2601 belong, such mixtures or solutions shall be classified under the items or letters to which they belong on the basis of their actual degree of toxicity or their boiling point.

When, as a result of additions, substances of Class 6.1 pass into the category having a flash-point below 21°C, such mixtures and solutions shall be classified under the corresponding items and letters of Class 3, taking into account their toxicity.

When, as a result of additions of substances of Class 8, substances of Class 6.1 acquire a preponderance of corrosive properties, such mixtures or solutions shall be classified under the corresponding items and letters of Class 8.

NOTE: Toxic inflammable liquids having a flash-point below 21°C, other than hydrocyanic acid and its solutions and metal carbonyls, are substances of Class 3, marginal 2301, 11° to 20°.

	Subdivision into groups within an item	Oral toxicity LD_{50} (mg/kg)	Dermal toxicity LD_{50} (mg/kg)	Toxicity on inhalation LC_{50} Dusts and mists (mg/l)
Highly toxic	(a)	≤ 5	≤ 40	≤ 0.5
Toxic	(b)	> 5-50	> 40-200	> 0.5-2
Harmful	(c)	solids: > 50-200 liquids: > 50-500	> 200-1000	> 2-10

Where a substance exhibits different degrees of toxicity for two or more kinds of exposure, it should be classified under the highest such degree of toxicity.

Substances, which by reason of their toxicity criteria would normally fall within the classification "harmful", are classified as toxic if their vapour pressure at 20°C is sufficient to create an atmosphere producing on the eyes an irritant lachrymatory effect comparable to that of tear gases.

LD_{50} value for acute oral toxicity

That dose of the substance administered which is most likely to cause death within 14 days in one half of both male and female young adult albino rats. The number of animals tested shall be sufficient to give a statistically significant result and shall be in conformity with good pharmacological practices. The result is expressed in milligrams per kg body mass.

LD_{50} value for acute dermal toxicity

That dose of the substance which, administered by continuous contact for 24 hours with the bare skin of albino rabbits is most likely to cause death within 14 days in one half of the animals tested. The number of animals tested shall be sufficient to give a statistically significant result and shall be in conformity with good pharmacological practices. The result is expressed in milligrams per kg body mass.

LC_{50} value for acute toxicity on inhalation

That concentration of vapour, mist or dust which, administered by continuous inhalation for one hour to both male and female young adult albino rats, is most likely to cause death within 14 days in one half of the animals tested. If the substance is administered to the animals as dust or mist, more than 90 per cent of the particles available for inhalation in the test must have a diameter of 10 μm or less, provided that it is reasonably foreseeable that such concentrations could be encountered by man during transport. The result is expressed in milligrams per litre of air for dusts and mists and in millilitres per cubic metre of air (parts per million) for vapours.

The criteria for inhalation toxicity of dusts and mists are based on LC_{50} data relating to 1-hour exposures, and where such information is available it should be used. However, where only LC_{50} data relating to 4-hour exposures to dusts and mists are available, such figures can be multiplied by four and the product substituted in the above criteria, i.e. LC_{50} (4 hour) × 4 is considered the equivalent of LC_{50} (1 hour).

Inhalation toxicity of vapours

The following criteria shall be used for the classification in groups (a) to (c) of liquids giving off toxic vapours, where "V" is the saturated vapour concentration in ml/m³ air at 20°C and standard atmospheric pressure:

1/ See page 140 through page 142.

2/ For the quantities of substances of marginal 2601 which are not subject to the provisions for this Class either in this Annex or in Annex B, see marginal 2601a.

1/ The heading of Class 6.1 covers the toxic substances of which it is known by experience or regarding which it is presumed from experiments on animals that in relatively small quantity they are able by a single action or by action of short duration to cause damage to human health, or death, by inhalation, by cutaneous absorption or by ingestion.

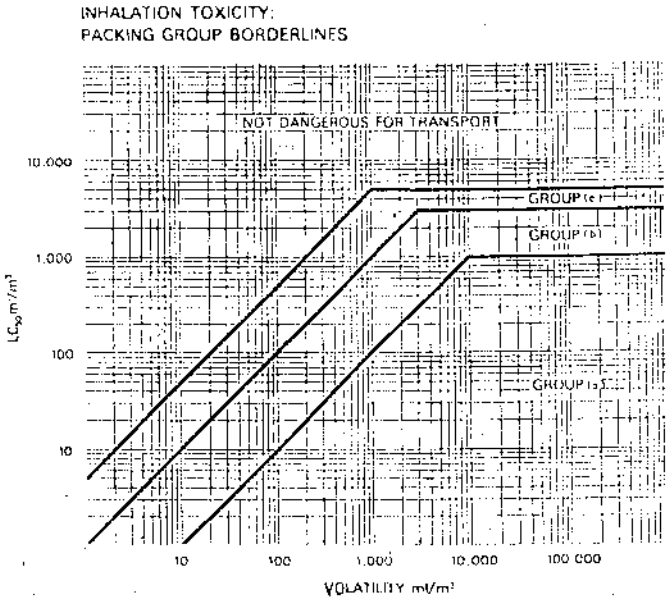
Substances, including pesticides of 71° to 88°, not expressly mentioned should be classified under the appropriate item and letter according to the following provisions:

To assess the toxic hazard, account should be taken of human experience in instances of accidental poisoning, and of special properties possessed by any individual substances, such as liquid state, high volatility, any special likelihood of cutaneous absorption, and special biological effects.

In the absence of observations on man, the toxic hazard should be assessed using the available data from animal experiments in accordance with the table below:

	Subdivision into groups within an item	
Highly toxic	(a)	Where $V \geq 10 LC_{50}$ and $LC_{50} \leq 1000$ ml/m³
Toxic	(b)	Where $V \geq LC_{50}$ and $LC_{50} \leq 3000$ ml/m³ and the criteria for (a) are not met
Harmful	(c)	Where $V \geq 1/5\ LC_{50}$ and $LC_{50} \leq 5000$ ml/m³ and the criteria for (a) or (b) are not met

These criteria for inhalation toxicity of vapours are based on LC_{50} data relating to 1-hour exposures, and where such information is available, it should be used. However, where only LC_{50} data relating to 4-hour exposures to the vapours are available, such figures can be multiplied by two and the product substituted in the above criteria, i.e. LC_{50}(4 hour) × 2 is considered the equivalent of LC_{50}(1 hour).



In this figure the criteria are expressed in graphical form, as an aid to easy classification. However, due to approximations inherent in the use of graphs, substances falling on or near packing group borderlines should be checked using numerical criteria.

(2) For the packaging requirements of marginals 2605(2), 2606(3) and 2607(2), substances or mixtures of substances having a melting point above 45 °C, are considered solids.

(3) The chemically unstable substances of Class 6.1 are to be accepted for carriage only if the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end, care should in particular be taken to ensure that packagings do not contain any substance liable to promote these reactions.

(4) The flash-point referred to below shall be determined in the manner described in Appendix A.3.

NOTE: Even where no substance is listed under letters (a), (b) or (c) of the various items, substances, solutions, mixtures and preparations may be classified under these letters in accordance with the criteria set out in marginal 2600.

A. Highly toxic substances which have a flash-point below 21 °C and a boiling point below 200 °C and are not substances of Class 3.

1° Hydrocyanic acid containing not more than 3 per cent water (completely absorbed by an inert porous substance or in the liquid state), on condition that the filling of the receptacles was carried out less than one year previously;

NOTES: 1. Special conditions of packing are applicable to this substance (see marginal 2603(1)).

2. Hydrocyanic acid not satisfying these conditions is not to be accepted for carriage.

2° The following solutions of hydrocyanic acid:

Aqueous solutions of hydrocyanic acid containing not more than 20 per cent pure acid;

Alcoholic solutions of hydrocyanic acid containing not more than 45 per cent pure acid in methanol;

Alcoholic solutions of hydrocyanic acid containig not more than 40 per cent acid in ethanol.

NOTES: 1. Special conditions of packing are applicable to these substances (see marginal 2603(2)).

2. Aqueous solutions of hydrocyanic acid containing more than 20 per cent pure acid, alcoholic solutions of hydrocyanic acid containing more than 45 per cent pure acid in methanol, and alcoholic solutions of hydrocyanic acid containing more than 40 per cent pure acid in ethanol are not to be accepted for carriage.

3° The following metal carbonyls:

Iron pentacarbonyl, nickel tetracarbonyl

NOTES: 1. Special conditions of packing are applicable to these substances (see marginal 2604).

2. For metal carbonyls having a flash-point of 21 °C or over, see 36°. Other metal carbonyls having a flash-point below 21 °C are not to be accepted for carriage.

B. Organic substances which have a flash-point of 21 °C or over or are non-inflammable

NOTE: Organic substances and preparations used as pesticides are substances of 71° to 77° and 81° to 83°.

11° Nitrogenous substances having a boiling point below 200 °C, such as:

(a) acetone cyanohydrin;

(b) aniline, benzonitrile, diamethylaminoacetonitrile, N, N-dimethyl-aniline, dimethylpyridine, lactonitrile, methoxypropionitrile, (mono)chloroacetonitrile, trichloroacetonitrile;

(c) diethylaminoacetonitrile, N-methylaniline.

NOTE: Isocyanates having a boiling point below 200 °C are substances of 18°.

12° Nitrogenous substances having a boiling point of 200 °C or over, such as:

(a)...

(b) 2-aminobenzonitrile, aminonitrobenzonitrile, benzidine, bromoanilines, N-butylanilines, chloronitrobenzenes, dichloroanilines, benzidine dihydrochloride, dimethylaminoborane, dinitroanilines, dinitrobenzenes, dinitrotoluenes, ethyltoluidines, nitrobenzotrifluorides, 3-nitro-4-chlorobenzotrifluoride, monochloroanilines, mononitroanilines, mononitrotoluenes, beta-naphthylamine, nitrobenzene, nitroxylenes, phenylhydrazine, benzidine sulphate, toluidines, xylidines.

(c) acrylamide, adiponitrile, aminophenols, anisidines, benzylcyanide (phenylacetonitrile), diaminodiphenylmethane, N,N-diethylaniline, ethylanilines, N-ethyl-N-bezylanimine, alphanaphthylamine, nitrocresols, nitrophenols, phenetidines, phenylenediamines, 2,4-toluylenediamine.

NOTE: Isocyanates having a boiling point of 200 °C or over are substances of 19°.

2601

13° Oxygenated substances having a boiling point below 200 °C, such as:

(a) allyl alcohol, dimethyl sulphate;

(b) aldol (beta hydroxybutyraldehyde), phenol, chlorodimethyl sulphate;

(c) furfuryl alcohol, triallyl borate, ethylene glycol monobutyl ether, ethyl oxalate.

14° Oxygenated substances having a boiling point of 200 °C or over, such as:

(a)...

(b) benzoquinone, chlorocresols, cresols, diethyl sulphate, xylenols:

(c) alkyloxyphenols, alkylphenols (with C_2 to C_8 chains), hydroquinone, pyrocatechol, quinhydrone, resorcinol.

15° Halogenated hydrocarbons having a boiling point below 200°C, such as:

(a)...

(b) benzyl bromide, ethyl bromide, chloroform, benzyl chloride, ethylene dibromide (sym.-dibromoethane), methyl iodide, pentachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2,-tetrachloroethane (acetylene tetrachloride), carbon tetrachloride.

NOTE: Mixtures of ethylene dibromide (sym. - dibromoethane) with methyl bromide having, at 50°C, a vapour pressure greater than 300 kPa (3 bar) are substances of Class 2 (see marginal 2201, 4° (b t)).

(c) bromoform, methylene chloride (dichloromethane), 1,2-dichlorobenzene, carbon tetrabromide, tetrachloroethylene (perchloroethylene), trichloroethylene, 1,1,1-trichloroethane, trichloropropane.

NOTE: Mixtures of methylene chloride with methyl chloride having, at 50°C, a vapour pressure greater than 300 kPa (3 bar) are substances of Class 2 (see marginal 2201, 4° (b t)).

16° Other halogenated substances having a boiling point below 200°C, such as:

(a) chloropicrin, chlorotrifluoropyrimidine, epibromohydrin, perchloromethylmercaptan;

NOTES: 1. Mixtures of chloropicrin with methyl bromide or methyl chloride, having, at 50°C, a vapour pressure greater than 300 kPa (3 bar) are substances of Class 2 (see marginal 2201 4° (a t) or 4° (b t)).

2. Symmetrical dichlorodimethyl ether is not to be accepted for carriage.

(b) chloroacetaldehyde, ethylbromoacetate, methylbromoacetate, bromoacetone, ethylchloroacetate, methylchloroacetate, chloroacetone, cyclohexyl chloroformate, 2-ethylhexyl chloroformate, phenyl chloroformate, 1-chloro-1-nitropropane, 1-chloro-2-propanol, 1,2-dibromo-3-butanone, sym.-dichloroacetone, 1,3-dichlorohydrin (1,3-dichloro-2-propanol), 1,1-dichloro-1-nitroethane, epichlorohydrin, 2,2-dichloroethyl ether, dichloroisopropyl ether, 3-aminobenzotrifluoride, ethylene chlorohydrin (2-chloroethanol), pentafluorobenzaldehyde, trichloroacetaldehyde (chloral), trichloronitroethane.

NOTE: Chloroformates having predominantly corrosive properties are substances of Class 8 (see marginal 2801, 64°).

(c) 2-chlorophenol, 3-chloro-1-propanol, methyl dichloroacetate, methyl trichloroacetate.

17° Halogenated substances having a boiling point of 200°C or over, such as:

(a) phenylcarbylamine chloride, alpha-bromobenzyl cyanide;

(b) phenacyl bromide (omega-bromoacetophenone), nitrobenzyl bromide, xylyl bromide, phenacyl chloride (omega-chloroacetophenone), benzylidene chloride, hexafluoroacetone hydrate, benzyl idodide, sodium pentachlorophenate, trichlorobutene.

(c) chloroanisidines, chlorobenzaldehyde, tert-butylcyclohexylchloroformate, chloronitroanilines, chloronitrotoluenes, 3-chlorophenol, 4-chlorophenol, chlorotoluidines, bromobenzyl chloride, chlorobenzyl chlorides, dichlorophenols, dichlorotoluidines, hexachloroacetone, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, sodium monochloroacetate, 1,1,2,2-tetrabromoethane (acetylene tetrabromide), tetrachlorobenzenes, tetrachlorophenols, trichlorobenzenes, trichlorophenols.

NOTES: 1. Chloroformates having predominantly corrosive properties are substances of Class 8 (see marginal 2801, 64°).

2. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in concentrations considered highly toxic according to the criteria in marginal 2600 (1), footnote[1] is not to be accepted for carriage.

18° Isocyanates having a boiling point below 200°C, such as:

(a) ...

(b) chloroethyl isocyanate, cyclohexyl isocyanate, phenyl isocyanate, tolyl isocyanate; solutions of isocyanates of 18° (b) and 19° (b) having a flash-point of 21°C or over.

NOTE: Solutions of these isocyanates having a flash-point below 21°C are substances of Class 3 [see marginal 2301, 14° (b)].

(c) ...

19° Isocyanates having a boiling point of 200°C or over, such as:

(a) ...

(b) hexamethylene di-isocyanate, 2,4-toluylene di-isocyanate and isomeric mixtures, 3-chloro-4-methylphenyl isocyanate, 3-chlorophenyl isocyanate, 4-chlorophenyl isocyanate, 3, 4-dichlorophenyl isocyanate, alpha-naphthyl isocyanate, tosyl isocyanate;

NOTES: 1. Solutions of these isocyanates having a flash-point below 21°C are substances of Class 3 [see marginal 2301, 14° (b)].

2. Solutions of these isocyanates having a flash-point of 21°C or over are substances of 18° (b).

(c) 4,4'-diphenylmethane di-isocyanate, isophorone di-isocyanate (3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate), 1,5-naphthylene di-isocyanate, trimethylhexamethylene di-isocyanate and isomeric mixtures, stearyl isocyanate, solutions of isocyanates of 19° C having a flash-point of 21°C or over.

20° Substances containing sulphur and having a boiling point below 200°C, such as:

(a) thiophenol;

(b) 2-ethylthiophene, furfurylmercaptan, allyl isothiocyanate, ethyl isothiocyanate, mercaptoethanol (thioglycol), thiophosgene, solutions of isothiocyanates of 20° (b) having a flash-point of 21°C or over;

NOTE: Solutions of these isothiocyanates having a flash-point below 21°C are substances of Class 3 [see marginal 2301, 18° (b)].

(c) methyl isothiocyanate, 4-thiapentanal.

21° Substances containing sulphur and having a boiling point of 200°C or over, such as:

(a) ...

(b) 2-acetylthiophene, aminothiophenol;

(c) ...

22° Substances containing phosphorus and having a boiling point below 200°C, such as:

(a) ...

(b) triethyl phosphine;

(c) ...

23° Substances containing phosphorus and having a boiling point of 200°C or over, such as:

(a) ...

(b) ethyldiphenylphosphine, triphenylphosphine oxide, tricresyl phosphate with more than 3 per cent ortho isomer, triethylene-phosphoramide;

(c) ...

24° Organic compounds which cannot be classified under other collective headings, such as:

(a) ...

(b) benzoyl cyanide;

(c) 1,5,9-cyclododecatriene

C. Organometallic compounds and carbonyls

NOTES: 1. Toxic organometallic compounds used as pesticides are substances of 78° to 80°.

2. Spontaneously inflammable organometallic compounds are substances of Class 4.2 (see marginal 243).

3°). Organometallic compounds which, in contact with water, release inflammable gases are substances of Class 4.3 [see marginal 2471, 2° (e)].

31° Organic lead compounds such as:

(a) tetraethyl lead, tetramethyl lead, mixtures of lead alkyls with halogenated organic compounds, e.g. ethyl fluid (anti-knock additive for motor fuels).

32° Organic tin compounds, such as:

(a) ...

(b) dibutyl tin chloride, dimethyl tin chloride;

(c) monoalkyl tin chlorides, other dibutyl tin compounds.

NOTE: Butyl tin trichloride is a substance of Class 8 [see marginal 2801, 21° (b)].

33° Organic mercury compounds, such as:

(a) ...

(b) ...

(c) ...

34° Organic arsenic compounds, such as:

(a) ...

(b) ...

(c) ...

35° Other organometallic compounds, such as:

Organic compounds of antimony, cadmium, chromium, cobalt and thallium.

(a) ...

(b) ...

(c) ...

36° Carbonyls, such as:

(a) ...

(b) ...

(c) chromium carbonyl, cobalt carbonyl.

NOTE: Iron pentacarbonyl and nickel tetracarbonyl are substances of 3°.

D. Inorganic substances which may release toxic gases on contact with water (or atmospheric humidity), aqueous solutions or acids

41° Inorganic cyanides, such as:

(a) solid cyanides, such as: barium cyanide, calcium cyanide, potassium cyanide, sodium cyanide, solutions of inorganic cyanides, preparations of inorganic cyanides;

complex cyanides in solid form, such as: sodium cuprocyanide, mercuric potassium cyanide, solutions of complex cyanides.

(b) solid cyanides, such as: mercury cyanide;

complex cyanides in solid form, such as: potassium cuprocyanide.

(c) ...

NOTE: Ferricyanides, ferrocyanides, alkaline thiocyanates and ammonium thiocyanate are not subject to the provisions of ADR.

42° Azides, such as:

(a) barium azide with not less than 50 per cent water or alcohols;

(b) aqueous solutions of barium azide, sodium azide;

(c) ...

NOTES: 1. Azides which may explode on contact with a flame or which are more sensitive to shock or to friction than dinitrobenzene are not to be accepted for carriage unless they are specifically listed in Class 1a.

2. Barium azide in the dry state or with less than 50 per cent water or alcohols is not to be accepted for carriage.

43° Preparations of phosphides containing additives inhibiting spontaneous ignition, such as:

(a) aluminium phosphide, magnesium phosphide;

(b) zinc phosphide;

(c) ...

NOTES: 1. These preparations are not to be accepted for carriage unless they contain additives inhibiting spontaneous ignition.

2. Preparations of sodium phosphide, calcium phosphide and strontium phosphide are substances of Class 4.2 (see marginal 2431 2°).

44° (b) Ferro-silicon and mangano-silicon with more than 30 per cent and less than 70 per cent silicon, ferro-silicon alloys with aluminium, manganese, calcium or more than one of these metals, with a total content of silicon and of elements other than iron and manganese greater than 30 per cent but less than 70 per cent;

(c) ...

Substances of 44° shall be accepted for carriage only if they have been stored for not less than three days in a dry place open to the air.

NOTES: 1. Ferro-silicon and mangano-silicon briquettes, whatever their silicon content, are not subject to the provisions of ADR;

2. Substances of 44° are not subject to the provisions of ADR if they are not liable to release dangerous gases under the effect of moisture during carriage and the sender so certifies in the transport document.

E. Other inorganic substances

51° Arsenical compounds, such as:

(a) arsenic acid (liquid), liquid arsenical compounds, arsenic trichloride;

(b) arsenic acid (solid), arsenic trioxide (white arsenic), arsenic pentoxide, calcium arsenate, magnesium arsenate, potassium arsenate, sodium arsenate, potassium arsenite, sodium arsenite, arsenic bromide;

(c) ...

NOTE: Substances and preparations containing arsenic and used as pesticides are substances of 84°.

52° Mercury compounds, such as:

(b) mercuric acetate, mercuric chloride;

(c) ...

NOTES: 1. Substances and preparations containing mercury and used as pesticides are substances of 86°.

2. Cinnabar and mercurous chloride (calomel) are not subject to the provisions of ADR.

3. Fulminates of mercury are not to be accepted for carriage.

4. Mercuric potassium cyanide and mercury cyanide are substances of 41°.

53° Thallium compounds, such as:

(b) ...

(c) ...

NOTE: Substances and preparations containing thallium and used as pesticides are substances of 88°.

54° Beryllium and beryllium compounds, such as:

(b) beryllium in powder form;

(c) ...

55° Selenium and selenium compounds, such as:

(a) selenates, selenites;

(b) selenium disulphide, selenium dioxide;

(c) selenium metal.

NOTE: Selenic acid is a substance of Class 8 (see marginal 2801, 11° (a)).

56° Osmium compounds such as:

(a) osmium tetroxide;

(b) ...

(c) ...

57° Tellurium compounds, such as:

(b) tellurum dioxide, aluminium telluride, cadmium telluride, zinc telluride;

(c) ...

58° Vanadium compounds, such as:

(b) vanadium pentoxide, vanadates;

(c) ...

NOTES: 1. Vanadium oxytrichloride, vanadium tetrachloride and vanadium trichloride are substances of Class 8 (see marginal 2801, 21° and 22°).

2. Vanadium chlorate and perchlorate are substances of Class 5.1 (see marginal 2501, 4°).

59° Antimony compounds, such as:

(c) antimony oxides, antimony salts

NOTES: 1. Antimony pentachloride, antimony trichloride and antimony pentafluoride are substances of Class 8 (see marginal 2801, 21°, 22° and 26°).

2. Antimony chlorate and antimony perchlorate are substances of Class 5.1 (see marginal 2501, 4°).

3. Antimony oxides with an arsenic content not exceeding 0.5 per cent of the total mass, and stibnite, are not subject to the provisions of ADR.

60° Barium compounds, such as:

(c) barium carbonate, barium chloride, barium fluoride, barium hydroxide, barium oxide, barium sulphide.

NOTES: 1. Barium chlorate, barium nitrate, barium nitrite, barium perchlorate, barium permanganate and barium peroxide are substances of Class 5.1 (see marginal 2501, 4°, 7°, 8° and 9°).

2. Barium azide is a substance of 42°.

3. Barium stearate, barium sulphate and barium titanate are not subject to the provisions of ADR.

61° Cadmium compounds, such as:

(c) cadmium acetate, cadmium carbonate, cadmium nitrate, cadmium sulphate.

NOTE: Cadmium pigments, such as cadmium sulphides, cadmium sulphoselenides and cadmium salts of higher fatty acids (e.g. cadmium stearate), are not subject to the provisions of ADR.

62° Lead compounds, such as:

(c) lead oxides, lead pigments, such as white lead and lead chromate, lead salts including lead acetate;

NOTES: 1. Lead chlorate, lead nitrate and lead perchlorate are substances of Class 5.1 (see marginal 2501, 4° and 7°).

2. Lead salts and lead pigments which are not soluble in 0.1 N. hydrochloric acid are not subject to the provisions of ADR.

63° Residues and wastes containing compounds of antimony or of lead or of both, such as:

(c) lead sludges containing less than 3 per cent free sulphuric acid, ashes of antimony or of lead or of antimony and lead.

NOTE: Lead sludge containing 3 per cent or more free sulphuric acid is a substance of Class 8 (see marginal 2801, 1° (b)).

64° Hydrazine salts, such as:

(c) hydrazine dihydrobromide, hydrazine dihydrochloride, hydrazine monohydrobromide, hydrazine monohydrochloride, hydrazine sulphate.

65° Fluorides soluble in water, such as:

(c) ammonium fluoride, potassium fluoride, sodium fluoride.

NOTE: Corrosive fluorides are substances of Class 8 (see marginal 2801, 25° and 26°).

66° Silicofluorides. such as:

(c) ammonium silicofluoride.

67° (c) Oxalates soluble in water.

68° Inorganic compounds which cannot be classified under other collective headings, such as:

(a) ...

(b) ...

(c) cobalt chloride, cupric chloride, molybdenum trioxide.

NOTE: Substances and preparations containing copper and used as pesticides are substances of 87°.

F. Substances and preparations used as pesticides

NOTES: 1. Inflammable liquid substances and preparations, used as pesticides, which are highly toxic, toxic or harmful and have a flash-point below 21°C are substances of Class 3 (see marginal 2301, 6° or 19°).

2. Articles impregnated with substances and preparations used as pesticides of 71° to 88°, such as fibreboard plates, paper strips, cotton-wool balls, sheets of plastics material, etc., in airtight, hermetically closed envelopes are not subject to the provisions of ADR.

71° to 88°: These items are tabulated under

letter (a): Highly toxic substances and preparations.

letter (b): Toxic substances and preparations.

letter (c): Harmful substances and preparations.

NOTES: 1. All active substances and their preparations used as pesticides shall be classified under 71° to 88° (a), (b) and (c) in accordance with footnote[1/] to marginal 2600 (1).

2. If only the LD_{50} value of the active substance is known and not that of the preparations of the active substance, the preparations may be classified under 71° to 88° (a), (b) and (c) using the following tables, where the figures shown in columns (a), (b) and (c) of 71° to 88° represent the percentage of active pesticide substance in the preparations.

3. For substances which are not named in the list, and for which only the LD_{50} value of the active substance is known and not the LD_{50} values of the various preparations, the classification of a preparation may be determined from th table in footnote[1/] to marginal 2600 (1), using an LD_{50} value obtained by multiplying the LD_{50} value of the active substance by 100/X, X being the percentage of active substance by mass according to the following formula:

$$LD_{50}\text{value of the preparation} = \frac{LD_{50}\text{value of the active substance} \times 100}{\text{percentage of active substance by mass}}$$

4. The classification according to notes 2 and 3 above shall not be used the preparations contain additives which affect the toxicity of the active substance or when a preparation contains more than one active substance. In such cases the classification shall be based on the LD_{50} value of the preparation in question according to the criteria in footnote[1/] to marginal 2600 (1). If the LD_{50} value is not known, the substance shall be classified under (a) of 71° to 88°.

71° Organophosphorus compounds, such as:	71° (a)	71° (b)	71° (c)	
	%	%	solid %	liquid %
Acephate		–	–	100 – 40
Amidithion	–		–	100 – 30
Azinphos-ethyl		100 – >25	25 – 2	25 – 0.5
Azinphos-methyl	–	100 – >20	20 – 2	20 – 0.5
Bromophos-ethyl		–	100 – 10	100 – 3
Carbophenothion	–	100 – >20	20 – 2	20 – 0.5
Chlorfenvinphos		100 – >20	20 – 2	20 – 0.5
Chlormephos	–	100 – >15	15 – 1	15 – >0

71° Organophosphorus compounds, such as (contd):	71° (a) %	71° (b) %	71° (c) solid %	71° (c) liquid %
Chloropyrithos	-	-	100 – 15	100 – 4
Chlorthiophos	100 –>40	40 –>5	5 –>0	5 –>0
Crotoxyphos	–	–	100 – 15	100 – 3
Crufomate	–	–	100 – 90	100 – 20
Demephion (Demephion-O and Demephion-S)	100 – >0	–	–	–
Demeton	100 –>30	30 –>3	3 –>0	3 –>0
Demeton-O-methyl-				
Thiolo Isomer	–	–	100 – 10	100 – 3
Thiono Isomer	–	–	100 – 35	100 – 5
Demeton-S-methyl	–	–	100 – 10	100 – 3
Dialifos	–	–	100 – 10	100 – 2
Diazinon	–	–	100 – 15	100 – 4
Dichlofenthion	–	–	100 – 50	100 – 10
Dichlorvos	–	100 –>35	35 – 5	35 – 5
Dicrotophos	–	100 –>25	25 – 3	25 – 0.5
Dimefox	100 –>20	20 –>2	2 –>0	2 –>0
Dimethoate	–	–	100 – 30	100 – 10
Dioxathion	–	100 –>40	40 – 4	40 – 1
Disulfoton	–	100 –>15	15 – 2	15 –>0
Dithianon	–	–	–	100 – 50
Endothion	–	100 –>45	45 – 5	45 – 1
EPN	100 –>75	75 –>15	15 – 3	15 – 3
Ethion	–	100 –>25	25 – 2	25 – 0.5
Ethoate-methyl	–	–	100 – 25	100 – 5
Ethoprophos	100 –>65	65 –>10	10 – 3	10 – 3
Fenitrothion	–	–	100 – 45	100 – 10
Fensulfothion	100 – >40	40 –>4	4 –>0	4 –>0
Fenthion	-	–	100 – 60	100 – 15
Fonofos	100 –>60	60 –>6	6 –>0	6 –>0
Formothion	-	–	100 – 65	100 – 15
Malathion	–	–	–	100 – 30
Mecarbam	–	100 –>30	30 – 3	30 – 0.5
Mephosfolan	100 –>25	25 –>5	5 –>0	5 –>0
Methidathion	–	100 –>40	40 – 4	40 – 1
Methyltrithion	-	–	100 – 15	100 – 4
Mevinphos	100 –>60	60 –>5	5 –>0	5 –>0
Monocrotophos	–	100 –>25	25 – 3	25 – 0.5
Naled	–	–	100 – 50	100 – 10
Omethoate	–	–	100 – 10	100 – 3
Oxydemeton-methyl	–	100 –>90	90 – 9	90 – 2
Oxydisulfoton	100 –>70	70 –>5	5 –>0	5 –>0
Parathion	100 –>40	40 –>4	4 –>0	4 –>0
Parathion-methyl	–	100 –>15	15 – 1	15 –>0
Phenkapton	–	–	100 – 10	100 –2
Phorate	100 –>20	20 –>2	2 –>0	2 –>0
Phosalone	–	–	100 – 20	100 –5
Phosfolan	–	100 –>15	15 – 2	15 – 0.5
Phosmet (Phthalophos)	–	–	100 – 15	100 –4
Phosphamidon		100 –>30	30 –>3	30 – 0.5
Pirimiphos-ethyl	–	–	100 – 30	100 – 5
Prothoate	–	100 –>15	15 – 1	15 –>0
Pyrazophos	–	–	100 – 55	100 – 15
Pyrazoxon	100 –>80	80 –>5	5 –>0	5 –>0
Sulfotep		100 –>10	10 –>0	10 –>0
Temephos	–	–	–	100 – 50
TEPP	100 –>10	10 –>0	–	–
Terbufos	100 –>15	15 –>3	3 –>0	3 –>0
Thiometon	–	100 –>50	50 – 5	50 – 1
Thionazin	100 –>70	70 –>5	5 –>0	5 –>0
Triamiphon	–	100 –>20	20 – 2	20 – 0.5
Trichlorfon	–	–	100 – 80	100 – 20
Trichloronat	–	100 –>30	30 – 3	30 – 0.5
Vamidothion	-	–	100 – 10	100 – 3

72° Chlorinated hydrocarbons, such as:	72° (a)	72° (b)	72° (c)	
	%	%	solid %	liquid %
Aldrin	–	100–>75	75 – 7	75 – 2
Camphechlor (Toxaphene)	–	–	100 – 10	100 – 3
Chlordane	–	–	100 – 55	100 – 10
Chlordimeform	–	–	100 – 50	100 – 10
DDT	–	–	100 – 20	100 – 5
1,2-dibromo-3-chloropropane	–	–	100 – 30	100 – 5
Dieldrin	–	100 –>90	90 – 10	90 – 2
Endosulfan	–	100 –>80	80 – 8	80 - 2
Endrin	100 –>60	60 –>5	5 –>0	5 –>0
Heptachlor	–	100 –>80	80 – 8	80 – 2
Isodrin	–	100 –>10	10 – 1	10 –>0
Lindane	–	–	100 – 20	100 – 5
Pentachlorophenol	–	100 –>50	50 – 5	50 – 1

73° Chloro-phenoxyacetic derivatives, such as:	73° (a)	73° (b)	73° (c)	
	%	%	solid %	liquid %
2,4-D	–	–	100 – 75	100 – 15
2,4-DB	–	–	–	100 – 35
Dichlorprop	–	–	–	100 – 40
Fenoprop	–	–	–	100 – 30
Formetanate	–	100 – >40	40 – 4	40 – 1
MCPA	–	–	–	100 – 35
MCPB	–	–	–	100 – 30
Mecoprop	–	–	–	100 – 30
2,4,5-T	–	–	100 – 60	100 – 15

74° Halogenated organic compounds not classified under 72° or 73°, such as:	74° (a)	74° (b)	74° (c)	
	%	%	solid %	liquid %
Allidochlor		–	100 – 35	100 – 35
Benzoylprop-ethyl		–	–	100 – 75
Bromoxynil		–	100 – 35	100 – 10
Chlordecone	–	–	100 – 15	100 – 4
Chlormequat	–	–	–	100 – 30
Chlorobenzilate	–	–	–	100 – 35
Dicamba	–	–	–	100 – 50
Dichlone	–	–	–	100 – 80
Dicofol	–	–		100 – 25
Ioxynil		–	100–20	100 – 5
Isobenzan	100 – > 5	5 – > 1	1 – > 0	1 – > 0
Mirex	–	–	100 – 60	100 – 15
Propachlor	–	–		100 – 35
Propanil	–	–	–	100 – 25
Tetradifon	–	–	–	100 – 25

	75° (a)	75° (b)	75° (c)	
75° Nitrogenated organic compounds not classified under other item numbers, such as:	%	%	solid %	liquid %
Benquinox	–	–	100 – 20	100 – 5
Binapacryl	–	–	100 – 25	100 – 5
Butocarboxim	–	–	100 – 30	100 – 5
Chinomethionate	–	–	–	100–55
Cyanazine	–	–	100 – 35	100–10
Cycloheximide	–	–	100 – 10	100 – 3
Dinobuton	–	–	100 – 10	100 – 2
Dinoseb	–	100 – >40	40 – 5	40 – 5
Dinoseb acetate	–	–	100 – 10	100 – 3
Dinoterb	–	100 – >50	50 – 5	50 – 1
Dinoterb acetate	–	–	100 – 10	100 – 3
Diphenamid	–	–	100 – 55	100–10
DNOC	–	100 – >50	50 – 5	50 – 1
Dodine	–	–	–	100–25
Drazoxolon	–	–	100 – 25	100 – 5
Medinoterb	–	100 – >80	80 – 8	80 – 2
Methyl isothiocyanate	–	–	100 – 35	100 – 8
Nitrofen	–	–	–	100–30
Terbumeton	–	–	–	100–20
Tridemorph	–	–	–	100–30

	76° (a)	76° (b)	76° (c)	
76° Carbamates and thiocarbamates, such as:	%	%	solid %	liquid %
Aldicarb	100 – >15	15 – >1	1 – >0	1 – >0
Aminocarb	–	100 – >60	60–6	60–1
Barban	–	–	–	100–30
Bendiocarb	–	100 – >65	65–5	65–1
Carbaryl	–	–	100–80	100–20
Carbofuran	–	100 – >10	10–1	10 – >0
Di-allate	–	–	100–80	100–20
Dimetilan	–	100 – >50	50–5	50–1
Dioxacarb	–	–	100–10	100–3
EPTC	–	–	–	100–80
Isolan	–	100 – >20	20–2	20–0.5
Mercapto-dimethur	–	–	100–10	100–3
Metam-sodium	–	–	100–50	100–10
Methomyl	–	100 – >30	30–3	30–0.5
Mexacarbate	–	100 – >25	25–2	25 – >0
Molinate	–	–	–	100–25
Nabam	–	–	100–80	100–20
Oxamyl	–	100 – >10	10–1	10 – >0
Pendimethalin	–	–	–	100–50
Pirimicarb	–	–	100–75	100–20
Promecarb	–	–	100–15	100–3
Propoxur	–	–	100–15	100–4
Sulfallate	–	–	–	100–40
Thiram	–	–	–	100–25
Tri-allate	–	–	–	100–30

	77° (a)	77° (b)	77° (c)	
77° Alcaloids, such as:	%	%	solid %	liquid %
Nicotine	–	–	100–10	100–2
Strychnine	100 – >20	20 – >0	–	–

	78° (a)	78° (b)	78° (c)	
78° Organic compounds of mercury, such as:	%	%	solid %	liquid %
Phenylmercuric acetate (PMA)	-	100 ->60	60-6	60-1.5
Chloro-methoxyethyl mercury	-	100 ->40	40-4	40-2
Phenylmercury pyrocatechin (PMB)	-	100 ->60	60.6	60-1.5

	79° (a)	79° (b)	79° (c)	
79° Organic compounds of tin, such as:	%	%	solid %	liquid %
Fentin acetate	-	-	100-25	100-5
Cyhexatin (Tricyclohexyl-tin hydroxide)	-	-	100-55	100-10
Fentin hydroxide			100-20	100-5

	80° (a)	80° (b)	80° (c)	
80° Other organo-metallic compounds which cannot be classified under 78° and 79°, such as:	%	%	solid %	liquid %
....	...	...	...	...

	81° (a)	81° (b)	81° (c)	
81° Rodenticides, such as:	%	%	solid %	liquid %
Chlorophacinone	100 ->40	40 ->4	4 ->0	4 ->0
Coumachlor	-	-	100-10	100-2
Coumafuryl	-	-	100-80	100-20
Coumaphos		100 ->30	30-3	30-0.5
Crimidine	100 ->25	25 ->2	2 ->0	2 ->0
Dicoumarol	-		100-10	100-2
Diphacinone	100 ->25	25 ->2	2 ->0	2 ->0
Warfarin	100 >20	20 ->2	2 ->0	2 ->0

	82° (a)	82° (b)	82° (c)	
82° Derivatives of bipyridyl, such as:	%	%	solid %	liquid %
Diquat	-	-	100-45	100-10
Morfamquat	-	-	100-65	100-15
Paraquat		100 ->40	40-4	40-4

	83° (a)	83° (b)	83° (c)	
83° Organic compounds which cannot be classified under a collective heading of 71° to 81°, such as:	%	%	solid %	liquid %
Allethrin	–	–	–	100–30
Bentazone	–	–	–	100–50
Dazomet	–	–	–	100-25
Desmetryn	–	–	–	100-65
Difenzoquat	–	–	100-90	100–20
Dimexano	–	–	100-45	100–10
Endothal-sodium	–	100–>75	75–5	75–2
Fluoracetamide	–	100–>10	10–1	10–>0
Pindone		–	100–55	100–10
Pyrethrin	–	–		100–30
Rotenone	–	–	100–25	100–6

	84° (a)	84° (b)	84° (c)	
84° Inorganic compounds of arsenic, such as:	%	%	solid %	liquid %
Arsenic trioxide	–	100–>40	40–4	40–1
Calcium arseuate	–	100–>40	40–4	40-1
Sodium arsenite	–	100–>20	20-2	20–0.5

	85° (a)	85° (b)	85° (c)	
85° Inorganic compounds of fluorine, such as:	%	%	solid %	liquid %
Barium silicofluoride	–	–	100–35	100–8
Sodium silicofluoride	–	–	100–25	100–5

	86° (a)	86° (b)	86° (c)	
86° Inorganic compounds of mercury, such as:	%	%	solid %	liquid %
Mercuric chloride	–	100–>70	70–7	70–1.5
Mercury oxide	–	100–>35	35–5	35-0.5

	87° (a)	87° (b)	87° (c)	
87° Inorganic compounds of copper, such as:	%	%	solid %	liquid %
Copper oxychloride	–	–	–	100-35
Copper sulphate		–	100-20	100–10

	88° (a)	88° (b)	88° (c)	
88° Inorganic compounds of thallium, such as:	%	%	solid %	liquid %
Thallium sulphate		100–>30	30–3	30-0.5

89° (c) Cereal grains, dressed seed and other substances of vegetable origin, impregnated with one or more of the pesticides or other substances of Class 6.1.

G. Active substances intended for laboratories and experiments and for the manufacture of pharmaceutical products, if not listed in other items of this Class.

90° Active substances, such as:

(a) colchicine, digitoxin.

(b) adrenalin.

(c) phenobarbital.

NOTES: 1. The active substances and triturations or mixtures of these substances of 90° with other substances are to be classified according to their toxicity (see footnote[1/] to marginal 2600(1)).

2. Pharmaceutical products ready for use (tablets, pills, ampoules, etc.) containing substances of 90° are not subject to the provisions of ADR.

H. Empty packagings.

NOTE: Empty packagings with residues from their previous contents adhering to the outside are not to be accepted for carriage.

91° Empty packagings, empty tank - vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, which have contained substances of Class 6.1.

2601a Substances of 11° to 24°, 32° to 36°, 41° to 44°, 51° to 68°, 71° to 88° and 90° carried in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B:

(a) Substances classified under (a) of each item are not covered by this marginal.

(b) Substances classified under (b) of each item:

Liquids: not more than 500 ml per inner packaging and not more than 2 litres per package;

Solids: not more than 1 kg per inner packaging and not more than 4 kg per package.

(c) Substances classified under (c) of each item:

Liquids: not more than 3 litres per inner packaging and not more than 12 litres per package.

Solids: not more than 6 kg per inner packaging and not more than 24 kg per package.

These quantities of substances shall be carried in combination packagings which at least meet the conditions of marginal 3538.

The "General conditions of packing" of marginal 3500 (1), (2) and (4) to (7) shall be observed.

2. Provisions

A. Packages.

1. General conditions of packing.

2602 (1) Packagings shall satisfy the conditions of Appendix A.5, unless special conditions for the packing of certain substances are prescribed in marginals 2603-2609.

(2) In accordance with the provisions of marginal 2600 (1) and of marginal 3511 (2), the following shall be used:

Packagings of packing group I, marked with the letter "X", for the highly toxic substances classified under letter (a) of each item;

Packagings of packing groups II or I, marked with the letter "Y" or "X", for the toxic substances classified under letter (b) of each item;

Packagings of packing group III, II or I, marked with the letter "Z", "Y" or "X", for the harmful substances classified under letter (c) of each item.

NOTE: For the carriage of substances of Class 6.1 in tank - vehicles, demountable tanks or tank containers, and for the carriage in bulk of solids of this Class, see Annex B.

2. Special conditions for packing of certain substances.

2603 (1) Hydrocyanic acid of 1° shall be packed:

(a) when completely absorbed by an inert porous material: in strong metal receptacles of a capacity of not more than 7.5 litres, placed in wooden cases in such a manner that they cannot come into contact with one another. Such a combination packaging shall comply with the following conditions:

1. The receptacles shall be tested at a pressure of not less than 0.6 MPa (6 bar) gauge pressure;

2. The receptacles shall be entirely filled with the porous material. The porous material shall not shake down or form dangerous spaces even after prolonged use or under impact, even at temperatures of up to 50° C. The date of filling shall be durably marked on the lid of each receptacle;

3. The combination packaging shall be tested and approved, in accordance with Appendix A.5, for packing group I. The package shall not weigh more than 120 kg.

(b) when liquid, but not absorbed by a porous material: in carbon-steel pressure-resistant cylinders which shall satisfy the following conditions:

1. Before being used for the first time, the pressure-resistant cylinders shall undergo a hydraulic pressure test at a pressure of not less than 10 MPA (100 bar) gauge pressure. The pressure test shall be repeated every two years and shall include a meticulous inspection of the inside of the receptacle and a check of the tare.

2. The cylinders must comply with the relevant provisions of Class 2 (see marginals 2211, 2212 (1)(a), 2213, 2215 and 2218);

3. In addition to the markings prescribed in marginal 2218 (1)(a), (b), (d), (e) and (g), the date of the most recent filling (month/year) shall be shown;

4. Maximum permissible mass of the contents: 0.55 kg per litre of capacity.

(2) Solutions of hydrocyanic acid of 2° shall be packed in flame-sealed glass ampoules, containing not more than 50g, or in glass bottles so closed as to be leakproof and containing not more than 250g.

The ampoules or bottles shall be carried in combination packagings which meet the following conditions:

(a) The ampoules and bottles shall be secured by absorbent cushioning materials in leakproof steel or aluminium outer packagings; a package shall not weigh more than 15 kg; or

(b) The ampoules and bottles shall be secured by absorbent cushioning materials in wooden cases with a leakproof tin-plate lining; a package shall not weigh more than 75 kg.

The combination packagings referred to in (a) and (b) shall be tested and approved, in accordance with Appendix A.5, for packing group I.

2604 Metal carbonyls of 3° shall be packed as follows:

(1) In seamless moulded bottles made of pure aluminium of a capacity not exceeding 1 litre and a wall thickness not less than 1 mm, which shall be tested at a pressure of not less than 1 MPa (10 bar) gauge pressure. The bottles shall be closed by means of a metal screw-threaded plug with an inert gasket, the screw-threaded plug being screwed firmly into the neck of the bottle and so secured that it cannot work loose under normal conditions of carriage.

A maximum of our aluminium bottles of this type may be secured in outer packagings of wood or fibreboard by non-inflammable absorbent cushioning material. Such a combination packaging shall conform to a design type which has been tested and approved for packing group I in accordance with Appendix A.5.

A package shall not weigh more than 10 kg.

(2) In metal receptacles fitted with completely leakproof closing devices which shall, if necessary, be secured against mechanical damage by protective caps. Steel receptacles of a capacity not exceeding 150 litres shall have a minimum wall thickness of 3 mm, and larger steel receptacles and receptacles made of other materials shall have walls at least thick enough to guarantee equivalent

mechanical strength. The maximum capacity of receptacles permitted shall be 250 litres. The mass of the contents shall be not more than 1 kg of liquid per litre of capacity.

Before being used for the firts time, the receptacles shall undergo a hydraulic pressure test at a pressure of not less than 1 MPa (10 bar) gauge pressure. The presure test shall be repeated every five years and shall include a meticulous inspection of the inside of the receptacle and a check of the tare. Metal receptacles shall bear the following particulars in clearly legible and durable characters:

(a) the name of the substance in full (the names of both substances may also be shown side by side in the event of alternative use);

(b) the name of the owner of the receptacle;

(c) the tare of the receptacle including such fittings and accessories as valbes, protective caps, etc.;

(d) the date (month, year) of the initial test and of the most recent test, and the stamp of the stamp of the expect carrying out the test;

(e) the maximum permissible mass of the contents of the receptacle in kg;

(f) the internal pressure (test pressure) to be applied in the hydraulic pressure test.

2605 (1) Substances classified under (a) of the various items of marginal 2601 shall be packed.

(a) in non-removable head stell drums conformig to marginal 3520, or

(b) in non-removable head aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in non-removable head plastics drums of a capacity not exceeding 60 litres or plastics jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings of glass, plastics or metal conforming to marginal 3538.

(2) Solid substances within the meaning of marginal 2600 (2) may also be packed:

(a) in removable-head drums conforming to marginals 3520 for steel, 3521 for aluminium, 3523 for plywood, 3525 for fibreaboard, or 3526 for plastics material, if necessary with one or more sift-proof inner bags; or

(b) in combination packagings conforming to marginal 3538, with one or more sift-proof inner bags.

2606 (1) Substances classified under (b) of the various items of marginal 2601 shall be packed:

(a) in steel drums conforming to marginal 3520, or

(b) in aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in plastics drums or plastics jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings conforming to marginal 3538.

NOTE to (a), (b) and (d): Removable-head drums are permitted only for viscous substances having a viscosity above 200 mm^2/s at 23°C and for solids.

(2) Substances classified under 15° (b) may also be packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539.

(3) Solid substances within the meaning of marginal 2600 (2) may also be packed:

(a) in remobable head drums conforming to marginal 3523 for plywood or 3525 for fibreaboard, if necessary with one or more sift-proof inner bags; or

(b) in water-resistant bags conforming to marginals 3533 for textile material, 3534 for woven plastics material, 3535 for plastics film or 3536 for water-ressistant paper, provided the goods are dispatched as a full load or the bags secured on pallets.

2607 (1) Substances classified under (c) of the various items of marginal 2601 shall be packed:

(a) in steel drums conforming to marginal 3520, or

(b) in aluminium drums conforming to marginal 3521, or

(c) in steel jerricans conforming to marginal 3522, or

(d) in plastics drums or plastics jerricans conforming to marginal 3526, or

(e) in composite packagings (plastics material) conforming to marginal 3537, or

(f) in combination packagings conforming to marginal 3538, or

(g) in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539, or

(h) in light gauge metal packagings conforming to marginal 3540.

NOTE to (a), (b), (d) and (h): Remobable head drums conforming to (a), (b) and (d), and removable head light gauge metal packagings conforming to (h) are permitted only for viscous substances having a viscosity above 200 mm2/s at 23° C and for solids.

(2) Solid substances within the meaning of marginal 2600 (2) may also be packed:

(a) in removable head drums conforming to marginal 3523 for plywood, or 3525 for fibreboard, if necessary with one or more sift-proof inner bags; or

(b) in water-resistant bags conforming to marginals 3533 for textile material, 3534 for woven plastics material, 3535 for plastics film or 3536 for water-resistant paper.

2608 The openings of packagings, other than glass ampoules and cylinders under pressure, for the carriage of liquids having a viscosity below 200 mm^2/s at 23° C shall be capable of being so closed as to be leakproof by means of two devices placed in series, one of which shall be screw-threaded or secured in an equivalent manner.

2609 Packagings containing dimethylaminoborane of 12° (b) shall be fitted with a vent in accordance with marginal 3500 (8).

2610

3. Mixed packing

2611 (1) Substances covered by the same item number may be packed together in a combination packaging conforming to marginal 3538.

(2) Substances of different items of Class 6.1 in quantities not exceeding, per packaging, 3 litres for liquids and/or 5 kg for solids, may be packed together and/or with goods not subject to the provisions of ADR, in a combination packaging conforming to marginal 3538, provided they do not react dangerously with one another.

(3) Except as otherwise specially provided below, substances of Class 6.1, in quantities not exceeding, per receptacle, 3 litres for liquids and/or 5 kg for solids, may be packed together in a combination packaging conforming to marginal 3538, with substances or articles of other classes, provided that mixed packing is also permitted for the substances and articles of these classes, and/or with goods which are not subject to the provisions of ADR, provided they do not react dangerously with one another.

(4) The following are considered dangerous reactions:

(a) combustion and/or giving off considerable heat;

(b) emission of inflammable and/or toxic gases;

(c) formation of corrosive liquids;

(d) formation of unstable substances.

(5) The mixed packing of acid substances with basic substances in a package shall not be permitted if the two substances are packed in fragile receptacles.

(6) The provisions of marginals 2001 (7), 2002 (6) and (7) and 2602 shall be complied with.

(7) If wooden or fibreboard boxes are used, a package shall not weigh more than 100 kg.

Item No.	Description of substances	Maximum quantity per receptacle	Maximum quantity per package	Special provisions
1°	Hydrocyanic acid	Mixed packing not permitted		
3°	Iron pentacarbonyl and nickel tetracarbonyl			
2°	Hydrocyanic acid in solutions			Shall not be packed together with substances of articles of Classes 1a, 1b, 1c, 5.2 or 7
	Liquids classified under (a) of each item	0.5 litre	1 litre	

4. Marking and danger labels on packages (See Appendix A.9)

(1) Packages containing substances of 1° to 3° or substances classified under (a) or (b) of other items shall bear a label conforming to model No.6.1. 2612

If substances of 15°(b) are packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539, of a capacity exceeding 5 litres, the packages shall nevertheless bear two labels conforming to model No. 6.1 (see marginal 3901 (2)).

(2) Packages containing substances classified under (c) of each item shall bear a label conforming to model No. 6.1A. However, if liquids are packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539 of a capacity exceeding 5 litres, the packages shall bear two labels conforming to model No. 6.1A (see marginal 3901 (2)).

(3) Packages containing substances having a flash-point of 55°C or below shall, in addition, bear a label conforming to model No.3, and packages containing chloroformates of 16° or 17° shall, in addition, bear a label conforming to model No. 8.

(4) Packages containing fragile packagings not visible from the outside shall bear on two opposite sides a label conforming to model No. 12.

(5) Packages containing liquids in packagings the closures of which are not visible from the outside, packages containing packagings with vents and packagings with vents but without outer packaging shall bear on two opposite sides a label conforming to model No. 11.

2613

B. Particulars in the transport document

(1) The description of the goods in the transport document shall conform to one of the names underlined in marginal 2601. If the substance is not mentioned by name, the chemical name[1/] shall be entered. The description of the goods shall be underlined and followed by particulars of the class, the item number (together with the letter, if any), and the initials "ADR" (or "RID"), e.g. 6.1, 11° (a), ADR. 2614

(2) For hydrocyanic acid of 1°, the sender shall certify in the transport document: "The nature of the goods, and the packaging, are in conformity with the provisions of ADR".

(3) For substances of 44°, the sender shall certify in the transport document: "Stored in an open and dry place for not less than three days".

(4) For consignments of chemically unstable substances, the sender shall certify in the transport document: "Measures taken in accordance with marginal 2600 (3)".

2615 - 2621

C. Empty packagings

(1) If the empty packagings, uncleaned, of 91° are bags, these shall be placed in boxes or waterproof bags to prevent any leakage of substance. 2622

(2) Other uncleaned empty packagings of 91° shall be closed in the same manner and with the same degree of leakproofness as if they were full.

(3) Empty packagings, uncleaned, of 91° shall bear the same danger labels as if they were full.

(4) The description in the transport document shall conform to one of the names underlined in 91°, e.g.: Empty packaging, 6.1, 91° ADR. This description shall be underlined. In the case of empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, this description shall be completed by adding the words "last load", together with the name and item number of the goods last loaded, e.g.: Last load: Phenol, 13° (b).

2623 - 2649

CLASS 6.2 REPUGNANT SUBSTANCES AND SUBSTANCES LIABLE TO CAUSE INFECTION

1. List of substances

Among the substances and articles covered by the heading of Class 6.2, only those listed in marginal 2651 are to be accepted for carriage, and then only subject to the provisions of this Annex and of Annex B. These substances and articles to be accepted for carriage under certain conditions are to be considered as substances and articles of ADR. 2650

1° (a) Fresh tendons, clippings of fresh skins not limed or salted, trimmings from fresh tendons or from clippings of fresh skins; 2651

NOTE: Clippings of wet fresh skins, limed or salted, are not subject to the provisions of ADR.

(b) fresh horns, claws or hoofs not cleansed of bone and soft adhering parts, fresh bones not cleansed of flesh or other soft adhering parts;

(c) undressed pig's bristles and hair.

2° Fresh skins, unsalted or salted, from which offensive quantities of blood or brine drip.

[1/] In the case of pesticides, the name to be entered should be that given in ISO Standard R.1750-1981 if listed.

NOTE: Properly salted skins containing only a small quantity of moisture are not subject to the provisions of ADR.

3° Cleaned or dried bones, cleaned or dried horns, claws or hoofs.

NOTE: Dry bones divested of fat, not giving off any putrid odour, are not subject to the provisions of ADR.

4° Fresh calf rennets, cleansed of all traces of edible matter.

NOTE: Dried calf rennets not giving off an offensive odour are not subject to the provisions of ADR.

5° Compressed residues arising from the manufacture of skin glue (calcareous residues, residues from the liming of skin clippings, or residues used as fertilizers).

6° Non - compressed residues arising from the manufacture of skin glue.

7° Non - infected urine protected against decomposition.

8° Anatomical pieces, entrails and glands.

(a) non - infected

(b) infected

9° Manure

10° Excrement

11° Other animal substances, repugnant or liable to cause infection, not already specifically mentioned in 1° to 10°.

12° Empty packagings and empty bags which have contained substances of 1° to 8°, 10° and 11°, and sheets which have been used to cover substances of Class 6.2.

NOTE: If uncleaned, these packagings, bags and sheets are not to be accepted for carriage.

2. Provisions

A. Packages

1. General conditions of packing

(1) Packagings shall be so closed and leakproof as to prevent any loss of the contents. 2652

(2) Packagings, including their closures, must be sufficiently rigid and strong in all their parts to prevent any loosening during carriage and to meet the normal requirements of carriage. In particular, where substances are in the liquid state or are liable to ferment, receptacles and their closures must, unless the section headed "Packing of a single substance" provides otherwise, be able to withstand any pressure which, the presence of air also being taken into account, may arise inside the receptacles in normal carriage. For this purpose a free space must be left, account being taken of the difference between the temperature of the substances at the time of filling and the highest mean temperature which they are likely to reach during carriage.

(3) No trace of the contents must adhere to the outside of packages.

2. Packing of a single substance

Substances of 1° shall be packed: 2653

(a) if forwarded otherwise than as a full load:

1. in metal receptacles fitted with a safety closure capable of yielding to internal pressure, or in casks, small vats or cases; or

2. in the case of substances of 1° (c) in the dry state, also in bags, on condition that the bad odour can be removed by disinfection. In the case of substances not in the dry state, packing in bags is allowed only from 1 November to 15 April;

(b) if forwarded as a full load:

1. in the packagings specified in (a) 1. above; or

2. on condition that the bad odour can be removed by disinfection, in bags impregnated with suitable disinfectants.

Substances of 2° shall be packed: 2654

(a) if forwarded otherwise than as a full load:

1. in casks, small vats or cases; or

2. during the months from November to February inclusive, in bags impregnated with suitable disinfectants, on condition that the bad odour can be removed by disinfection;

(b) if forwarded as a full load:

1. in the packagings specified in (a) 1. above; or

2. on condition that the bad odour can be removed by disinfection, in bags impregnated with suitable disinfectants.

Substances of 3° shall be packed in casks, small vats, cases, metal receptacles or bags. 2655

Substances of 4° shall be packed: 2656

(a) if forwarded otherwise than as a full load:

in casks, small vats, cases, metal receptacles or bags;

(b) if forwarded as a full load: in any suitable packagings.

Substances of 5° and 6° shall be packed in casks, small vats, cases or metal receptacles. 2657

Substances of 7° shall be packed in hermetically closed receptacles made of galvanized sheet-steel. 2658

(1) Substances of 8° shall be packed in metal receptacles fitted with a safety closure capable of yielding to internal pressure, in casks or small vats; substances of 8° (a) may also be packed in cases. 2659

(2) Substances of 8° may also be packed as follows:

(a) substances of 8° (a), in receptacles made of glass, porcelain, stoneware, metal or a suitable plastics material. These receptacles shall be placed, either singly or in groups, in a strong wooden case, with absorbent cushioning materials if the receptacles are fragile. If the substances to be carried are immersed in a preserving fluid, the absorbent materials shall be sufficient in quantity to absorb all the fluid. The preserving fluid must not be inflammable. Packages weighing more than 30 kg shall be fitted with means of handling;

(b) substances of 8° (b), in suitable receptacles placed with cushioning materials in a strong wooden case having a metal lining rendered leakproof, e.g. by soldering. Packages weighing more than 30 kg shall be fitted with means of handling;

Substances of 9° shall be forwarded only in bulk. 2660

Substances of 10° shall be packed in receptacles made of sheet-metal. 2661

Substances of 11° shall be packed in metal receptacles fitted with a safety closure capable of yielding to internal pressure, or in casks, small vats or cases. 2662

3. Mixed packing

Substances listed under an item number of marginal 2651 may be included in the same package only with substances listed under the same item number, and then only on condition that the packagings prescribed in sections A.1 and 2 above are used. 2663

4. Marking and danger labels on packages (see Appendix A.9)

Packages containing fragile receptacles not visible from the outside shall bear a label conforming to model No.12° If the fragile receptacles contain liquids, the packages shall, in addition, except in the case of sealed ampoules, bear labels conforming to model No.11; these labels shall be affixed high up on two opposite sides of cases or in an equivalent manner when other packagings are used. 2664

2665

B. Particulars in the transport document

The description of the goods in the transport document must conform to one of the names underlined in marginal 2651. Where the name of the substance is not indicated, the trade name must be used. The description of the goods must be underlined and followed by particulars of the Class, the item number (together with the letter, if any), and the initials "ADR" or "RID" [e.g. 6.2, 1° (a), ADR]. 2666

2667
–2672

C. Empty packagings

(1) Articles of 12° shall be cleaned and treated with 2673
suitable disinfectants.

(2) The description in the transport document must be:

"Empty packaging (or empty bag, or sheet), 6.2, 12°, ADR (or RID)". This description must be underlined.

Class 7 RADIOACTIVE SUBSTANCES

Introduction

(1) Scope

(a) Among the substances with a specific activity of more than 74 kBq/kg (0.002 microcurie per gramme) and articles containing such substances, only those indicated in the schedules of marginal 2703 are to be accepted for carriage and then only under the conditions set out in the appropriate schedules of the said marginal and in Appendix A.6 (marginals 3600 to 3699).

(b) The substances and articles referred to in (a) are substances and articles of ADR

NOTE: Cardiac pacemakers containing radioactive substances, when they have been surgically implanted in medical patients, or radiopharmaceuticals being carried inside patients in the course of medical treatment, are not subject to ADR.

(2) Definitions and explanations

A_1 and A_2

"A_1" means the maximum activity of special form radioactive substances permitted in a Type A package. "A_2" means the maximum activity of radioactive substances, other than special form radioactive substances, permitted in a Type A package. These values either are listed in Appendix A.6 Table XX or may be derived in accordance with the procedure described in marginals 3690 and 3691 of Appendix A.6.

Allowable number of packages

"Allowable number[1/] of packages" means the maximum number of Fissile Class II or Fissile Class III packages which may be grouped together in one place during carriage or during transit storage.

Containment system

"Containment system" means the components of the packaging specified by the designer as intended to retain the radioactive substance during carriage.

Design

"Design" means the description of a special form substance, or of a package or a packaging of a particular kind, which enables it to be fully identified. The description may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements, and other relevant documentation.

Fissile substances

"Fissile substance" means plutonium-238, plutonium-239, plutonium-241, uranium-233, uranium-235, and all substances containing any of these radionuclides. Unirradiated natural and depleted uranium do not come under this definition.

Low-level solid radioactive substances

"Low-level solid radioactive substance" (LLS) means any of the following:

(a) Solids (e.g. consolidated wastes, activated substances) in which:

(i) the activity in normal carriage is and remains distributed throughout the solid or the collection of solids or is and remains uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic);

(ii) the activity is and remains insoluble so that even under loss of packaging the loss of radioactive substance per package resulting from the effects of wind, rain, etc., of 2674
from total immersion in water is limited to less than 0.1 A_2 -2699
in a period of one week; and

(iii) the activity averaged throughout the radioactive substance does not exceed 2×10^{-3} A_2/g.

(b) Articles of non-radioactive substance which are contaminated with a radioactive substance, provided that the 2700
radioactive contamination is in a non-readily-dispersible form and that the level of contamination averaged over 1 m^2 (or over the area of the surface if that area is less than 1 m^2) does not exceed:

740 kBq/cm^2 (20μCi/cm^2) for beta and gamma emitters and the low-toxicity alpha emitters indicated in Table XIX of Appendix A.6; and

74 kBq/cm^2 (2 μCi/cm^2) for other alpha emitters.

Low specific activity substances (I)

"Low specific activity substances (I)" (LSA) means any of the following:

(a) Uranium or thorium ores and physical or chemical concentrates of those ores;

(b) Unirradiated natural or depleted uranium or unirradiated natural thorium;

(c) Tritium oxide in aqueous solutions, provided that the concentration does not exceed 0.37 TBq/l (10 Ci/litre);

(d) Substances in which the activity is uniformly distributed and which if they were reduced to their minimum volume in conditions likely to be encountered in carriage, such as dissolution in water with subsequent recrystallization; precipitation; evaporation; combustion; abrasion; etc., would have an average specific activity of not more than 10^{-4} A_2/g;

(e) Articles on non-radioactive substance which are contaminated with a radioactive substance, provided that the non-fixed surface contamination does not exceed 10 times the values in Table XIX of Appendix A.6 and that the contaminated article or the contamination on the article, if it was reduced to its minimum volume in conditions likely to be encountered in carriage, such as dissolution in water with subsequent recrystallization; precipitation; evaporation; combustion; abrasion; etc., would have an average specific activity of not more than 10^{-4} A_2/g.

Low specific activity substances (II)

"Low specific activity substances (II)" (LSA) means any of the following:

(a) Substances in which the activity in normal carriage is and remains uniformly distributed and in which the average specific activity does not exceed 10^{-4} A_2/g;

(b) Articles of non-radioactive substance which are contaminated with a radioactive substance, provided that the radioactive contamination is in a non-readily-dispersible form and that the level of contamination averaged over 1 m^2 (or over the area of the surface if that area is less than 1 m^2) does not exceed

37 kBq/cm^2 (1 μCi/cm^2) for beta and gamma emitters and the low-toxicity alpha emitters indicated in Table XIX of Appendix A.6; and

3.7 kBq/cm^2 (0.1 μCi/cm^2) for other alpha emitters.

Maximum normal operating pressure

"Maximum normal operating pressure" means the maximum pressure above atmospheric pressure at mean sea-level that would develop in the containment system in a period of one year in conditions of temperature and solar radiation corresponding to environmental conditions of transport in the absence of venting, external cooling by an ancillary system, or operational controls during carriage.

[1/] When the group is made up of packages of different designs, the maximum number of packages shall be such that the following formula is satisfied:

$\frac{n_1}{N_1} + \frac{n_2}{N_2} + \frac{n_3}{N_3} + \ldots$ shall not exceed 1. In this formula, n_1, n_2, n_3... are the numbers of packages for which the corresponding allowable numbers are N_1, N_2, N_3... respectively.

Multilateral approval

"Multilateral approval" means approval by the competent authority of the country of origin and by the competent authority of each country in whose territory the consignment is to be carried.

Package

"Type A package" means a type A packaging together with its limited radioactive contents. As the contents of a Type A package are limited to A_1 or A_2, such a package does not require approval by the competent authority.

"Type B(U) package" means a Type B packaging, together with its radioactive contents, which since it is designed in accordance with specified design and containment criteria requires unilateral approval only of the package design and of any stowage provisions that may be necessary for heat dissipation.

"Type B(M) package" means a Type B packaging, together with its radioactive contents, which since its design fails to meet one or more of the specific additional design criteria for Type B(U) packages (see marginal 3603 of Appendix A.6) requires multilateral approval of the package design and, in certain circumstances, of the conditions of despatch.

Packaging

"Packaging" means the assembly of components necessary to ensure compliance with the packaging requirements of this Class. It may, in particular, consist of one or more receptacles, absorbent materials, spacing structures, radiation shielding, and devices for cooling, for absorbing mechanical shocks and for thermal insulation. These devices may include the vehicle with the tie-down system when these are intended to form an integral part of the packaging.

"Type A packaging" means a packaging which in normal carriage is able to prevent any loss or dispersal of the radioactive content and to retain its shielding function. The conditions of normal carriage shall be reproduced by the tests prescribed in marginal 3635 and 3636 of Appendix A.6, which tests the packaging shall be shown to have passed.

"Type B packaging" means a packaging which is able to withstand not only the conditions of normal carriage, as a Type A packaging does, but also a transport accident. The conditions of such an accident shall be reproduced by the tests prescribed in marginals 3635 to 3637 of Appendix A.6, which tests the packaging shall be shown to have passed in the conditions likewise prescribed.

Radiation level

"Radiation level" means the corresponding radiation dose equivalent rate expressed in millirem per hour. Radiation levels may be determined by instruments, combined with the use of conversion tables where necessary or by calculation. Measured or calculated neutron flux densities may be converted into radiation levels by using the date given in the following table.

Neutron flux densities to be regarded as equivalent to a radiation level of 10 μSv/h (1 mrem/h)

Energy of neutron	Flux density equivalent to 10 μSv/h (1 mrem/h) (neutrons/cm²·s)
Thermal	268
5 keV	228
20 keV	112
100 keV	32
500 keV	12
1 MeV	7.2
5 MeV	7.2
10 MeV	6.8

Note: Equivalent flux densities for energies between those listed above should be obtained by linear interpolation.

Radioactive contents

"Radioactive contents" means the radioactive substance together with any contaminated solids, liquids or gases in the package.

Special form radioactive substance

"Special form radioactive substance" means either a non-dispersible solid radioactive substance or a sealed capsule containing a radioactive substance. The sealed capsule shall be so constructed that it can be opened only by destroying it. The special form radioactive substance shall meet the following requirements:

(a) It shall have at least one dimension of not less than 5 mm; and

(b) It shall comply with the relevant test requirements specified in marginals 3640 to 3642 of Appendix A.6.

In general, the "special form" concept enables substances exhibiting a higher activity level to be included in a Type A package.

Specific activity

The "specific activity" of a radionuclide means that radionuclide's activity per unit mass. The specific activity of a substance in which the radionuclides are essentially uniformly distributed is that substance's activity per unit mass.

Transport index

The "transport index" of a package means:

(a) The number expressing the maximum radiation level in millirem per hour at 1 m from the external surface of the package; or

(b) In the case of packages of Fissile Class II or Fissile Class III, the higher of the following numbers:

the number expressing the maximum radiation level as under (a) above; and the number obtained by dividing 50 by the allowable number of such packages.

The "transport index" of a container means either;

the sum of the transport indices of all packages within the container, except that for containers carrying Fissile Class III packages, the transport index shall be 50 unless the sum of the transport indices of the packages necessitates a higher figure.

or for containers not carrying Fissile Class II or III packages and under full load, the number expressing the maximum radiation level in millisievert per hour (mSv/h) multiplied by 100 or in mrem/h at 1 m from the external surface of the container multiplied by the value in the following table appropriate to the maximum cross-sectional area of the container.

Multiplication factors

Size of load	Multiplication factor
Measurement (cross-sectional area measurements of the load perpendicular to the direction of interest).	
1 m² and less	1
> 1 m² to 5 m²	3
> 5 m² to 20 m²	6
> 20 m² to 100 m²	19

(c) The figure expressing the transport index shall be rounded upwards to the first decimal place.

Uncompressed gas

"Uncompressed gas" means a gas at a pressure not exceeding the ambient atmospheric pressure at the time when the containment sytem is closed.

Unilateral approval

"Unilateral approval" means approval by the competent authority of the country of origin only. If the country of origin is not a party to ADR, the approval shall require validation by the competent authority of the first ADR country reached by the consignment.

'Unirradiated uranium

"Unirradiated uranium" means uranium containing not more than 10^{-6} g plutonium per g uranium-235 and a fission product activity of not more than 9.3 MBq (0.25 mCi) per g uranium -235.

Unirradiated thorium

"Unirradiated thorium" means thorium containing not more than 10^{-7} g of uranium -233 per g of thorium-232.

Uranium; natural, depleted, enriched

"Natural uranium" means chemically - separated uranium with the naturally - occurring distribution of uranium isotopes (approximately 99.28 per cent uranium - 238 and 0.72 per cent uranium - 235). "Depleted uranium" means uranium containing less than 0.72 per cent uranium - 235, the remainder being uranium - 238. "Enriched uranium" means uranium containing more than 0.72 per cent uranium - 235, the remainder being uranium - 238. In all cases a very small amount of uranium - 234 is present.

(3) Prohibitions on mixed loading

Substances of Class 7 contained in packages bearing a label conforming with models Nos. 7A, 7B or 7C shall not be loaded in the same vehicle together with substances and articles of Classes 1a (marginal 2101), 1b (marginal 2131) or 1c (marginal 2171) contained in packages bearing one or two labels conforming with model No. 1.

The substances and articles of this Class contain one or 2701
more of the radionuclides referred to in section VI of Appendix A.6 (marginals 3690 and 3691).

The list hereunder specifies the different types of consignment:

1. Empty packages which have contained radioactive substances;
2. Articles manufactured from natural or depleted uranium or natural thorium;
3. Small quantities of radioactive substances;
4. Instruments and manufactured articles;
5. Low specific activity substances LSA (I);
6. Low specific activity substances LSA (II);
7. Low - level solid radioactive substances;
8. Radioactive substances in Type A packages;
9. Radioactive substances in Type B(U) packages;
10. Radioactive substances in Type B(M) packages;
11. Fissile substances;
12. Radioactive substances carried under special arrangement.

Schedule 1

Danger labels on packages.

None

NOTE: Any label indicating a danger shall be covered or removed.

1. Substances

Empty packages: which have contained radioactive substances. 2703

2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6, and shall be securely closed and in good condition.

(b) Permitted internal contamination levels: not more than 100 times those levels set out in paragraph 5.

(c) Where an empty packaging includes natural or depleted uranium or natural thorium in its structure, its surface shall be covered with a substantial, inactive sheath made of metal or some other resistant material.

3. Package maximum radiation level

5μSv/h (0.5 mrem/h) at the surface of the package.

4. Mixed packing

No provisions.

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/low - toxicity alpha emitters	3.7Bq/cm^2 (10^{-4} μCi/cm^2)
Natural/depleted uranium/ natural thorium	37 Bq/cm^2 (10^{-3} μCi/cm^2)
Other alpha emitters	0.37 Bq/cm^2 (10^{-5} μCi/cm^2)

For full details, see marginal 3651 of Appendix A.6.

6. Marking on packages

(a) Packages shall be plainly and durably marked with the mass if over 50 kg.

(b) Any marking indicating a radioactive danger shall not be visible.

7. Transport documents

The transport document shall include the description "Radioactive substances (Empty packages), 7, schedule 1, ADR", with the name underlined.

8. Storage and despatch

No provisions.

9. Carriage of packages in vehicles and containers

No provisions.

10. Carriage in bulk in vehicles and containers

Not applicable.

11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers

None.

13. Prohibitions on mixed loading

No provisions.

14. Decontamination of vehicles, tank vehicles, tank 2702
containers and containers

No provisions.

15. Other provisions

None.

Schedule 2

Danger labels on packages.

None.

1. Substances

Articles manufactured from natural or depleted uranium or natural thorium.

The outer surface of the uranium or thorium shall be covered by a substantial, inactive sheath made of metal or some other resistant material.

NOTE: Such articles may, for example, be unused packagings intended for the transport of radioactive substances.

2. Packaging/Package

Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

3. Package maximum radiation level

5 μSv/h (0,5 mrem/h) at the surface of the package.

4. Mixed packing

No provisions.

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/low - toxicity alpha emitters	3.7 Bq/cm^2 (10^{-4} μCi/cm^2)
Natural/depleted uranium/ natural thorium	37 Bq/cm^2 (10^{-3} μCi/cm^2)
Other alpha emitters	0.37 Bq/cm^2 (10^{-5} μCi/cm^2)

For full details see marginal 3651 of Appendix A.6.

6. Marking on packages

None.

7. Transport documents

The transport document shall include the description

"Radioactive substances (Manufactured articles), 7, schedule 2, ADR", with the name underlined.

8. Storage and despatch

No provisions.

9. Carriage of packages in vehicles and containers

No provisions.

10. Carriage in bulk in vehicles and containers

Not applicable.

11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank - containers and containers

None.

13. Prohibitions on mixed loading

No provisions.

14. Decontamination of vehicles, tank - vehicles, tank - containers and containers

No provisions.

15. Other provisions

None.

Schedule 3

Danger labels on packages.

None (but see paragraph 15).

1. Substances

Small quantities of radioactive substances in amounts which do not exceed those given in the table below and which do not contain more than 15 g of uranium - 235.

Nature of substances	Package limits
Solids and gases	
Special form	10^{-3} A_1
Other forms	10^{-3} A_2
Tritium	0.74 TBq (20 Ci)*
Liquids	
Tritium oxide in aqueous solutions	
less than 3.7 GBq/l (0.1 Ci/l)	37 TBq (1000 Ci)
between 3.7 GBq/l and 37 GBq/l (0.1 Ci/l and 1.0 Ci/l)	3.7 TBq (100 Ci)
greater than 37 GBq/l (1.0 Ci/l)	37 GBq (1 Ci)
Other liquids	10^{-4} A_2

For mixtures of radionuclides, see marginal 3691 of Appendix A.6.

2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

(b) During transport there shall be no leakage of radioactive substance.

3. Package maximum radiation level

5 μSv/h (0.5 mrem/h) at the surface of the package.

4. Mixed packing

No provisions.

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/low - toxicity alpha emitters	3.7 Bq/cm² (10^{-4} μCi/cm²)
Natural/depleted uranium/ natural thorium	37 Bq/cm² (10^{-3} μCi/cm²)
Other alpha emitters	0.37 Bq/cm² (10^{-5} μCi/cm²)

For full details, see marginal 3651 of Appendix A.6.

6. Marking on packages

The outermost surface of the containment system shall be marked "RADIOACTIVE" as a warning on opening the package.

7. Transport documents

The transport document shall include the description "Radioactive substances (Small quantities), 7, schedule 3, ADR", with the name underlined.

8. Storage and despatch

No provisions.

9. Carriage of packages in vehicles and containers

No provisions.

10. Carriage in bulk in vehicles and containers

Not permitted.

11. Carriage in tank - vehicles and tank - containers

Not permitted.

12. Placards and labels on vehicles, tank - vehicles, tank - containers and containers

None.

13. Prohibitions on mixed loading

No provisions.

14. Decontamination of vehicles, tank - vehicles, tank - containers and containers

See marginal 3695 (3) of Appendix A.6.

15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695 (2) of Appendix A.6.

(c) Radioactive substances which possess other hazardous properties shall also comply with the provisions of the appropriate class.

Schedule 4

Danger labels on packages

None

1. Substances

Instruments and manufactured articles such as clocks, electronic tubes or apparatus, having radioactive substances as a component part, whose activity does not exceed the amounts given in the table below and which do not contain more than 15 g. of uranium - 235.

Nature of substances	Item limits	Package limits
Solids		
Special form	10^{-2} A_1	A_1
Other forms	10^{-2} A_2	A_2
Liquids	10^{-3} A_2	10^{-1} A_2
Gases		
Tritium	0.74 TBq (20 Ci)*	7.4 TBq (200 Ci)*
Special form	10^{-3} A_1	10^{-2} A_1
Other forms	10^{-3} A_2	10^{-2} A_2

For mixtures of radionuclides, see marginal 3691 of Appendix A.6.

2. Packaging/Package

(a) Packaging shall be in accordance with the requirements given in marginal 3600 of Appendix A.6.

* The values for tritium also apply to tritium in activated luminous paint and tritium absorbed on solid carriers.

* The values for tritium also apply to tritium in activated luminous paint and tritium absorbed on solid carriers.

(b) The instruments and articles shall be securely packed.

3. Package maximum radiation level

5 μSv/h (0.5 mrem/h) at the surface of the package and 100 μSv/h (10 mrem/h) at 10 cm from any point on the external surface of any unpacked instrument or article.

4. Mixed packing

No provisions.

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/ low - toxicity alpha emitters	3.7 Bq/cm^2 (10^{-4} μCi/cm^2)
Natural/depleted uranium/ natural thorium	37 Bq/cm^2 (10^{-3} μCi/cm^2)
Other alpha emitters	0.37 Bq/cm^2 (10^{-5} μCi/cm^2)

For full details, see marginal 3651 of Appendix A.6.

6. Marking on packages

Each instrument or article (except radioluminescent timepieces or devices) shall bear the marking "RADIOACTIVE".

7. Transport Documents

The transport document shall include the description "Radioactive substances (Instruments) or (Manufactured articles), 7, schedule 4, ADR", with the name underlined.

8. Storage and despatch

No provisions.

9. Carriage of packages in vehicles and containers

No provisions.

10. Carriage in bulk in vehicles and containers

Not applicable.

11. Carriage in tank - vehicles and tank - containers

Not applicable.

12. Placards and labels on vehicles, tank - vehicles, tank - containers and containers

None.

13. Prohibitions on mixed loading

No provisions.

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695 (2) of Appendix A.6.

Schedule 5.

Danger labels on packages (see Appendix A.9).

1. Substances

Low specific activity substances LSA(I), belonging to one of the following groups as defined fully in marginal 2700(2):

(i) uranium or thorium ores or concentrates (sub-para. (a) of definition)

(ii) unirradiated natural or depleted uranium or unirradiated natural thorium (sub-para. (b) of definition)

(iii) tritium oxide in aqueous solutions - concentration 0.37 TBq/l (10 Ci/l) or less. (sub-para (c) of definition)

(iv) substances with uniform activity under minimum volume conditions of not more than 10^{-4} A_2/g (sub-para. (d) of definition).

(v) Non - radioactive articles contaminated to not more than 10 times the package limits set in para 5 below and so that the specific activity under minimum volume conditions never exceeds 10^{-4} A_2/g (sub-para. (e) of definition).

Unless transported as a full load, labels to models 7A, 7B or 7C shall be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A.6 for package category. The contents shall be described on the labels as "Radioactive LSA". Subsidiary labelling:

(i) for thorium nitrate, solid, and uranium nitrate, solid - model No.5 labels are required.

(ii) for uranium hexafluoride and uranyl nitrate hexahydrate in solution: model No.8 labels are required.

If fissile substances are present the requirements of schedule II shall be met in addition to the requirements of this schedule.

2. Packaging/Package

Packages transported other than as full load: packaging shall be in accordance with the requirements of marginal 3600, marginal 3650 to 3655 and marginal 3656(1) to (4) of Appendix A.6.

Substances of paragraph 1(ii) above in massive solid form shall be packed so as to prevent abrasion, and in other solid forms shall be contained in a substantial sheath.

3. Package maximum radiation level

2 mSv/h (200 mrem/h) at the surface of the package and 0.1 mSv/h (10 mrem/h) at 1 metre from that surface (see marginals 3653 to 3655 of Appendix A.6).

Except in the case of a full load when the limit is 10 mSv/h (1,000 mrem/h) at the surface of the package and may exceed 0.1 mSv/h (10 mrem/h) at 1 metre from that surface (see marginal 3659(7) of Appendix A.6).

2703

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

(a) Non-fixed external contamination limits for packages carried other than as full load.

Beta/gamma/low-toxicity alpha emmiters	3.7 Bq/cm^2 (10^{-4} μCi/cm^2)
Natural/depleted uranium/ natural thorium	3 7 Bq/cm^2 (10^{-3} μCi/cm^2)
Other alpha emitters	0.37 Bq/cm^2 (10^{-5} μCi/cm^2

For full details, see marginal 3651 of Appendix A.6.

(b) For packages carried in a full load - No provisions.

6. Marking on packages

Packages transported as full load - stencilled or otherwise marked "RADIOACTIVE LSA".

Packages transported other than full load - plainly and durably marked with the mass if over 50 kg.

7. Transport documents

The transport document shall include the description "Radioactive substances (Low specific activity LSA (I)), 7, schedule 5, ADR", with the name underlined and the details specified in marginals 3680 and 3681 of Appendix A.6.

8. Storage and despatch

(a) Storage and segregation from other dangerous goods - see marginal 3658 (1) of Appendix A.6.

(b) Storage and segregation from packages labelled "FOTO" - see marginal 240001 of Appendix B.4 for segregation table.

(c) Total transport index limitation for storage, no limit except in the case of Fissile Class II or III packages, see marginal 3658 (2) to (5) of Appendix A.6.).

9. Carriage of packages in vehicles and containers

(a) Segregation from packages labelled "FOTO" - see marginal 240001 of Appendix B.4 for segregation table.

(b) Total transport index limitation - 50. This limit does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded, (see marginal 3659(5) of Appendix A.6).

(c) Maximum radiation levels for vehicles and large containers in the case of a full load

2 mSv/h (200 mrem/h) at surface

0.1 mSv/h (10 mrem/h) at 2 metres from surface

(see marginal 3659(7) of Appendix A.6)

Also, for vehicles – 20 μSv/h (2 mrem/h) in any normally occupied position (see marginal 3659(8) of Appendix A.6.).

(d) Packages not in conformity with the requirements of marginal 3600 shall be transported as full load, and the limits in the following table shall not be exceeded:

Nature of substances	Vehicle or large container activity limit
Solids	No limit
Tritium oxide in aqueous solutions	1 850 TBq (50,000 Ci)
Other liquids and gases	100 x A_2

10. Carriage in bulk in vehicles and containers

Permitted under full load provided that, after loading, external surfaces of vehicles are carefully cleaned by the consignor and provided that no leakage can occur under normal transport. Quantity limits as in the table in paragraph 9 above.

11. Carriage in tank-vehicles and tank-containers

(a) Carriage in tank-vehicles: permitted for liquids or solids other than uranium hexafluoride and substances liable to spontaneous ignition (see Appendix A.6, marginal 3660);

(b) Carriage in tank-containers: permitted for liquids or solids, including natural or depleted uranium hexafluoride (see Appendix A.6, marginal 3661).

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4).

Containers - labels to models 7A, 7B or 7C on all four sides. Vehicles and large containers - placards to model 7D in Appendix B.4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

Subsidiary labelling

(i) for thorium nitrate, solid and uranyl nitrate, solid - model No. 5 labels are required.

(ii) for uranium hexafluoride and uranyl nitrate hexahydrate in solution - model No. 8 labels are required.

(iii) for substances exhibiting an additional dangerous property and carried as a complete load - appropriate danger label required.

13. Prohibitions on mixed loading

See marginal 2700(3).

14. Decontamination vehicles, tank vehicles, tank containers and containers

(a) For full load consignments, after unloading, vehicles to be decontaminated by the consignee to the levels in Table XIX of Appendix A.6 unless to be used for carrying the same substances. See also marginal 3695(4) of Appendix A.6.

(b) For non-full load consignments, see marginal 3695(3) of Appendix A.6.

15. Other provisions

(a) Accident provisions - see marginal 3695(1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695(2) of Appendix A.6.

Scheldule 6

Danger labels on packages

None required unless fissile substances are present. (see Schedule 11).

1. Substances

Low specific activity substances LSA(II) belonging to either of the following groups as defined fully in marginal 2700(2):

(i) substances with uniform activity of not more than 10^{-4} A_2/g. (sub-para (a) of definition).

(ii) non-radioactive articles contaminated non-dispersibly to a level not exceeding 37 kBq/cm^2 (1 μCi/cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 3.7 kBq/cm^2 (0.1 μCi/cm^2) for other alpha emitters (sub-para (b) of definition).

If fissile substances are present the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

2. Packaging/Package

Packaging shall be in accordance with the requirements of marginal 3600, marginal 3650 and marginal 3651 of Appendix A.6.

3. Package maximum radiation level

Closed vehicles under conditions of marginal 3659(7) (a) of Appendix A.6 - 10 mSv/h (1000 mrem/h) at the surface of the package and may exceed 0.1 mSv/h (10 mrem/h) at one metre from that surface. All other vehicles not under the conditions of marginal 3659 (7)(a) of Appendix A.6 - 2 mSv/h (200 mrem/h) at the surface of the package and 0.1 mSv/h (10 mrem/h) at one metre from that surface.

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

Non-fixed external contamination limits:

Beta/gamma/low toxicity alpha emitters	3.7 Bq/cm^2	10^{-4} μCi/cm^2
Natural/depleted uranium/natural thorium	37 Bq/cm^2	10^{-3} μCi/cm^2
Other alpha emitters	0.37 Bq/cm^2	10^{-5} μCi/cm^2

For full details, see marginal 3651 of Appendix A.6

Danger labels on packages

None required unless fissile substances are present (see Schedule 11).

6. Marking packages

Packages shall be stencilled or otherwise marked "RADIOACTIVE LSA".

7. Transport documents

The transport document shall include the description "Radioactive substances (Low specific activity LSA (II)), 7, schedule 6, ADR", with the name underlined, and the details specified in marginals 3680 and 3681 of Appendix A.6.

8. Storage and despatch

Only under full load

9. Carriage of packages in vehicles and containers

(a) Carriage only by full load

(b) If the consignment includes Fissile Class II or III packages the allowable number shall not be exceeded. (see Schedule 11).

(c) Maximum radiation levels for vehicles and large containers

2 mSv/h (200 mrem/h) at surface, 0.1 mSv/h (10 mrem/h) at 2 metres from surface (see marginal 3659(7) of Appendix A.6)

Also, for vehicles - 20 μSv/h (2 mrem/h) in any normally occupied position - (see marginal 3659(8) of Appendix A.6)

(d) The limits in the following table shall not be exceeded:

Nature of substances	Vehicle or large container activity limit
Solids	No limit
Tritium oxide in aqueous solutions	1850 TBq (50000 Ci)
Other liquids and gases	100 x A_2

10. Carriage in bulk in vehicles and containers

Not permitted.

11. Carriage in tank vehicles and tank containers

Not permitted.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4)

Containers - labels to 7A, 7B or 7C on all four sides.

Vehicles and large containers - placards to model in Appendix B.4, marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

13. Prohibitions on mixed loading

See marginal 2700(3).

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695(3) and (4) or Appendix A.6.

15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A.6.

Schedule 7

Danger labels on packages.

None required unless fissile substances are present (see Schedule 11).

1. Substances

Low level solid radioactive substances LLS belonging to either of the following groups as defined fully in marginal 2700(2):

(i) substances with uniform activity of not more than 2×10^{-3} A_2/g. (sub para (a) of definition).

(ii) non-radioactive articles contaminated to a level not exceeding 740 kBq/cm² (20 μCi/cm²) for beta and gamma emitters and low toxicity alpha emitters or 74 kBq/cm² (2 μCi/cm² for other alpha emitters. (sub-para (b) of definition).

If fissile substances are present, the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

2. Packaging/Package

(a) Packaging shall be in accordance with the requirements of marginals 3600 and 3650 of Appendix A.6 and shall be capable of withstanding the tests set out in marginal 3635(4) and (5) of Appendix A.6.

(b) Under the conditions of the tests set out in (a), there shall be

(i) no loss or dispersal of the radioactive contents

(ii) no increase of the maximum radiation level recorded or calculated at the external surface for the condition before the test.

3. Package maximum radiation level

Closed vehicles under conditions of marginal 3659(7) (a) of Appendix A.6 - 10 mSv/h (1000 mrem/h) at the surface of the package and may exceed 0.1 mSv/h (10 mrem/h) at one metre from that surface. All other vehicles not under the conditions of marginal 3659(7) (a) of Appendix A.6 - 2 mSv/h (200 mrem/h) at the surface of the package and 0.1 mSv/h (10 mrem/h) at one metre from that surface.

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

No provisions.

6. Marking on packages

Packages shall be stencilled or otherwise marked "RADIOACTIVE LLS".

7. Transport documents

The transport document shall include the description "Radioactive substances (Low - level solid (LLS), 7, schedule 7, ADR", with the name underlined, and the details specified in marginals 3680 and 3681 of Appendix A.6.

8. Storage and despatch

Only under full load.

9. Carriage of packages in vehicles and containers

(a) Carriage only by full load

(b) If the consignment contains Fissile Class II or III packages the allowable number shall not be exceeded (see schedule 11).

(c) Maximum radiation levels for vehicles and large containers.

2 mSv/h (200 mrem/h) at surface

0.1 mSv/h (10 mrem/h) at 2 metres from surface

see marginal 3659(7) of Appendix A.6.

Also, for vehicles 20μSv/h (2 mrem/h) in any normally occupied position - see marginal 3659(8) of Appendix A.6.

10. Carriage in bulk in vehicles and containers

Not permitted.

11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4)

Containers - labels to model 7A, 7B or 7C on all four sides.

Vehicles and large containers - placards to model 7D in Appendix B.4, marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

13. Prohibitions on mixed loading

See marginal 2700(3).

14. Decontamination of vehicles, tank vehicles, tank containers and containers

After unloading, vehicles to be contaminated by the consignee to the level set in Table XIX of Appendix A.6 unless to be used for carrying the same substances. See also marginal 3695(3) and (4) of Appendix A.6.

15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A.6.

Schedule 8

Danger labels on packages (see Appendix A.9)

Labels to models 7A, 7B or 7C shall be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A. 6 for package category.

1. Substances

Radioactive substances in Type A packages up to an activity per package of A_2 or A_1 if in special form.

If fissile substances are present the requirements of schedule 11 shall be met in addition to the requirements of this schedule.

2. Packaging/Package

Type A, in accordance with the design requirements given in marginals 3600 and 3601 of Appendix A.6.

3. Package maximum radiation level

2 mSv/h (200 mrem/h) at the surface of the package and 0.1 mSv/h (10 mrem/h) at 1 metre from that surface (see marginals 3653 to 3655 of Appendix A.6).

Except in the case of a full load, when the limit is 10 mSv/h (1000 mrem/h) at the surface of the package and may exceed 0.1 mSv/h (10 mrem/h) at 1 metre from that surface (see marginal 3659 (7) of Appendix A.6).

4. Mixed packing

See Marginal 3650 of Appendix A.6.

5. Contamination on packages

Non – fixed extrernal contamination limits:

Beta/gamma/ low – toxicity alpha emitters 3.7 Bq/cm² (10^{-4} μCi/cm²)

Natural/depleted uranium/natural thorium 37 Bq/cm² (10^{-3} μCi/cm²)

Other alpha emitters 0.37 Bq/cm² (10^{-5} μCi/cm²)

For full details, see marginal 3651 of Appendix A.6

6. Marking on packages

Packages shall be plainly and durably marked externally with

(i) "Type A"

(ii) the mass of the package, if over 50 kg.

7. Transport Document

(a) For a summary of the approval and notification requirements, see marginal 2704.

(b) The transport document should include the description "Radioactive substances in Type A packages, 7, schedule 8, ADR", with the name underlined, and the details specified in marginals 3680 and 3681 of Appendix A.6.

(c) Where advantage is taken of the increased activity per package permitted if the subtstance is in special form, the unilateral special form design approval certicate shall be in the con signor's possesion befor the first shipment (see marginal 3671 of Appendix A.6.).

8. Storage and despatch

(a) Storage and segregation from other dangerous goods – see marginal 3658 (1) of Appendix A.6.

(b) Storage and segregation from package labelled "FOTO" – see marginal 240 001 Appendix B.4 for segregation table.

(c) Total transport index limitation for storage – 50 per group with 6 metres between groups – see marginal 3658 (2) to (5) of Appendix A.6.

9. Carriage of packages in vehicles and containers

(a) Segregation from packages labelled "FOTO" – see marginal 240 001 of Appendix B.4 for segregation tables.

(b) Total transport index limitation – 50. This limitation does not apply to a full load, provided that if fissile class II or III packages are present the allowable number is not exceeded – see marginal 3659 (5) of Appendix A.6.

(c) Maximum radiation level for vehicles and large containers in the case of a full load.

2 mSv/h (200 mrem/h) at surface

0.1 mSv/h (10 mrem/h) at 2 metres from surface

See marginal 3659 (7) of Appendix A.6.

Also, for vehicles - 20μSv/h (2 mrem/h) in any normally occupied position – see marginal 3659 (8) of Appendix A.6.

10. Carriage in bulk in vehicles and containers.

Not applicable.

11. Carriage in tank vehicles and tank containers.

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers (see Appendices A.9 and B.4)

Containers - labels to model 7A, 7B or 7C on all four sides.

Vehicles and large containers - placards to model 7D in Appendix B.4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659(6) and 71 500).

13. Prohibition on mixed loading

See marginal 2700 (3).

14. Decontamination of vehicles, tank vehicles, tank containers and containers.

See marginal 3695(3) of Appendix A.6.

15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695(2) of Appendix A.6.

Schedule 9

Danger labels on packages (see Appendix A.9)

Labels to models 7A, 7B or 7C shall be affixed externally to two opposite sides. See marginals 3653 to 3655 of Appendix A.6 for package category.

1. Substances

Radioactive substances in Type B (U) packages

No limit on the quantity per package except as prescribed in the approval certificates. If fissile substances are present, the requirements of Schedule 11 shall be met in addition to the requirements of this Schedule.

2. Packaging/Package

Type B(U), in accordance with the design requirements given in marginals 3600 to 3603 of Appendix A.6 requiring competent authority unilateral approval, see marginal 3672 of Appendix A.6.

3. Package maximum radiation level

2 mSv/h (200 mrem/h) at the surface of the package and

0.1 mSv/h (10 mrem/h) at 1 metre from that surface.

See marginals 3653 to 3655 of Appendix A.6.

Except in the case of a full load, when the limit is 10 mSv/h (1000 mrem/h) of the surface of the package and may exceed 0.1 mSv/h (10mrem/h) at 1 metre from that surface. See marginal 3659 (7) of Appendix A.6.

4. Mixed packing

See marginal 3650 of Appendix A6

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/low - toxicity alpha emitters 3.7 Bq/cm^2 (10^{-4} μCi/cm^2).

Natural/depleted uranium/natural thorium 37 Bq/cm^2 (10^{-3} μCi/cm^2).

Other alpha emitters 0.37 Bq/cm^2 (10^{-5} μCi/cm^2).

For full details, see marginal 3651 of Appendix A.6.

6. Marking on packages

Packages shall be plainly and durably marked externally with:

(i) "TYPE B(U)".

(ii) competent authority identification mark.

(iii) the mass if over 50 kg.

(iv) the trefoil symbol embossed or stamped on the outermost fire - and - water - resistant receptacle.

7. Transport documents

(a) For a summary of the approval and notification requirements - see marginal 2704.

(b) The transport document shall include the description "Radioactive substances in Type B(U) packages, 7, Schedule 9, ADR", with the name underlined, and the details specified in marginals 3680 and 3681 of Appendix A.6.

(c) Unilateral package design approval certificate is required, see marginal 3672 of Appendix A.6.

(d) Before the shipment of any package the consignor shall be in possession of all relevant approval certificates.

(e) Before the first shipment of a particular design of package, if the activity is greater than $3 \times 10^3 A_2$ or $3 \times 10^3 A_1$ as appropriate, or 3×10^4Ci, whichever is the lower, the consignor shall ensure that copies of the competent authority approval certificates have been supplied to the competent authorities of countries affected by the movement, see marginal 3682 (1) of Appendix A.6.

(f) Prior to each shipment where the activity is greater than $3 \times 10^3 A_2$ or $3 \times 10^3 A_1$ as appropriate, or 3×10^4Ci, whichever is the lower, the consignor shall notify the competent authorities of all countries affected by the movement, preferably 15 days in advance as detailed in marginal 3682 of Appendix A.6.

(g) Where advantage is taken of the increased activity per package permitted because the substance is in special form (see paras. (e) and (f) above) a unilateral special form design approval certificate is required (see marginal 3671 of Appendix A.6).

8. Storage and despatch

(a) Any instructions in the competent authority approval certificates must be observed.

(b) Storage and segragation from other dangerous goods - see marginal 3658 (1) of Appendix A.6.

(c) Storage and segregation from packages labelled "FOTO" - see marginal 240 001 Appendix B.4 for segregation table.

(d) Total transport index limitation for storage - 50 per

group with 6 metres between groups - see marginal 3658 (2) to (5) of Appendix A.6.

(e) The consignor shall have complied with the pre - use and pre - shipment requirements of marginal 3643 and 3644 of Appendix A.6.

(f) The temperature of the accessible surfaces of the package shall not exceed 50° C in the shade unless transport is under full load conditions, in which case the limit is 82 °C (see marginals 3602 (3) (b) and 3603 (8) of Appendix A.6).

(g) If the average surface heat flux from a package exceeds 15 W/m^2 then the package shall be transported as a full load.

9. Carriage of packages in vehicles and containers

(a) Segregation from packages labelled "FOTO" - see 240 001 of Appendix B.4 for segregation table.

(b) Total transport index limitation - 50. This limitation does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded. See marginal 3659(5) of Appendix A.6.

(c) Maximum radiation levels for vehicles and large containers in the case of a full load.

2 mSv/h (200 mrem/h) at surface.

0.2 mSv/h (10 mrem/h) at 2 metres from surface.

See marginal 3659 (7) of Appendix A.6.

Also for vehicle - 20 μSv/h (2 mrem/h) in any normally occupied position - see marginal 3659 (8) of Appendix A.6.

10. Cariage in bulk in vehicles and containers

(a) No applicable.

11. Carriage in tank vehicles and tank containers

Not applicable.

12. Placards and labels on vehicles, tank vehicles, tank containers and containers

(see Appendices A.9 and B.4)

Containers - labels to models 7A, 7B or 7C on all four sides.

Vehicles and large containers - placards to model in Appendix B4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659 (6) and 71 500).

13. Prohibition on mixed loading

See marginal 2700 (3)

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

15. Other provisions

(a) Accident provisions - see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage - see marginal 3695 (2) of Appendix A.6.

Schedule 10

Danger labels on packages

(see Appendix A.9)

Labels to models 7A, 7B or 7C shall be affixed externally to two opposite sides. (See marginals 3653 to 3655 of Appendix A.6 for package category).

1. Substances

Radioactive substances in Type B(M) packages.

That is a Type B package design which fails to meet one or more of the specific additional requirements for Type B(U) packages (see marginal 3603 of Appendix A.6). No limit on the quantity per package except as prescribed in the approval certificate. If fissile substances are present the requirements of Schedule 11 shall be met in addition to the requirements of this schedule.

2. Packaging/Package

Type B(M), in accordance with the design requirements given in marginal 3604 of Appendix A.6, requiring competent authority multilateral approval (see marginal 3673 of Appendix A.6).

3. Package maximum radiation level

2 mSv/h (200 mrem/h) at the surface of the package and 0.1 mSv/h (10 mrem/h) at 1 metre from that surface. (See marginals 3653 to 3655 of Appendix A.6), except in the case of a full load, with the limit is 10 mSv/h (1000 mrem/h) at the surface of the package and may exceed 0.1 mSv/h (10 mrem/h) at 1 metre from that surface. See marginal 3659 (7) of Appendix A.6.

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

Non - fixed external contamination limits:

Beta/gamma/low - toxicity alpha emitters 3.7 Bq/cm^2 (10^{-4} μCi/cm^2).

Natural/depleted uranium/natural thorium 37 Bq/cm^2 (10^{-3} μCi/cm^2).

Other alpha emitters 0.37 Bq/cm^2 (10^{-5} μCi/cm^2).

For full details, see marginal 3651 of Appendix A.6.

6. Marking on packages

Packages shall be plainly and durably marked externally with:

(i) "TYPE B(M)".

(ii) competent authority identification mark.

(iii) the mass of the package if over 50 kg.

(iv) the trefoil symbol embossed or stamped on the outermost fire - and - water - resistant receptacle.

7. Transport documents

(a) For a summary of the approval and notification requirements - see marginal 2704.

(b) The transport document shall include the description "Radioactive substances in Type B(M) packages, 7, Schedule 10, ADR", with the name underlined, and the details specified in marginals 3680 and 3681 of Appendix A.6.

(c) Multilateral package design approval certificates are required, (see marginal 3672 of Appendix A.6.).

(d) If the package is designed to allow for continous venting or if the total activity of the contents exceed 3 × 10^3A_2 or 3 × 10^3A_1 as appropriate, or 3 × 10^4Ci, whichever is the lower, multilateral shipment certificates are required unless a competent authority authorizes transport by a specific provision in its package design certificate (see marginal 3675 of Appendix A.6).

(e) Where advantage is taken of the increased activity per package permitted if the substance is in special form (see par. (d) above (a unilateral special form design approval certificate is required (see marginal 3671 of Appendix A.6).

(f) Prior to each shipment the consignor shall notify the competent authorities of all countries affected by the movement preferably fifteen days in advance as detailed in marginal 3682 (2) to (4) of Appendix A.6.

(g) Before the shipment of any package, the consignor shall be in possession of all relevant approval certificates.

8. Storage and despatch

(a) Any instructions in the competent authority approval certificates must be observed.

(b) Storage and segragation from other dangerous goods - see marginal 3658 (1) of Appendix A.6.

(c) Storage and segregation from packages labelled "FOTO" - see marginal 240 001 Appendix B.4 for segregation table.

(d) Total transport index limitation for storage - 50 per group with 6 metres between groups - see marginal 3658 (2) to (5) of Appendix A.6.

(e) The consignor shall have complied with the pre-use and pre-shipment requirements of marginal 3643 and 3644 of Appendix A.6.

f) If the surface temperature of the package exceeds 50°C in the shade the package shall be transported as a 2703

full load – see marginal 3602 (4) (b) of Appendix A.6.

g) If the average surface heat flux from a package exceeds 15W/m², then the package shall be transported as a full load.

h) Packages specially designed to allow continuous venting – see marginal 3604 (2) of Appendix A.6 – shall only be transported under full load.

9. Carriage of packages in vehicles and containers

(a) Segregation from packages labelled "FOTO" – see marginal 240 001 of Appendix B.4 for segregation table.

(b) Total transport index limitation – 50. This limitation does not apply to a full load, provided that if Fissile Class II or III packages are present the allowable number is not exceeded – see marginal 3659 (5) of Appendix A.6.

c) Maximum radiation levels for vehicles and large containers in the case of a full load:

2 mSv/h (200 mrem/h) at surface

0.1 mSv/h (10 mrem/h) at 2 metres from surface.

See marginal 3659 (7) of Appendix A.6.

Also for vehicles – 20 μSv/h (2 mrem/h) in any normally occupied position – see marginal 3659 (8) of Appendix A.6.

10. Carriage in bulk in vehicles and containers

Not applicable.

11. Carriage in tank-vehicles and tank-containers

Not applicable.

12. Placards and labels on vehicles, tank-vehicles, tank-containers and containers

(See Appendix A.9 and B.4.)

Containers – labels to model 7A, 7B or 7C on all four sides.

Vehicles and large containers – placards to model 4D in Appendix B.4, marginal 240 010, on each lateral side and on rear wall of vehicle (see marginals 3659 (6) and 71 500).

13. Prohibition on mixed loading

See marginal 2700 (3).

14. Decontamination of vehicles, tank vehicles, tank containers and containers

See marginal 3695 (3) of Appendix A.6.

15. Other provisions

(a) Accident provisions – see marginal 3695 (1) of Appendix A.6.

(b) Decontamination in storage – see marginal 3695 (2) of Appendix A.6.

Schedule 11

Danger labels on packages

(See Appendix A.9).

Fissile Class I - labels to models 7A, 7B or 7C.

Fissile Class II - labels to models 7B or 7C.

Fissile Class III - labels to model 7C only. Labels to be affixed externally to two opposite sides, see marginals 3653 to 3655 of Appendix A.6 for package category.

1. Substances

Fissile substances, that is, uranium-233, uranium-235, plutonium-238, plutonium-239, plutonium-241, or any substance containing any of the foregoing, except unirradiated natural and depleted uranium.

Fissile substances shall also be consigned in full compliance with the requirements of one of the other schedules, as appropriate to the radioactivity.

2. Packaging/Package

The following substances specified fully in marginal 3610 of Appendix A.6 are exempt from the special packaging requirements of this Schedule:

(i) fissile substances in quantity not exceeding 15 g.

(ii) natural or depleted uranium irradiated in a thermal reactor

(iii) dilute hydrogenous solutions in limited concentrations and quantities.

(iv) enriched uranium with not more than 1 per cent of uranium-235, which should not form a lattice arrangement if metal or oxide.

(v) substances distributed at not more than 5 g per 10 litre volume.

(vi) plutonium where less than 1 kg per package and where not more than 20 per cent by mass consists of plutonium-239 or 241.

(vii) enriched uranyl nitrate solution containing uranium with not more than 2 per cent uranium-235.

(b) Otherwise, packages shall be in accordance with the design requirements of Fissile Class I, II or III given in marginals 3611 to 3624 of Appendix A.6 and have competent authority approval, where necessary, as detailed in marginal 3674 of Appendix A.6.

3. Package maximum radiation level.

See appropriate schedule.

4. Mixed packing

See marginal 3650 of Appendix A.6.

5. Contamination on packages

See appropriate schedule.

6. Marking on packages

See appropriate schedule.

7. Transport documents

(a) For a summary of the approval and notification requirements, see marginal 2704.

(b) The transport document shall include the details specified in the schedule appropriate to the nature of the contents with the word "Fissile" prefixed to the description and underlined.

(c) Unilateral or multilateral package design approval certificates may be required, see marginal 3674 of Appendix A.6.

(d) Fissile Class II package designs complying with marginal 3620 of Appendix A.6 shall have multilateral shipment approval certificates. Such a package design requires no prior notification unless specified in the competent authority's shipment approval.

(e) Fissile Class III package designs shall have multilateral shipment approval certificates unless a competent authority authorizes transport by a specific provision in its package design certificate, see marginal 3675 of Appendix A.6.

(f) Prior to each shipment of a Fissile Class III package which requires multilateral package design approval, see marginal 3674 of Appendix A.6 the consignor shall notify the competent authorities of all countries affected by the movement preferably fifteen days in advance as detailed in marginal 3682 (2) to (4) of Appendix A.6.

(g) Before the shipment of any package the consignor shall be in possession of any relevant approval certificates.

8. Storage an despatch

(a) Any instructions in the competent authority approval certificates must be observed.

(b) Total transport index limitation for storage - 50 per group with 6 metres between groups – see marginal 3658 (2) to (5) of Appendix A.6.

(c) The consignor shall have complied with the pre-use requirements of marginal 3643 of Appendix A.6.

9. Carriage of packages in vehicles and containers

(a) Any instructions in the competent authority approval certificates shall be observed.

(b) Total transport index limitation – 50. This limitation does not apply to a full load, provided that if fissile Class II or III packages are present the allowable number is not exceeded – see marginal 3659 (5) of Appendix A.6.

11. Carriage in bulk in vehicles and containers

(a) No restrictions for fissile material up to 15 g total or for solutions within certain concentration and quantity limits, see paragraph 2 (a) (i), (iii) and (vii) and marginal 3610 of Appendix A.6.

(b) Not applicable for Fissile Class I or II packages.

(c) Permitted under Fissile Class III only if so specified in the competent authority certificate.

11. Carriage in tank-vehicles and tank-containers

Not applicable.

12. Placards and labels on vehicles, tank-vehicles, tank-containers and containers

(see Appendices A.9 and B.4.)

Containers - labels to models 7A, 7B or 7C on all four sides.

Vehicles and large containers - placards to model 7D in Appendix B.4 marginal 240 010 on each lateral side and on rear wall of vehicle (see marginals 3659 (6) and 71 500).

13. Prohibitions on mixed loading

See marginal 2700 (3)

14. Decontamination of vehicles, tank-vehicles, tank-containers and containers

See appropriate schedule.

15. Other provisions

Accident provisions - see marginal 3695 (1) of Appendix A.6.

Schedule 12

Danger labels on packages

(see Appendix A.9)

Labels in conformity with model no. 7C shall be affixed externally to two opposite sides unless otherwise prescribed in the competent authority certificate.

See marginal 3655(1) of Appendix A.6.

1. Substances

Radioactive substances carried under special arrangement

If it is not possible to comply with the package design or shipment requirements, consignments shall be transported under a special arrangement which will ensure that the over-all safety level is no less than it would have been had all the applicable requirements been met.

See marginal 3676 of Appendix A.6.

NOTE: For a summary of the approval and notification requirements, see marginal 2704.

Summary of approvals and prior notification requirements 2704

(a) Approval of special form substances, and package designs

	Subject of approval	Competent authority whose approval is required
1	Special form substance excepting those items specified in Schedules 3 and 4	Country of origin
2	Type A, LSA ans LLS	None unless contents are fissile and not exempted from the fissile requirements under marginal 3610 of Appendix A.6: Country of origin
4	Type B(M)	Country of origin and all countries en route
5	Fissile packages Package designs complying with marginal 3620, 3623 or 3624 of Appendix A.6	None
	Package designs complying with marginal 3616 or 3622 of Appendix A.6	Country of origin
	All other package designs	Country of origin and all countries en route

NOTE: "Country of origin" refers to the country where the design originated. Packages in the fissile classes also fall into one or other of package design categories 2, 3 or 4 above and the relevant provisions also apply to them.

(b) Approval of shipments and prior notification

	Package	Competent authority whose approval is required for each shipment	Prior notification of each shipment
1	Type A, LSA and LLS	None	None
2	Type B(U)	None	Country of origin and all countries en route when contents exceed $3 \times 10^3 A_1$ or $3 \times 10^3 A_2$ as appropriate or 3×10^4 Ci, whichever is lower

Package	Competent authority whose approval is required for each shipment	Prior notification of each shipment
3 Type B(M)- Continuously venting	Country of origin and all countries en route	Country of origin and all countries en route
4 Type B(M) - Not continuously venting	Country of origin and all countries en route when contents exceed $3 \times 10^3 A_1$ or $3 \times 10^3 A_2$ as appropriate or 11.1×10^2TBq (3×10^4Ci), whichever is lower	Country of origin and all countries en route
5 Fissile packages		
Class I	None	None
Class II	Packages complying with marginal 3620 of Appendix A.6 only: Country of origin and all countries en route	None unless specified in the competent authority shipment approval
Class III	Country of origin and all countries en route	Country of origin and all countries en route
6 Packages subject to transport under special arrangements	Country of origin and all countries en route	Country of origin and all countries en route
NOTE: Before shipping a Type B(U) package the contents of which exceed $3 \times 10^3 A_1$ or $3 \times 10^3 A_2$, as appropriate, or 11.1×10^2Tbq (3×10^4Ci), whichever is lower, for the first time, the consignor shall ensure that copies of each applicable competent authority certificate applying to the design have been submitted to the competent authority of those countries in whose terriotory it is to be transported. Country of origin refers to the country where the shipment originated.		
Packages in the fissile classes also fall into one or other of the other headings of this Table and the relevant provisions also apply to them.		

2705 – 2799

CLASS 8 CORROSIVE SUBSTANCES

1. List of substances

2800 (1) Among the substances and articles covered by the heading of Class 8[1/], those which are listed in marginal 2791 or are delivered by a collective heading of that marginal are subject to the conditions set up in marginals 2800 (2) to 2822 and to the provisions of this Annex and of Annex B. These are then considered as substances and articles of ADR[2/]

Substances of Class 8 (other than the substances of 6°, 24° and 25°) which are classified under the various items of marginal 2801 shall be assigned to one of the following groups designated by the letter (a), (b) or (c) according to their degree of corrosiveness:

letter (a): Highly corrosive;

letter (b): Corrosive;

letter (c): Slightly corrosive.

When, as a result of additions, substances of Class 8 pass into categories of corrosiveness other than those to which the substances specified in marginal 2801 belong, such mixtures or solutions shall be classified under the items and letters to which they belong on the basis of their actual degree of corrosiveness.

When, as a result of additions, substances of Class 8 pass into the category having a flash-point below 21°C, such mixtures or solutions shall be classified under the corresponding items or letters of Class 3, taking into account their corrosiveness.

When, as a result of additions of substances of Class 6.1, substances of Class 8 acquire a preponderance of toxic properties, such mixtures or solution shall be classified under the corresponding items and letters of Class 6.1.

[1/] The heading of Class 8 covers substances which by chemical action attack epithelial tissue - of skin, mucous membranes or eyes - with which they are in contact, and substances which in the event of leakage are capable of damaging or destroying other goods, or means of transport, and may also cause other hazards. The heading of this Class also covers substances which form a corrosive liquid only in the presence of water, or which produce corrosive vapour or mist in the presence of the natural moisture of the air.

In the absence of other tests, corrosive action may be determined by experiments on animals.

Substances that cause visible necrosis of the skin tissue at the site of contact when tested on the intact skin of an animal for a period of up to four hours are substances of group (c).

Substances which, while not dangerous to epithelial tissue, corrode steel or aluminium are likewise substances of group (c).

Substances that cause visible necrosis of the skin tissue at the site of contact when tested on the intact skin of an animal for a period of more than three minutes and up to 60 minutes are substances of group (b).

Other substances covered by the heading of Class 8 which are more corrosive than the substances of group (b) are substances of group (a).

[2/] For the quantities of substances listed in marginal 2801 which are not subject to the provisions for this Class, either in this Annex or in Annex B, see marginal 2801a.

(1) For the packaging requirements of marginals 2805 (2), 2806 (2) and 2807 (2), substances or mixtures of substances having a melting point above 45 °C are considered to be solids.

(3) Corrosive inflammable liquids having a flash-point below 21 °C, other than certain acid halides of 36° (b), are substances of Class 3 (see marginal 2301, 21° to 26°).

(4) Corrosive substances which have a very high inhalation toxicity, as defined in footnote[1/] to marginal 2600 (1), are substances of Class 6.1 (see marginal 2601).

(5) The chemically unstable substances of Class 8 are to be accepted for carriage only if the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end it should in particular be ensured that receptacles do not contain any substance liable to promote these reactions.

(6) The flash-point referred to below shall be determined in the manner described in Appendix A.3.

NOTE: Even where no substance is listed under letters (a), (b) or (c) of the various items, substances, solutions, mixtures and preparations may be classified under these letters in accordance with the criteria set out in marginal 2800.

2801

A. Acid substances

Inorganic acids

1° Sulphuric acid and similar substances, such as:

(a) chromosulphuric acid, sulphur trioxide, oleum (fuming sulphuric acid);

(b) alkyl sulphonic and aryl sulphonic acids containing more than 5 per cent free sulphuric acid, sulphuric acid, waste sulphuric acid, aqueous solutions of bisulphates, nitrosulphuric acid, lead sludge containing sulphuric acid;

(c) ...

NOTES: 1. Lead sludge containing sulphuric acid with less than 3 per cent free acid is a substance of Class 6.1 (see marginal 2601, 63° (c)).

2. Alkyl sulphonic and aryl sulphonic acids, containing not more than 5 per cent free sulphuric acid, are substances of 34°.

2° Nitric acids, such as:

(a) nitric acid containing more than 70 per cent pure acid, red fuming nitric acid;

(b) nitric acid containing not more than 70 per cent pure acid;

(c) ...

3° Mixtures of inorganic acids, with the exception of hydrofluoric acid, such as:

(a) mixtures of sulphuric acid with more than 30 per cent nitric acid;

(b) mixtures of sulphuric acid with not more than 30 per cent pure nitric acid, mixtures of sulphuric acid with hydrochloric acid, mixtures of nitric acid (containing not more than 30 per cent HNO_3) with acetic acid and phosphoric adid;

(c) ...

NOTES: 1. Mixtures of nitric acid with hydrochloric acid are not to be accepted for carriage.

2. Mixtures of residual sulphuric and nitric acids, not denitrated, are not to be accepted for carriage.

4° Solutions of perchloric acid:

(b) Aqueous solutions of perchloric acid containing not more than 50 per cent pure acid;

(c) ...

NOTE: Aqueous solutions of perchloric acid containing more than 50 per cent but not more than 72.5 per cent pure acid are substances of Class 5.1. (see parginal 2510, 3°).

Solutions containing more than 72.5 per cent pure acid are not to be accepted for carriage; the same applies to mixtures of perchloric acid with any liquid other than water.

5° Solutions of hydrogen halides (with the exception of hydrofluoric acid), such as:

(b) solutions of hydrobromic acid, solutions of hydrochloric acid, solutions of hydriodic acid, aqueous solutions of substances of 21° and 22° (b), with the exception of aqueous solutions of aluminium chloride and of aqueous solutions of aluminium bromide;

(c) aqueous solutions of substances of 22° (c), aqueous solutions of aluminium bromide, aqueous solutions of aluminium chloride.

NOTE: Hydrogen bromide and hydrogen chloride are substances of Class 2 (see marginal 2201, 3° (at) and 5° (at)).

6° Anhydrous hydrofluoric acid (hydrogen fluoride), aqueous solutions of hydrofluoric acid containing more than 85 per cent anhydrous hydrofluoric acid.

NOTE: Special packing conditions are applicable to these substances (see marginal 2803).

7° (a) Aqueous solutions of hydrofluoric acid containing more than 60 per cent but not more than 85 per cent anhydrous hydrofluoric acid, mixtures of inorganic acids with aqueous solutions of hydrogluoric acid;

(b) aqueous solutions of hydrofluoric acid containing not more than 60 per cent anhydrous hydrofluoric acid;

(c) ...

8° Solutions of fluoboric acid:

(b) Aqueous solutions of fluoboric acid containing not more than 78 per cent pure acid;

(c) ....

NOTE: Solutions of fluoboric acid containing more than 78 per cent pure acid are not to be accepted for carriage.

9° (b) Fluosilicic acid (hydrofluosilicic acid) H_2SiF_6);

(c) ...

10° Other fluoro-acids, such as:

(a) fluorosulphonic acid;

(b) difluorophosphoric acid (anhydrous), fluorophosphoric acid (anhydrous), hexafluorophosphoric acid;

(c) ...

11° Other inorganic acids, such as:

(a) selenic acid;

(b) solutions of chromic acid;

NOTE: Chromium trioxide, anhydrous, is a substance of Class 5.1 (see marginal 2501, 10°).

(c) chloroplatinic acid, phosphoric acid.

Inorganic halides, acid salts and other halogenated substances

21° Liquid halides and other liquid halogenated substances (except fluorine compounds) which, in contact with moist air or water, give off acid fumes, such as:

(a) chlorosulphonic acid ($SO_2(OH)Cl$), chromyl chloride (chromium oxychloride) (CrO_2Cl_2), disulphur dichloride (S_2Cl_2), sulphuryl chloride (SO_2Cl_2), thionyl chloride ($SOCl_2$), sulphur dichloride (SCl_2), vanadium tetrachloride (VCl_4), boron tribromide (boron bromide) (BBr_3);

(b) pyrosulphuryl chloride ($S_2O_5CL_2$), anhydrous stannic chloride ($SnCl_4$), thiophosphoryl chloride ($PSCl_3$), phosphorus oxychloride (phosphoryl chloride) ($POCl_3$) vanadium oxytrichloride ($VOCL_3$), antimony pentachloride, ($SbCl_5$), and non aqueous solutions of antimony pentachloride, iodine monochloride (ICl), silicon tetrachloride ($SiCl_4$), titanium tetrachloride ($TiCl_4$), phosphorus tribromide (PBr_3), butyltin trichloride ($C_4H_9SnCl_3$), phosphorus trichloride (PCl_3);

(c) .....

NOTES: 1. Stannic chloride pentahydrate is a substance of 22° (c).

2. Aqueous solutions of substances of 21° are substances of 5° (b).

22° Solid halides and other solid halogenated substances (except fluorine compounds), which, in contact with moist air or water, give off acid fumes, such as:

(b) aluminium bromide (anhydrous) ($AlBr_3$), aluminium chloride (anhydrous) ($AlCl_3$), phosphorus oxybromide ($POBr_3$) phosphorus pentachloride (PCl_5), antimony trichloride ($SbCl_3$) mixtures of titanium trichloride ($TiCl_3$), non-pyrophoric;

NOTE: Aluminium bromide hexahydrate, aluminium chloride hexahydrate and aluminium chloride monobydrate are not subject to the provisions of ADR.

(c) ferric chloride (iron trichloride) (anhydrous) ($FeCl_3$), stannic chloride pentahydrate ($SnCl_4.5H_2O$), zinc chloride ($ZnCl_2$), molybdenum pentachloride ($MoCl_5$), zirconium tetrachloride ($ZrCl_4$), vanadium trichloride (VCl_3).

NOTES: 1. Ferric chloride hexahydrate is not subject to the provisions of ADR.

2. Aqueous solutions of substances of 22° are substances of 5°.

23° Sulphates containing sulphuric acid and bisulphates, such as:

(b) ammonium bisulphate, potassium bisulphate, sodium bisulphate and lead sulphate containing 3 per cent or more sulphuric acid;

(c) ammonium bisulphate, potasium bisulphate, and sodium bisulphate containing less than 3 per cent free sulphuric acid.

NOTES: 1. Aqueous solutions of bisulphates are substances of 1° (b).

2. Lead sulphate containing less than 3 per cent free sulphuric acid is a substance of Class 6.1 (see marginal 2601, 63°(c)).

24° Bromine

NOTE: Special packing conditions are applicable to this substance (see marginal 2804).

25° Molybdenum hexafluoride

NOTE: Special packing conditions are applicable to this substance (see marginal 2803).

26° Other compounds of flourine, such as:

(a) bromine pentafluoride, bromine trifluoride:

(b) ammonium bifluoride, potassium bifluoride, sodium bifluoride, chromic fluoride, antimony pentafluoride;

(c) . . . . . .

NOTE: Ammonium fluoric, potassium fluoride, sodium fluoride and the silicofluorides are substances of Class 6.1 (see marginal 2601, 65° (c) and 66° (c)).

27° Inorganic acid substances which cannot be classified under other collective headings, such as:

(a) . . . . . .

(b) phosphorus pentoxide (phosphoric acid, anhydrous);

(c) cyanuric chloride, hydroxylamine sulphate.

Organic substances

31° Solid carboxylic and dicarboxylic acids and solid halogenated carboxylic acids and their solid anhydrides, sucs as:

(b) bromoacetic acid, chloroacetic acid (monochloroacetic acid) trichloroacetic acid, trichloroacetic anhydride;

(c) maleic anhydride, phthalic anhydride, tetrahydrophthalic anhydride.

32° Liquid carboxylic acids and liquid halogenated carboxylic acids and their liquid anhydrides, such as:

(a) trifluoroacetic acid;

(b) glacial acetic acid and aqueous solutions of acetic acid containing more than 80 per cent pure acid, acrylic acid, solutions of bromoacetic acid, solutions of chloroacetic acid (monochloroacetic acid), mixtures of chloroacetic acids, dichloroacetic acid, formic acid containing more than 70 per cent pure acid, thioglycolic acid, solutions of trichloroacetic acid, acetic anhydride;

(c) acetic acid containing from 50 to 80 per cent pure acid, 2-chloropropionic acid, 5-chlorovaleric acid, formic acid containing from 50 toy 70 per cent pure acid, heptafluorobutyric acid, methacrylic acid, propionic acid containing not less than 50 per cent pure acid, butyric anhydride, propionic andhydride.

NOTE: Formic acid, acetic acid and propionic acid containing less than 50 per cent pure acid are not subject to the provisions of ADR.

33° Complex compounds of boron trifluoride, such as:

(a) . . . . . .

(b) boron trifluoride acetic acid complex, boron trifluoride propionic acid complex, boron trifluoride ether complex, boron trifluoride phenol complex;

(c) . . . . . .

34° Alkyl sulphonic and aryl sulphonic acids, such as:

(b) nitrobenzenesulphonic acid, phenolsulphonic acid;

(c) 3-benzidinesulphonic acid, methanesulphonic acid, toluene sulphonic acids and their solutions.

NOTE: Alkyl sulphonic and aryl sulphonic acids containing more than 5 per cent free sulphuric acid are substances of 1° (b).

35° Solid organic acid halides, such as:

(b) dichloroquinoxaline-carbonyl chloride, anisoyl chloride, 2, 4-dichlorobenzoyl chloride, nitrobenzenesulphonyl chloride, p-nitrobenzoyl chloride, isophthaloyl chloride:

(c) . . . . . .

36° Liquid organic acid halides, such as:

(a) . . . . . .

(b) acetyl bromide bromoacetyl bromide, benzoyl chloride, chloroacetyl chloride, diethyl thiophosphoryl chloride, fumaryl chloride, pivaloyl chloride, (trimethyl acetyl chloride), trichloroacetyl chloride, valeryl chloride, acetyl iodide;

(c) benzenesulphonyl chloride, o-chlorobenzoyl chloride, p-chlorobenzoyl chloride, dimethyl thiophosphoryl chloride.

37° Alkyl chlorosilanes and aryl chlorosilanes having a flash-point of 21°C or above, such as:

(a) . . . . . .

(b) allyltrichlorosilane, amyltrichlorosilane, butyltrichlorosilane, chlorophenyltrichlorosilane, cyclohexenyltrichlorosilane, cyclohexyltrichlorosilane, dichlorophenyltrichlorosilane, diethyldichlorosilane, diphenyldichlorosilane, dodecyltrichlorosilane, ethylphenyldichlorosilane, hexadecyltrichlorosilane, hexyltrichlorosilane, methylphenyldichlorosilane, nonyltrichlorosilane, octadecyltrichlorosilane, phenyltrichlorosilane, propyltrichlorosilane;

(c) . . . . . .

NOTE: Chlorosilanes which give off inflammable gases on contact with water or moist air are substances of Class 4.3 and are not to be accepted for carriage unless specifically listed thereunder.

38° Acid phoshoric esters, such as:

(b) . . . . . .

(c) dibutyl acid phosphate, dipropyl acid phosphate, butyl acid phosphate, isooctyl acid phosphate, isopropyl acid phosphate.

39° Organic acid substances which cannot be classified under other collective headings, such as:

(b) acetopolysilanes, acetoxysilanes, ethyltriacetoxysilane;

(c) . . . . . .

B. Basic substances

Inorganic substances

41° Basic solid compounds of alkali metals, such as:

(b) caesium hydroxide, lithium hydroxide, potassium hydroxide (caustic potash), sodium hydroxide (caustic soda), potassium oxide, sodium oxide;

(c) soda lime (mixtures of caustic soda and quicklime).

42° Solutions of alkaline substances, such as:

(b) solutions of sodium aluminate, solutions of potas-

sium hydroxide (potash lye) and of sodium hydroxide (soda lye), alkaline solutions of cresols, of phenol and of xylenols, alkaline residues (e.g. from oil refining);

(c) .....

43° Ammonia solutions;

(c) ammonia solutions containing not less than 10 per cent and not more than 35 per cent ammonia.

NOTES: 1. Ammonia solutions containing more than 35 per cent ammonia are substances of Class 2 (see marginal 2201, 9° (at)).

2. Ammonia solutions containing less than 10 per cent ammonia are not subject to the provisions of ADR.

44° Hydrazine and its aqueous solutions:

(a) anhydrous hydrazine, aqueous solutions of hydrazine containing more than 64 per cent hydrazine;

(b) aqueous solutions of hydrazine containing not more than 64 per cent hydrazine;

(c) .....

45° Sulphides and hydrogensulphides, such as:

(b) solutions of ammonium sulphide and solutions of ammonium polysulphide; potassium sulphide and sodium sulphide containing not less than 30 per cent water of crystallization and sodium hydrogensulphide containing not less than 25 per cent water of crystallization;

NOTE: Anhydrous potassium sulphide and anhydrous sodium sulphide and their hydrates containing less than 30 per cent water of crystallization, and sodium hydrogensulphide containing less than 25 per cent water of crystallization are substances of Class 4.2 (see marginal 2431 6° (c)).

(c) aqueous solutions of sulphides and of hydrogensulphides, with the exception of ammmonium sulphide in solution and ammonium polysulphide in solution.

Organic substances

51° Tetra-alkylammonium hydroxides, such as:

(b) tetramethylammonium hydroxide;

(c) .....

52° Solid alkylamines, arylamines and polyamines, such as:

(c) diethylenediamine (piperazine), hexamethylenediamine.

53° Liquid alkylamines, arylamines and polyamines, such as:

(b) benzyldimethylamine, cyclohexylamine, solutions of cuprietlylenediamine, di-n-butylamine, diethylenetriamine, N,N-di-ethylethylenediamine, N,N dimethylchyclohexylamine, ethylenediamine, solutions of hexamethylenediamine, triethylenetetramine;

(c) benzylamine, bisaminopropylamine (dipropylenetriamine, 3,3-iminobispropylamine), dicyclohexylamine, diethylaminopropylamine, 2-ethylhexylamine, isoprhoronediamine, pentaethylenehexamine, tetraethylenepentamine, tributylamine, trimethylcyclohexylamine, trimethylhexamethylenediamines.

54° Amino-alcohols, such as:

(c) ethanolamine and its solutions.

C. Other corrosive substances

61° Hypochlorite solutions, sucha as:

(b) solutions of potassium hypochlorite and solutions of sodium hypochlorite containing not less than 16 per cent available chlorine;

(c) solutions of potassium hypochlorite and solutions of sodium hypochlorite containing more than 5 per cent but less than 16 per cent available chlorine.

NOTE: Solutions of hypochlorite containing not more than 5 per cent available chlorine are not subject to the provisions of ADR.

62° Solutions of hydrogen peroxide

(b) aqueous solutions of hydrogen peroxide containing not less than 20 per cent and not more than 60 per cent hydrogen peroxide;

(c) aqueous solutions of hydrogen peroxide containing 8 per cent or more but less than 20 per cent hydrogen peroxide.

NOTES: 1. Solutions containing more than 60 per cent hydrogen peroxide are substances of Class 5.1 (see marginal 2501, 1°);

2. Solutions containing less than 8 per cent hydrogen peroxide are not subject to the provisions of ADR;

63° Formaldehyde solutions:

(c) Aqueous solutions of formaldehyde e.g. formalin with not less than 5 per cent formaldehyde; also with not more than 35 per cent methanol.

NOTE: Aqueous solutions of formaldehyde with less than 5 per cent formaldehyde are not subject to the provisions of ADR.

64° Esters of organic and inorganic acids whose properties are predominantly corrosive, such as:

(a) chloroformic esters, such as: allyl chloroformate, benzyl chloroformate;

(b) .....

(c) .....

NOTE: Esters of organic and inorganic acids whose properties are predominantly toxic are substances of Class 6.1 (see marginal 2601 16° and 17°).

65° Solid corrosive substances and preparations which cannot be classified under other collective headings, such as:

(a) .....

(b) diphenylmethyl bromide;

(c) .....

66° Liquid corrosive substances, solutions and preparations, which cannot be classified under other collective headings, such as:

(a) .....

(b) benzotrichloride (trichloromethylbenzene), 1-penitol (3-methyl-2-pentene-4-yne-1-ol);

(c) .....

D. Empty packagings

71° Empty packagings, empty tank-vehicles, empty demountable tanks, empty tank- containers and empty small bulk containers, uncleaned, which have contained substances of Class 8.

Substances of 1° to 5°, 7° to 11°, 21° to 23°, 26°, 27°, 31° to 39°, 41° to 45°, 51° to 54° and 61° to 66°, carried in conformity with the following provisions are subject neither to the provisions for this Class contained in this Annex nor to those contained in Annex B: 2801a

(1) (a) Substances classified under (a) of each item:

Liquids: not more than 100 ml per inner packaging and not more than 400 ml per package;

Solids: not more than 500 g per inner packaging and not more than 2 kg per package.

(b) Substances classified under (b) of each item:

Liquids: not more than 1 litre per inner packaging and not more than 4 litres per package;

Solids: not more than 3 kg per inner packaging and not more than 12 litres per package:

(c) Substances classified under (c) of each item:

Liquids: not more than 3 litres per inner packaging and not more than 12 litres per package:

Solids: not more than 6 kg per inner packaging and not more than 24 kg per package.

These quantities of substances shall be carried in combination packagings which at least meet the conditions of marginal 3538 (b) and (d).

The «General conditions of packing» of marginal 3500 (1), (2) and (4) to (7) shall be observed.

(2) Alkaline solutions or acids in storage batteries with metal or plastics casings. Batteries shall be so secured as to prevent short circuiting, sliding, falling or damage; they shall be fitted with means of handling. Means of handling

are not, however, necessary, if the batteries are stacked and adequately secured, for example, on pallets. No dangerous trace of alkali or acid shall appear outside the package.

2. Provisions

A. Packages

1. General conditions or packing

(1) Packagings shall satisfy the conditions of Appendix A.5, unless special conditions for the packing of certain substances are prescribed in marginals 2803 - 2808. 2802

(2) In accordance with the provisions of marginals 2800 (1) and 3511 (2) the following shall be used:

Packagings of packing group I, marked with the letter «X», for the highly corrosive substances classified under the letter (a) of each item:

Packagings of packing groups II or I, marked with the letter «Y» or «X» for the corrosive substances classified under the letter (b) of each item:

Packagings or packing groups III, II or I marked with the letter «Z», «Y» or «X», for the slightly corrosive substances classified under the letter (c) of each item.

NOTE: For the carriage of substances of Class 8 in tank - vehicles, demountable tanks or tank - containers, and for the carriage in bulk of solids of this Class, see Annex B.

2. Special conditions for packing of certain substances

Anydrous hydroflouric acid and aqueous solutions of hydrofluoric acid containing more than 85 per cent anhydrous hydrofluoric acid of 6° or molybdenum hexafluoride of 25° shall be packed in pressure receptacles made of carbon steel or suitable alloy steel. The following pressure receptacles shall be permitted: 2803

(a) Cylinders having a capacity not exceeding 150 litres;

(b) Receptacles having a capacity of not less than 100 litres and not more than 1000 litres (for example, cylindrical receptacles fitted with rolling hoops or receptacles mounted on skids).

The pressure receptacles shall satisfy the relevant requirements of Class 2 (see marginals 2211, 2213 (1) and (2), 2215, 2216 and 2218).

The wall thickness of the pressure receptacles shall not be less than 3 mm. Before being used for the first time, pressure receptacles shall be subjected to a hydraulic pressure test at a pressure of not less than 1 MPa (10 bar) gauge pressure. The pressure test shall be repeated every eight years and shall be accompanied by an internall ispection of the pressure receptacles and a check of their equipment. In addition, the resistance of the pressure receptacles to corrosion shall be checked by means of suitable instruments (e.g. by ultrasound), and the condition of the equipment verified, every two years.

The tests and inspections shall be carried out under the supervision of an expert approved by the competent authority.

The maximum mass of the contents per litre of capacity shall be:

0.84 for anhydrous hydrofluoric acid and aqueous solutions of hydrofluoric acid;

1.93 kg for molybdenum hexafluoride.

(1) Bromine of 24° shall be packed in glass inner packagings containing not more than 2.5 litres each which shall be placed in combination packagings conforming to marginal 3538. The combination packagings shall be tested and approved in accordance with Appendix A.5 for packing group I. 2804

(2) Bromine containing less than 0.005 per cent water, or between 0.005 per cent and 0.2 per cent water, provided that in the letter case measures are taken to prevent corrosion of the lining of the receptacles, may also be carried in receptacles satisfying the following conditions:

(a) The receptacles shall be made of steel and be equipped with a leakproof lining made of lead or of some material affording equivalent protection and with a hermetic closure; receptacles made of monel metal or nickel, or with a nickel lining, shall also be permitted;

(b) The capacity of the receptacle shall not exceed 450 litres;

(c) The receptacles shall not be filled to more than 92 per cent of capacity or more than 2.86 kg per litre of capacity;

(d) The receptacles shall be welded and disgned for a calcualation pressure of not less than 2.1 MPa (21 bar) gauge pressure. The materials and workmanship shall in other respects meet the relevant requirements of Class 2 (see marginal 2211 (1)). The initial test of unlined steel receptacles shall be subject to the provisions of Class 2 (see marginals 2215 (1) and 2216 (1)).

(e) The closures shall project as little as possible from the receptacle and be fitted with protective caps. The closures and caps shall be fitted with gaskets made of a material not capable of being attacked by bromine. The closures shall be in the upper part of the receptacles in such a manner that they can in no case be in permanent contact with the liquid phase;

(f) The receptacles shall be provided with fittings enabling them to stand stably upright, and with lifting attachments (rings, flanges etc) at the top, which shall be tested at twice the working load.

(3) Before being put into service, receptacles in conformity with (2) above shall be subjected to a leakproofness test at a pressure of at least 0.2 MPa (2 bar) gauge pressure. The leakproofness test shall be repeated every two years and shall be accompanied by an internal inspection of the receptacle and a check of its tare. The test and the inspection shall be carried out under the superivision of an expert approved by the competent authority.

(4) Receptacles in conformity with (2) shall bear, in clearly legible and durable characters:

(a) the name or mark of the maker and the number of the receptacle;

(b) the word «Bromine»;

(c) the tare of the receptacle and its maximum permitted mass when filled;

(d) the date (month and year) of the initial test and of the most recent undergone;

(e) the stamp of the expert who carried out the test.

(1) Substances classified under (a) of the various items of marginal 2801 shall be packed: 2805

(a) in non-removable head steel drums conforming to marginal 3520 or

(b) in non-removable head steel aluminium drums conforming to marginal 3251; or

(c) in steel jerricans conforming to marginal 3522; or

(d) in non-removable head plastics drums of a capacity not exceeding 60 litres or plastics jerricans conforming to marginal 3526; or

(e) in composite packagings (plastics material) conforming to marginal 3537; or

(f) in combination packagings with inner packagings of glass, plastics or metal conforming to marginal 3538; or

(g) in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539.

NOTES 1 to (d): The permissible period of use for packagings intended for the carriage of nitric acid of 2° (a) and aqueous solutions of hydrofluoric acid of 7° (a) shall be two years from the date of their manufacture.

2 to (f) and (g): Inner packagings or receptacles of glass shall not be permitted for fluorides of 7° (a), 10° (a), 26° (a) or 33° (a).

(2) Solid substances within the meaning of marginal 2800 (2) may also be packed:

(a) in removable head drums conforming to marginals 3520 for steel, 3521 for aluminium, 3523 for plywood, 3525 for fibreboard, or 3526 for plastics material, if ne-

cessary with one or more sift-proof inner bags: or

(b) in combination packagings conforming to marginal 3538, with one or more sift-proof inner bags.

(1) Substances classified under (b) of the various items of marginal 2801 shall be packed: 2806

(a) in steel drums conforming to marginal 3520: or

(b) in aluminium drums conforming to marginal 3521: or

(c) in steel jerricans conforming to marginal 3522: or

(d) in plastics drums or plastics jerricans conforming to marginal 3526; or

(e) in composite pachagings (plastics material) conforming to marginal 3537: or

(f) in combination pachagings conforming to marginal 3538; or

(g) in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539.

NOTES 1 to (a), (b) and (d): Removable head drums are permitted only for viscous substances having a viscosity above 200 mm^2/s at 23°C and for solids.

2 to (d): The permissible period of use for packagings intended for the carriage of nitric acid containing more than 55 per cent pure acid of 2° (b) and aqueous solutions of hydrofluoric acid of 7° (b) shall be two years from the date of their manufacture.

3 to (f) and (g): Inner packagings or receptacles of glass shall not be permitted for fluorides of 7° (b), 8° (b), 9°(b), 10° (b), 26°(b) or 33° (b).

(2) Solid substances within the meaning of marginal 2800 (2) may also be packed:

(a) in removable head drums conforming to marginals 3523 for plywood or 3525 for fibreboard, if necessary with one or more sift-proof inner bags: or

(b) in water-resistant bags conforming to marginals 3533 for textile material, 3534, for woven plastics material, 3535 for plastics film of 3536 for water resistant paper, provided the goods are carried as a full load or the bags secured on pallets.

(1) Substances classified under (c) of the various items of marginal 2801 shall be pached: 2807

(a) in steel drums conforming to marginal 3520: or

(b) in aluminium drums conforming to marginal 3521: Or

(c) in steel jerricans conforming to marginal 3522: or

(d) in plastics drums or plastics jerricans conforming to marginal 3526; or

(e) in composite packagings (plastics material) conforming to marginal 3537; or

(f) in combination packagings conforming to marginal 3538: or

(g) in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539: or

(h in light gauge metal packagings conforming to marginal 3540.

NOTE to (a), (b), (d) and (h): Removable head drums conforming to (a), (b) and (d) and removable head light gauge metal packagings conforming to (h) are permitted only for viscous substances having a viscosity above 200 mm^2/s at 23° C and for solids.

(2) Solid substances within the meaning of marginal 2800 (2) may also be packed:

(a) in removable head drums conforming to marginals 3523 for plywood, or 3525 for fibreboard, if necessary with one or more sift-proof inner bags: or

(b) in water-resistant bags conforming to marginals 3533 for textile material, 3534 for woven plastics material, 3535 for plastics film or 3536 for water-resistant paper.

Packagings containing substances of 61° or 62° shall be fitted with a vent conforming to marginal 3500 (8). 2808

2809

2810

3. Mixed packing

(1) Substances covered by the same item number may be packed together in a combination packaging conforming to marginal 3538. 2811

(2) Substances of different items of Class 8 in quantities not exceeding, per packaging, 3 litres for liquids and/or 5 kg for solids, may be packed together and/or with goods not subject to the provisions of ADR, in a combination packaging conforming to marginal 3538 provided they do not react dangerously with one another.

(3) Except as otherwise specially provided below, substances of Class 8, in quantities not exceeding, per packaging, 3 litres for liquids and/or 5 kg for solids, may be packed together in a combination packaging conforming to marginal 3538 with substances or articles of other classes, provided that mixed packing is also permitted for the substances and articles of these classes, and/or with goods which are not subject to the provisions of ADR, provided they do not react dangerously with one another.

(4) The following are considered dangerous reactions:

(a) combustion and/or giving off considerable heat:

(b) emission of inflammable and/or toxic gases:

(c) formation of corrosive liquids:

(d) formation of unstable substances.

(5) The mixed packing of acid substances with basic substances in a package shall not be permitted if the two substances are packed in fragile packagings.

(6) The provisions of marginals 2001 (7), 2002 (6) and (7) and 2802 shall be complied with.

(7) If wooden or fibreboard boxes are used, a package may not weigh more than 100 kg.

Special conditions:

Item	Description of substance	Maximum quantity		Special provisions
		per receptacle	per package	
4°	Perchloric acid containing not more than 50 per cent pure acid	Mixed packing not allowed except with perchloric acid of Class 5.1 (see marginal 2501, 3°)		
6°	Anhydrous hydrofluoric acid, aqueous solutions of hydrofluoric acid containing more than 85 per cent anhydrous hydrofluoric acid	Mixed packing not allowed		
24°	Bromine			
25°	Molybdenum hexafluoride			
Substances classified under (a) of each item		0.5 litre	1 litre	Shall not be packed together with substances or articles of Classes 1a, 1b, 1c, 5.2 or 7

4. Marking and danger labels on packages (see Appendix A.9)

(1) Packages containing substances of this Class shall bear a label conforming to model No. 8. 2812

(2) If liquids are packed in composite packagings (glass, porcelain or stoneware) conforming to marginal 3539 of a capacity exceeding 5 litres, the packages shall, however, bear two labels conforming to model No 8 (see Appendix A.9, marginal 3901 (2)).

(3) Packages containing substances having a flash-point up to 55°C inclusive shall in addition bear a label conforming to model No 3, those containing oleum (fuming sulphuric acid) of 1° (a) or substances of 6°, 7°, 24° to 26° or 44° a label conforming to model No 6.1 and those containing substances of 62° a label conforming to model No 5.

(4) Packages containing fragile packagings not visible from the outside shall bear on two opposite sides a label conforming to model No. 12.

(5) Packages containing liquids in packagings the closures of which are not visible from the outside and packages containing vented packagings or vented packagings without outside packaging shall bear on two opposite sides a label conforming to model No.11.

B. Particulars in the transport document

(1) The description of the goods in the transport document must conform to one the names underlided in marginal 2801. If the substance is not mentioned by name, the chemical name must be entered. The description of the goods must be underlined and followed by particulars of the class, the item number (together with the latter, if any), and the initials «ADR» (or «RID»), e.g. 8,1°(a), ADR. 2813 2814

(2) In the case of bromine containing 0.005 per cent to 0.2 per cent water and carried in receptacles in conformity with marginal 2804 (2), the sender must certify in the transport document: «Measures taken to prevent corrosion of the lining of the receptacles».

(3) For consignments of chemically unstable substances, the sender shall certify in the transport document: «Measures taken in accordance with marginal 2800 (5).»

2815 -2821

C. Empty packagings

(1) Empty packagings, uncleaned, of 71° shall be closed in the same manner and with the same degree of leakproofness as if they were full. 2822

(2) Empty packagings, uncleaned, of 71° shall bear the same danger labels as if they were full.

(3) The description in the transport document shall conform to one of the descriptions underlined in 71°, e.g.: Empty packaging, 8, 71° ADR. This text shall be underlined. In the case of empty tank-vehicles, empty demountable tanks, empty tank-containers and empty small bulk containers, uncleaned, this description shall be completed by adding the words «last load» together with the name and item number of the goods last loaded, e.g. Last load: sulphuric acid, 1° (b).

2823 -2899 2900 -2999

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

European Agreement

concerning the international carriage of dangerous goods by road (ADR) and protocol of signature

done at Geneva on 30 September 1957

VOLUME II

(Appendices to Annex A)

UNITED NATIONS
New York, 1985

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)

ANNEX A

PROVISIONS CONCERNING DANGEROUS SUBSTANCES AND ARTICLES

PART III. APPENDICES TO ANNEX A

Contents

Part III. APPENDICES TO ANNEX A

		Marginals	
Appendix A.1	Stability and safety conditions relating to explosive substances, inflammable solids and organic peroxides; Rules for tests	3100	et seq.
Appendix A.2	Provisions relating to the nature of aluminium-alloy receptacles for certain gases of Class 2; provisions relating to the materials and construction of receptacles, intended for the carriage of deeply-refrigerated liquefied gases of Class 2; and provisions relating to tests on aerosol dispensers and non-refillable containers for gases under pressure of Class 2, 10° and 11°	3200	»
Appendix A.3	Tests relating to inflammable liquids of Classes 3, 6.1 and 8	3300	»
Appendix A.4	Reserved	3400	
Appendix A.5	General packing conditions, types of packagings, requirements applicable to packagings, test requirements for packagings	3500	
Appendix A.6	Regulations relating to radioactive substances of Class 7 .	3600	
Appendix A.7	Reserved	3700	
Appendix A.8	Reserved	3800	
Appendix A.9	Provisions relating to danger labels; Explanation of symbols, and model labels	3900	

trinitroresorcinol, if they are soluble in water; tetryl (trinitrophenylmethylnitramine), if they are insoluble in water.

See marginals 3150, 3152, 3154, 3155 and 3156.

Re marginal 2101, 11°(a) and (b): 3104

1. Black powder of 11°]a) must not be more sensitive to flame-ignition, impact or friction than the finest sproting powder having the following composition: 75 per cent potassium nitrate 10 per cent sulphur and 15 per cent black alder charcoal. See marginals 3150, 3154, 3155 and 3156.

2. Slow mining powders similar to black powder of 11°(b) must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition: 75 per cent potassium nitrate, 10 per cent sulphur and 15 per cent lignite. See marginals 3150, 3154, 3155 and 3156.

Re marginal 2101, 12°: Nitrate explosives in powder form of 12°(a), and explosive not containing inorganic nitrates, in powder form of 12°(b); must be capable of being stored for 48 hours at 75°C without giving off visible yellowish-brown nitrous fumes. Before and after storing they must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition: 80 per cent ammonium nitrate, 12 per cent trinitrotoluene, 6 per cent nitroglycerine and 2 per cent wood flour. See marginals 3150, 3152(b), 3154(a) and (b), 3155 and 3156. 3105

A sample of the standard explosive referred to above is held at the disposal of the Conttracting States by Laboratoire du Centre d'études et recherches des charbonnages de France (CERCHAR), Boite postale No.2, 60550 Verneuil-en-Halatte, France.

Re marginal 2101, 13°: Chlorate and perchlorate explosives must not contain any ammonium salt. The must not be more sensitive to flame ignition, impact or friction than a chlorate explosive having the following composition: 80 per cent potassium chlorate, 10 per cent dinitrotoluebe, 5 per cent trinitrotoluene, 4 per cent castor oil and 1 per cent wood flour. See marginals 3150, 3154, 3155 and 3156. 3106

Re marginal 2101, 14°(a) and (b): Explosives of 14°(a) and (b) must not be more sensitive to flame-ignition, impact or friction than blasting gelatine containing 93 per cent nitroglycerine or guhr dynamite containing not more than 75 per cent nitroglycerine. They must satisfy the exudation test of marginal 3158. See marginals 3150, 3154(b), 3155 and 3156. 3107

Re marginal 2101, 14°(c): Explosives of 14°(c) must be capable of being stored for 48 hours at 75°C without giving off visible yellowish-brown nitrous fumes. Before and after storing they must not be more sensitive to flame-ignition, impact or friction than the standard explosive having the following composition: 37.7 per cent nitroglycol or nitroglycerine or a mixture of the two, 1.8 per cent guncotton, 4 per cent trinitrotoluene, 52.5 per cent ammonium nitrate and 4 per cent wood flour. See marginals 3150, 3152(b), 3154(a), (b), (c) and (d), 3155 and 3156.

Re marginal 2131, 1°(b): The explosive substance must not be more sensitive to flame-ignition, impact or friction than tetryl. See marginals 3150, 3154, 3155 and 3156. 3108

Re marginal 2131, 1°(c): The explosive substance must not be more sensitive to flame-ignition impact or friction than penthrite. See marginals 3150, 3154, 3155 and 3156. 3109

Re marginal 2131, 5°(d): The transmission charge must not be more sensitive to flame-ignition, impact or friction than tetryl. See marginals 3150, 3154, 3155 and 3156. 3110

PART III - APPENDICES TO ANNEX A

APPENDIX A.1

3000 -3099

A. Stability and safety conditions ralating to explosive substances, inflammable solids and organic peroxides

The conditions of stability set out below are the standard minima defining the stability required of substances to be accepted for carriage. These substances may be handed over for carriage only if they fully conform to the following requirements. 3100

Re marginal 2101, 1°, marginal 2171, 4° and marginal 2401, 7° (a): 3101

Nitrocellulose heated for half an hour at 132°C must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 180°C. Pyroxylin thread must satisfy the same conditions of stability as nitrocellulose. See marginals 3150, 3151 (a) and 3153.

Re marginal 2101, 3°, 4°, and 5°, and marginal 2401, 7°(b) and (c): 3102

1. Nitrocellulose powders not containing nitroglycerine; plasticized nitrocellulose:

3 g of powder or of plasticized nitrocellulose, heated for one hour at 132°C, must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 170°C.

2. Nitrocellulose powders containing nitroglycerine:

1 g of powder heated for one hour at 110°C must not give off visible yellowish-brown nitrous fumes. The ignition temperature must be above 160°C.

with regard to 1. and 2., see marginals 3150, 3151 (b) and 3153.

Re marginal 2101, 6°, 7°, 8°(a) and (b) and 9°(a), (b) and (c): 3103

1. Trinitrotoluene (tolite), mixtures termed liquid trinitrotoluene and trinitroanisole of 6°, hexyl (hexanitrodiphenylamine) and picric acid of 7°(a), pentolites (mixtures of pentaerythritol tetranitrate and trinitrotoluene) and hexolites (mixtures of trimethylene - trinitramine and trinitrotoluene) of 7°(b), phlegmatized penthrite and phlegmatized hexogen of 7°(c), trinitroresorcinol of 8°(a), tetryl (trinitrophenylmethyl-nitramine) of 8°(b), penthrite (pentaerythritol tetranitrate) and hexogen (trimethylene-trinitramine) of 9°(a), pentolites (mixtures of penthrite and trinitrotoluene) and hexolites (mixtures of hexogen and trinitrotoluene) of 9°(b) and mixtures of penthrite or hexogen with wax, paraffin wax or substances similar to wax or paraffin wax of 9°(c); heated for three hours at a temperature of 90°C, must not give off visible yellowish-brown nitrous fumes. See marginals 3150 and 3152(a).

2. Organic nitro-compounds of 8° other than trinitroresorcinol and tetryl (trinitrophenylmethylnitramine), heated for 48 hours at a temperature of 75°C, must not give off visible yellowish-brown nitrous fumes. See marginals 3150 and 3152(b).

3. Organic nitro-compounds of 8° must not be more sensitive to ignition, shock or friction than:

Re marginal 2170, (2)(d): The explosive charge, after having been stored for four weeks at 50°C, must show no signs of deterioration due to insufficient stability. See marginals 3150 and 3157. 3111

Re marginal 2551; 1° to 50°: The substances shall be subjected to the tests described in marginals 3154, 3155 and 3156. 3112

3113 -3149

B. Rules for tests

(1) The test procedures set out below are to be applied when diferrences of opinion arise as to the acceptability of substances for carriage by road. 3150

(2) If other methods or test procedures are used to verify the conditions of stability prescribed above in this Appendix, those methods must lead to the same findings as could be reached by the methods specified below.

(3) In carrying out the stability tests by heating described below, the temperature of the oven containing the sample under test must not deviate by more than 2°C from the prescribed temperature; the prescribed duration of a 30-minute or 60-minute test must be observed to within two minutes, that of a 48-hour test to within one hour, and that of a 4-week test to within 24 hours.

The oven must be such that the required temperature is restored not more than five minutes after insertion of the sample.

(4) Before undergoing the tests prescribed in marginals 3151, 3152, 3153, 3154, 3155 and 3156, the samples must be dried for not less than 15 hours at the ambient temperature in a vacuum desiccator containing fused and granulated calcium chloride, the sample substance being spread in a thin layer; for this purpose, substances which are neither in powder form nor fibrous shall be ground, or grated, or cut into small pieces. The pressure in the desiccator must be brought below 6.6 kPa (0.066 bar).

(5) (a) Before being dried as prescribed in paragraph (4) above, substances of marginal 2101, 1° (except those containing paraffin wax or a similar substance), 2°, 9°(a) and (b), and those of marginal 2401, 7°(b), shall undergo preliminary drying in a well-ventilated drying oven, with its temperature set at 70°C, until the loss of mass per quarter-hour in less than 0.3 per cent of the original mass.

(5) (b) For substances of marginal 2101, 1° (when they contain paraffin wax or a similar substance), 7°(c) and 9°(c), the preliminary drying must be carried out as prescribed in subparagraph (a) above, except that the temperature of the oven shall be set at between 40° and 45°C.

(6) Nitrocellulose of marginal 2401, 7°(a) shall first undergo preliminary drying as prescribed in paragraph (5) (a) above; drying shall then be completed by keeping the nitrocellulose for at least 15 hours over concentrated sulphuric acid in a desiccator.

Test of chemical stability under heat

Re marginals 3101 and 3102

(a) Test of substances listed in marginal 3101. 3151

(1) In each of two glass test tubes having the following dimensions:

length ..... 350 mm
internal diameter ..... 16 mm
thickness of wall ..... 1,5 mm

is placed 1 g of substance dried over calcium chloride (if necessary the drying must be carried out after reducing the substance to pieces weighing not more than 0.05 g each). Both test tubes, completely covered with loose-fitting closures, are then so placed in an oven that at least four-fifths of their length is visible, and are kept at a constant temperature of 132°C for 30 minutes. It is observed whether nitrous gases in the form of yellowish-brown fumes clearly visible against a white background are given off during this time.

(2) In the absence of such fumes the substance is deemed to be stable.

(b) Test of powders listed in marginal 3102.

(1) Nitrocellulose powders not containing nitroglycerine, whether gelatinized or not, the plasticized nitrocellulose: 3 g of powder are placed in glass test tubes, similar to those referred to in (a), which are then placed in an oven kept at a constant temperature of 132°C.

(2) Nitrocellulose powders containing nitroglycerine: 1 g of powder is placed in glass test tubes, similar to those referred to in (a), which are then placed in an oven kept at a constant temperature of 110°C.

(3) The test tubes containing the powders referred to in (1) and (2) are kept in the oven for one hour. During this time no nitrous gases must be visible. Observation and appraisal as in (a).

Re marginals 3103 and 3105

(a) Test of substances listed in marginal 3103, 1. 3152

(1) Two samples of explosive each weighing 10 g are placed in cylindrical glass bottles having an internal diameter of 3 cm and a height of 5 cm to the underside of the cover; the bottles are then firmly closed with their covers and heated for three hours at a constant temperature of 90°C in an oven in which they are clearly visible.

(2) During this time no nitrous gases must be visible. Observation and appraisal as under marginal 3151(a).

(b) Test of substances listed in marginals 3103, 2. and 3105.

(1) Two samples of explosive each weighing 10 g are placed in cylindrical weighing bottles having an internal diameter of 3 cm and a height of 5 cm to the underside of the cover; the bottles are then firmly closed with their covers and heated for 48 hours at a constant temperature of 75°C in an oven in which they are clearly visible.

(2) During this time no nitrous gases must be visible. Observation and appraisal as under marginal 3151(a).

Ignition temperature (see marginals 3101 and 3102)

(1) The ignition temperature is determined by heating 3153
0.2 g of substance enclosed in a glass test tube immersed in a Wood's alloy bath. The test is placed in the bath when the latter has reached 100°C. The temperature of the bath is then progressively increased by 5°C per minute.

(2) The test tubes must have the following dimensions:

length ..... 125 mm
internal diameter ..... 15 mm
thickness of wall 0.5mm

and must be immersed to a depth of 20 mm.

(3) The test must be repeated three times, the temperature at which ignition of the substance occurs, i.e., slow or rapid combustion, deflagration or detonation, being noted each time.

(4) The lowest temperature recorded in the three tests is the ignition temperature.

Test of sensitivity to red heat and to flame-ignition (see marginals 3103 to 3110)

(a) Test in red-hot hemispherical iron crucible (see marginals 3103 to 3106 and 3108 to 3110).

(1) Quantities of the explosive to be examined increasing from 0.5 g to 10 g are thrown into a red-hot hemispherical iron crucible 1 mm thick and 120 mm in diameter.

The results of the test are to be classified as follows:

(i) ignition with slow combustion (explosives with an ammonium nitrate base);

(ii) ignition with rapid combustion (chlorate explosives);

(iii) ignition with violent combustion and deflagration (black powder);

(iv) detonation (fulminate of mercury).

(2) The effect on the sequence of events of the amount of explosive used should be taken into account.

(3) The explosive to be examined must not show any fundamental difference from the standard explosive.

(4) The iron crucibles must be carefully cleaned before each test and replaced at frequent intervals.

(b) Test of case of ignition (see marginals 3103 to 3110).

(1) The explosive to be examined is placed in a small heap on an iron plate in quantities increasing - in the light of the results of the test under (a) - from 0.5 g to a maximum of 100 g.

(2) A burning match is applied to the apex of the small 3154
heap and note is taken whether the explosive ignites and burns slowly, deflagrates, or detonates, and whether, once ignition has occurred, combustion continues even after the match has been removed. If no ignition takes place a similar test is made by bringing the explosive into contact with a gas flame and noting the same points.

(3) The results of the test are compared with those obtained with the standard explosive.

(c) Combustion test in conditions of enclosure in a sheet-steel box (see marginal 3107).

(1) The combustion test is carried out in a cubical box, made of sheet steel with edges 8 cm long and a wall thickness of 1 mm. The box is made of annealed mild steel sheet and closed in as tight a manner as possible by folding the edge of the lid over (fig.1).

(2) In the case of explosives sensitive to friction, the top surface should be covered with a sheet of paper to prevent particles of explosive from finding their way between the edges and remaining trapped there when the edge of the lid is being bent over. The box is completely filled with the explosive so that the latter has as nearly as possible the same density as when in cartridges. The box is placed in the fire with care; it shall first be wrapped in, for example, several layers of packing paper to avoid immediate ignition of the explosive.

A pile of wood 0.8 m high is prepared for the fire by first placing on the ground a thin layer of wood-wool and then on top of it, lying flat, three billets about 0.5 m long and 3153
0.25 m in diameter. Across these are laid three more billets of similar size. On top of all are placed three layers of small sticks cut about 0.2 m long, with wood-wool between the layers. On each side, three or four pieces of wood about 0.5 m long are leant against the pile to prevent it from collapsing while it burns. The pile is set alight with a lighted fuse of wood-wool.

(3) Observations are made to see whether the explosive flares or explodes; how long it burns and what phenomena accompany combustion; and what changes the box has undergone.

(4) The test is carried out four times. A photograph is taken of the steel boxes after they have been used.

(d) Test by heating in a confined space in a steel tube with a calibrated orifice plate (steel tube test) (see marginals 3103 to 3110 and 3112).

(1) The tests in (a) to (c) may be supplemented by the 3154
following test.

COMBUSTION TEST (Re marginal 3154 (c))

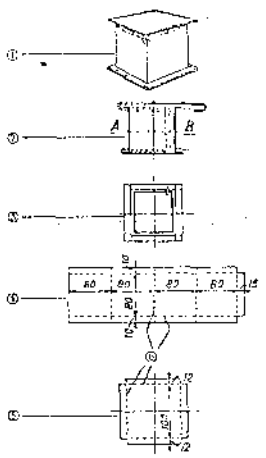


Fig. 1: Steel box
thickness of wall 1 mm
dimensions in mm
(1) general view
(2) vertical section
(3) section A-B
(4) fabrication of wall
(5) fabrication of base and cover
(6) edges to be folded in

(2) Description of the steel tube (fig. 2): The tube is made by pressing from sheet steel suitable for deep drawing.[1/] The dimensions are: inner diameter 24 mm; wall thickness 0.5 mm; length 75 mm. The open end is fitted with an outer flange. The tube is closed with a pressure-resistant central-orifice plate fixed tightly on the flange by an externally-threaded collar slipped over the tube and by a box nut screwed on to this collar. The plate is made from heat resisting chrome steel[2/] 6 mm thick. To allow the escape of gases of decomposition, plates are used having cylindrical central orifices (a) with the following diameters: 1.0-1.5-2.0-2.5-3-4-5-6-8-10-12-14-16-18-20 mm; a diameter of 24 mm is added when the tube is used without orifice plate and closing device. The threaded collar and nut are made of manganese-chrome steel non-scaling up to 800°C.[3/] With orifice plates of from 1 to 8 mm diameter, nuts with a perforation (b) 10 mm in diameter must be used; if the diameter of the orifice is above 8 mm, that of the nut perfonation must be 20 mm. Each tube is used for one test only. On the other hand, the orifice plates, threaded collars and nuts may be used again provided they are undamaged. As a check the orifice must be measured after each test.

(3) Heating and protective device (fig.3): Heating is provided by town gas with a net calorific value of 16,75 MJ/m^3, from four burners producing about 10 W for a consumption of 0.6 l/s.

As destruction of the tube is possible, heating is done in a splinter-proof welded box, made of steel 10 mm thick, open on one side and at the top. The tube is suspended between two rods 4 mm in diameter inserted through holes drilled in opposite walls of the box, and is then heated by four Teclu burners (external tube diameter 19 mm), the lowest heating the bottom of the tube, those at the right and left the walls, and that at the rear the closure. The burner tubes are inserted and secured in holes 20 mm in diameter drilled in the walls of the splinter-proof box. The burners are lit simultaneously by a pilot jet and regulated to a plentiful supply of air so that the tips of the blue inner cones of the flames are almost touching the tube.

The whole installation is contained in a test stand separated from the observation area by a strong wall in which sight holes protected by armoured glass and slatted steel plates are arranged. The splinter-proof box is placed with its open side towards the observation area, care being taken that the flames are not affected by draughts. Equipment for extracting gases of decomposition and smoke from the explosion is installed in the test room.

If town gas is not availble, propane can be used for heating. In such a case the propane is taken from an industrial cylinder fitted with a pressure regulator [4.9 kPa (0.049 bar) (gauge)], through a meter (bellows-type meter with a capacity of 2 litres at 4.9 kPa (0.049) bar gauge and distributed by a manifold to the four burners, whose jets have a diameter of 0.8 mm. Each burner consumes not more than about 1.7 litre of propane a minute. The gas cylinders and the meter are placed outside the test stand.

(4) Test procedure: The tube is filled with the explosive substance to within 15 mm of the top, i.e. to a height of 60 mm. If the substance is in powdered form it is compressed by cautiously and gently tapping the tube and then pressing lightly with a small wooden rod. If the substance is gelatinous it is put into the tube with the aid of a spatula; after each addition the substance is lightly pressed down with a small wooden rod to eliminate occlusions of air. When the quantity of substance inserted has been weighted, the threaded collar is slipped on to the tube, the required orifice plate is put in place, and the nut is tightened by hand. It is essential to make sure that none of the substance is trapped between the flange and the plate, or in the threads. The tube is then put in a rigidly mounted vice with shielding against inadvertent explosion, and the nut is fully tightened with a spanner. The tube, now ready for the test, is suspended between the two rods in the splinter-proof box; the pilot jet is lighted, and when the test stand has been closed the gas supply to the four burners is turned on. At the same time a stop-watch is started to measure the time t_1 elapsing between the lighting of the burners and the ignition of the substance, as shown by the escape of a flame from the orifice in the plate, and the time t_2 between lighting and explosion. On completion of the test the gas supply is shut off and the exhaust system in the test stand is started up; no one muste enter the stand until a sufficient period of time has elapsed.

TEST BY HEATING IN A STEEL TUBE WITH A CALIBRATED ORIFICE PLATE
Re marginal 3154(d)

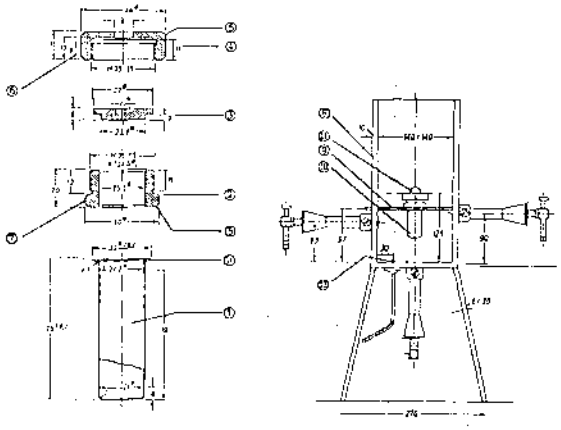


Fig. 2: Steel tube and accescories
Fig. 3: Heating and protective device dimensions in mm; for construction materials see marginal 3154(d) (2) and (3)

(1) tube
(1a) outer flange
(2) threaded collar; low-friction thread
(3) orifice plate a = 1.0 ... 20.0 diameter
(4) nut b = 10 or 20 diameter
(5) chamfered surface
(6) 2 flats for spanner size 41
(7) 2 flats for spanner size 36
(8) splinter-proof box
(9) 2 supporting rods for the tube
(10) assembled tube
(11) position of rear burner; the other burners are visible
(12) pilot jet

To make sure that the heating device is working satisfactorily, the tests must be preceded by a "dummy run".

(5) Interpretation of results: The relative degree of sensitivity of a substance to heating in the steel tube is expressed by the limiting diameter, this being the orifice with the largest diameter in millimetres with which, in three tests, at least one tube explodes, that is to say breaks up into at least three pieces. The thermal sensitivity increases with increasing limiting diameter and with decreasing times t_1 and t_2.

Organic peroxides (except those wetted or diluted with volatile substances, e.g. water) for which the limiting diam-

[1/] e.g. Material Specification No. 1.0336.505 g, in accordance with DIN 1623 Sheet 1.

[2/] e.g. Material Specification No. 1.4873, in accordance with Sheet "Stahl-Eisen-Werkstoff" 490-52.

[3/] e.g. Material Specification No. 1.3817, in accordance with Sheet "Stahl-Eisen-Werkstoff" 490-52.

eter is not less than 2.00 mm should be considered as explosive substances of Class 1a (see also note to marginal 2550).

(e) Heating test in a pressure vessel with an orifice plate and bursting disc (pressure vessel test) (see marginal 3112).

(1) For organic peroxides, the tests shown under (a), (b) and (d) may be supplemented by the following test.

HEATING TEST IN A PRESSURE VESSEL WITH AN ORIFICE PLATE AND BURSTING DISC
Re marginal 3154(e)

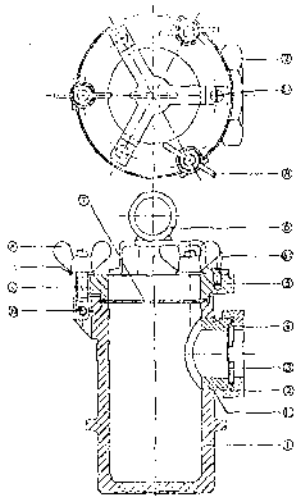


Fig. 4: Assembled pressure vessel; vertical section and plan

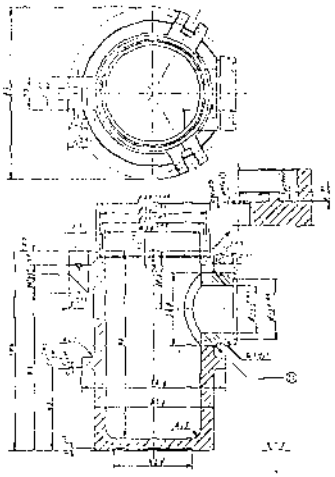


Fig. 5: Pressure vessel dimensions in mm

(1) pressure vessel (stainless steel)
(1a) welded joint
(2) box nut (fully-killed weldable steel)
(3) central-orifice plate (stainless steel)
(4) inert retaining ring, 0.5 thick
(5) pressure ring (stainless steel)
(6) brass handle
(7) bursting disc [for material see marginal 4154 (e) (2)]
(8) wing nuts (brass M6 DIN 315)
(9) eye-bolt (stainless steel)
(10) pivot for wing nuts (stainless steel)

Note: Stainless steel having the following average composition is considered suitable: Cr 18%, Ni 9%, Mn ≤ 2%, Si ≤ 1%, C ≤ 0.12%.

(2) Description of the pressure vessel: figures 4 to 6 and the appropriate captions give the details of the apparatus used and the dimensions and materials of the constituent parts.

It sould be noted that the use of 24 plates is provided for, the diameters of the orifices being: 1.0 - 1.2 - 1.5 - 2.0 - 2.5 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0 - 5.5 - 6.0 - 7.0 - 8.0 - 9.0 - 10.0 - 11.0 - 12.0 - 14.0 - 16.0 - 18.0 - 20.0 - 22.0 and 24.0 mm. These plates have a thickness of 2.0 mm ± 0.2 mm.

The bursting disc is cut by a punch from a sheet of brass 0.05 mm thick withstanding a bursting pressure of 0.53 MPa ± 0.05 MPa (5.3 bar ± 0.5 bar) at normal temperature. Unannealed rolled brass containing 67 per cent copper is suitable.

(3) Heating device: The pressure vessel is heated by technical grade butane taken from a cylinder fitted with a pressure regulator. The heat output must be about 3.1 KW. With a net calorific value of 113 MJ/,^{3} (at 100 kPa (1 bar) and 20 °C), the rate of gas supply must be about 0.1 m^3/h. A Teclu butane burner is used. The amount of gas used is measured by a rotameter or other meter and regulated by the burner valve.

Instead of butane, town gas or propane may be used with a suitable burner, provided that the heat output of the gas is likewise about 3.1 kW (for example, in the case of town gas with a net calorific value of 17 Mj/m^3 it would be necessary to supply about 0.67 m^3/h).

The gas cylinder and the rotameter or other meter must be situated outside the test area.

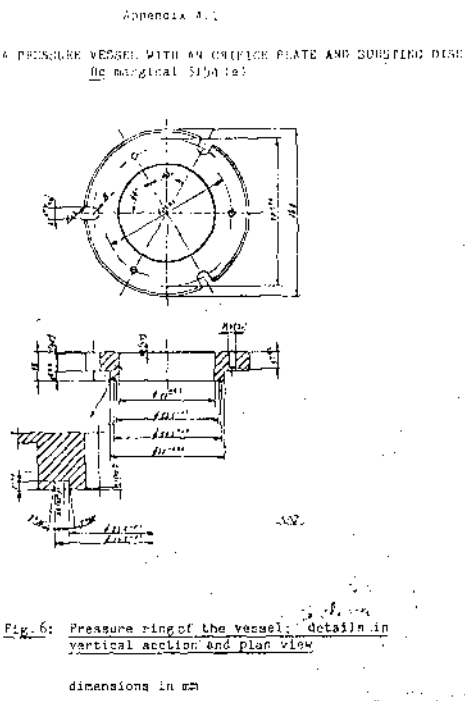


Fig. 6: Pressure ring of the vessel; details in vertical section and plan view

dimensions in mm

(4) Test procedure: For a normal test, 10 grammes of the substance are placed in the vessel. In the case of a substance the sensitivity of which is unknown a start is made with smaller quantities: 1 gramme to begin with, then (if possible), 5 grammes, and finally 10 grammes. The bottom of the vessel must be evenly covered with the substance. The bursting disc, central orifice plate and retaining ring are then put in place. The wing nuts are tightened by hand and the box nut with a spanner. The bursting disc is covered with enough water to keep it at a low temperature.

The pressure vessel is placed on a tripod (with an inside ring diameter of 67 mm) which is inside a protective cylinder. The ring at the bottom of the vessel rests on the tripod.

The burner is lit, the flow of gas set at the required rate, and the flow of air so adjusted that the colour of the flame is blue and the inner cone of the flame light blue. The tripod must be of such a height that the inner cone almost touches the bottom of the vessel. Then the burner is placed under the vessel through a hole in the protective cylinder.

The test area must be very well ventilated and admission to it prohibited during the test. The vessel is observed from outside either by mirrors or through a sight hole in the wall, fitted with armoured glass.

The time t_1 between the beginning of heating and the beginning of reaction (flame, production of smoke, hissing) and the time t_2 until the end of the reaction (detonation, end of hissing and production of smoke, or extinction of the flame) are measured. The vessel is then cooled with water and cleaned.

(5) Interpretation of results: The relative degree of sensitivity of a substance to heating in the pressure vessel is expressed by the limiting diameter, this being the largest orifice diameter in millimetres with which the bursting disc is broken at least once in three tests while having remained intact during threee tests with the next larger diameter.

The thermal sensitivity increases with increasing limiting diameter and with decreasing times t_1 and t_2.

Organic peroxides (except those wetted or diluted with volatile substances, e.g. water) for which the limiting diameter is not less than 9 mm should be considered as explosive substances of Class 1a (see also note to marginal 2550).

Test of sensitivity to impact (see marginals 3103 to 3110 and 3112) 3155

(a) Fall-hammer test I (figs. 7 and 8) against a standard (control) explosive

(1) The explosive, after drying as described in marginal 3150, is put into the following form:

a. Compact explosives are rasped fine enough to pass without residue through a sieve of 1 mm mesh; only the residue remaining on a sieve of 0.5 mm mesh is kept for the following test;

FALL-HAMMER TEST I Re marginal 3155 (a)

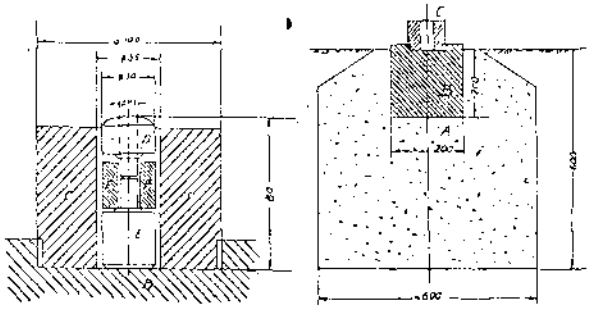


Fig. 7: Impact device, vertical section dimensions in mm

Fig. 8: Base for impact device, vertical section dimensions in mm

A. cement concrete block
B. steel block
C. protective cylinder
D. striker
E. anvil
F. guide ring

b. Explosives in powdered form are passed through a sieve of 1 mm mesh; all that passes through this sieve is kept for the impact test;

c. Plastic and gelatinous explosives are formed into small, roughly spherical pills weighing between 25 and 35 mg.

(2) The apparatus for carrying out the test consists of a mass which, sliding between two bars, is capable of being set to fall from a prearranged height and of being readily released for the fall. The mass does not fall directly onto the explosive, but falls onto a striker D resting on an anvil E, both in very hard steel and sliding easily in the guide ring F (fig. 7). The sample of explosive is placed between the striker and the anvil. The striker, anvil and guide ring are in a protective cylinder C made of hardened steel and placed on a steel block B embedded in a cement block A (fig. 8). The dimensions of the various parts are given in the figures.

(3) The tests are carried out in turn on the explosive to be tested and on the standard (control) explosive as follows:

FALL-HAMMER TEST II Re marginal 3155 (b)

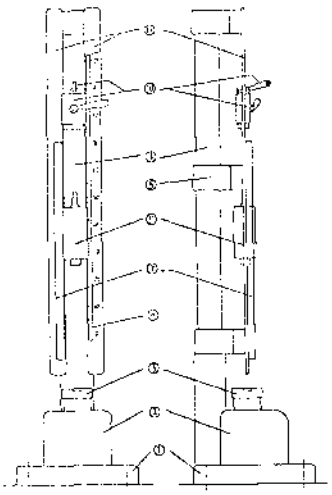


Fig. 9: Fall-hammer II, front and side, general view dimensions in mm

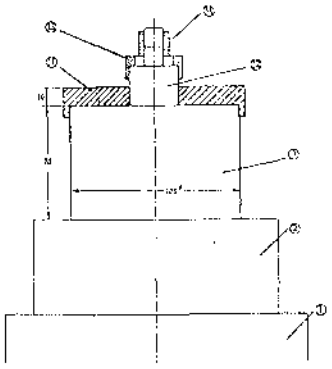


Fig. 10: Fall-hammer II, lower part dimensions in mm

(1) base, 450 × 450 × 60
(2) steel block, 230 × 250 × 200
(3) anvil, 100 diameter × 70
(4) column
(5) median cross-member
(6) 2 guides
(7) toothed rack
(8) graduated scale
(9) fall-hammer (drop mass)
(10) holding and releasing device
(11) locating plate
(12) intermediate anvil (interchangeable), 26 diameter × 26
(13) locating ring with orifices
(14) impact device

a. The explosive, in the form of spherical pill (if it is plastic) or measured with a measuring spoon of 0.05 cm^3 capacity (if it is in the form of a powder or of raspings), is arranged with care between the striker and the anvil, whose contact surfaces must not be moist. The ambient temperature must not exceed 30 °C nor be less than 15 °C. Each sample of the explosive must be subjected to one impact only. After each test the striker, the anvil and the guide ring must be carefully cleaned, any residue of explosive being removed.

b. The tests must begin at heights of fall likely to cause complete explosion of the explosives under test. The height of fall is reduced gradually until the resulting explosion is incomplete or no explosion results. At this height four impact tests are carried out, and if at least one produces a definite explosion, four further fall tests from a slightly lower height are carried out, and so on.

c. the lowest height of fall causing a definite explosion in a series of at least four tests at that height is taken as the limit of sensitivity.

d. The impact test is normally carried out with a drop mass of 2 kg; however, if the sensitivity to impact with this mass requires a height of fall greater than 60 to 70 cm, the impact test must be carried out with a mass of 5 kg.

(b) Fall-hammer test II (gis. 9 to 13) with numerical expression of impact sensitivity (impact energy in joules).

(1) The test described in (a) may be replaced by the following test.

(2) Description of the apparatus: The essential parts of the apparatus are the impact device [see under (4)], the cast steel block with base, the anvil, the column, the guides and the hammer with release device (fig. 9). A steel anvil (100 mm in diameter, 70 mm high) is screwed on the steel block (230 × 250 × 200 mm) cast integral with the base (450 × 450 × 60 mm). Bolted to the back of the steel block is the support into which the column formed from a seamless-drawn steel tube (90 mm outside diameter, 75 mm inside diameter) is fixed. The two guides are fixed to the column by means of three cross-members and are fitted with a toothed rack to limit the rebound of the hammer and with a movable graduated scale for setting the height of fall. The hammer holding and releasing device is adjustable between the guides and is clamped to them by the operation of a lever-nut on two jaws. The apparatus is so fixed on a concrete block (600 600 mm) by means of four anchoring screws sealed in the concrete that the base is in contact with the concrete over its whole area and the guides are exactly vertical. A wooden splinter-proof box which has a lead lining 2 mm thick and opens easily surrounds the apparatus up to the level of the bottom crossmember. An exhauster enables the explosion gases and dust from the substance to be removed.

Appendix A.1

FALL-HAMMER TEST II Re Marginal 3155 (b)

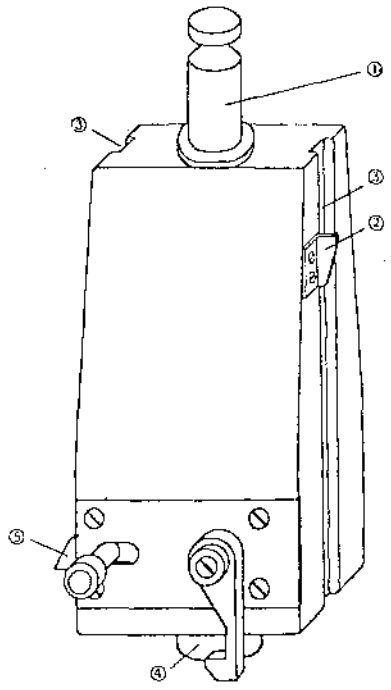


Fig. 11: Hammer (drop mass) of 5 kg
(1) suspension spigot
(2) height marker
(3) positioning groove
(4) cylindrical striking head
(5) rebound catch

(3) Description of the fall-hammers: Each hammer is provided with two positioning grooves holding it between the guides as it drops and with a suspension spigot, a removable cylindrical striking head and a rebound catch which are screwed on to the hammer (fig. 11). The striking head is of hardened steel (HRC 60 to 63); its minimum diameter is 25 mm; it has a shoulder preventing it from being forced into the hammer by the impact.

There are three hammers of different weights. The 1-kg hammer is used for highly sensitive substances, the 5-kg hammer for substances of medium sensitivity and the 10-kg hammer for substances of low sensitivity. The 5-kg and 10-kg hammers are of massive and compact steel.* The 1-kg hammer must have a heavy steel centre carrying the striking head and forming with it the main mass of the hammer.

The 1-kg hammer is used for drop heights of 10 to 50 cm (impact energy 0.98 to 4,9J), the 5-kg hammer for drop heights of 15 to 60 cm (impact energy 7.4 to 29.4J), and the 10-kg hammer for drop heights of 35 to 50 cm (impact energy 34.3 to 58.9J).

(4) Description of the impact device: The sample to be examined is enclosed in an impact device (fig. 11) consisting of two solid steel cylinders coaxially placed one above the other in a cylindrical guide ring likewise made of steel. The cylinders are steel rollers for anti-friction bearings and are 10 mm in diameter (type with a mean deviation of -4 microns for a tolerance of -2 microns, i.e. a diameter of $10\ ^{-0.003}_{-0.005}$ mm, 10 mm high, with polished surfaces and rounded edges (radius of curvature 0.5 mm) and an HRC hardness between 58 and 65. The guide ring has an outer diameter of 16 mm, a lapped bore of $10\ ^{+0.005}_{-0.010}$ mm and a height of 13 mm. A cylindrical plug gauge may be used to chek that the bore diameter is within the prescribed tolerances. The cylinders and the guide ring shall be degreased with acetone before use.

The impact device is placed on an intermediate anvil 26 mm in diameter and 26 mm high and centred by a locating ring provided with a ring of vent-holes to permit the escape of the gases (figs. 11 and 12). Each striking surface of the cylinders shall be used only once. If an explosion occurs, the guide ring shall not be used again.

(5) Preparation of the samples: The explosive substance are tested in the dry state. Substances of marginal 210 l, 11° to 14°, are tested as delivered provided that their water content agrees with the value indicated by the manufacturer. If the water content is higher, the mixtures must be dried before the test untiltheir moistur content is that indicated.

In addition, in the case of solid substances other than those in paste-like form the following points should be observed:

a. substances in powdered form are sieved (sieve mesh 0.5 mm); everything that passes through the sieve is used for the test;

b. substances which have been compressed, cast or otherwise consolidated are broken into small pieces and sieved; the siftings from 0.5 mm to 1.0 mm in diameter are used for the test.

(6) Test procedure: In the case of substances in powdered form, a sample is taken with a cylindrical measure of 40 mm^3 capacity (3.7 mm diameter 3.7 mm). For substances in paste-like form, a cylindrical tube of the same capacity is used, which is plunged into the mass. After levelling off the excess extending beyond the measure, the sample is taken out by means of a wooden rod. For explosive liquids a fine-drawn pipette of 40 mm^3 is used.

The sample is placed on the open impact device, which is already in the locating ring on the intermediate anvil, and in the case of substances in powdered or paste-like form the upper steel cylinder is lightly and carefully pressed with the forefinger until it touches the sample without flattening it. In the case of liquid substances the upper steel cylinder is pressed down with the aid of the depth scale of a vernier

* At least St 37-1, in accordance with DIN 17000.

gauge until it is 1 mm from the lower cylinder, and held in this position by a rubber ring previously slipped on to it (fig. 13).

The device is placed centrally on the anvil, the protective wooden box is closed, the hammer suspended at the required height is released, and the exhauster is then started up. The test is performed six times at each height of fall.

(7) Interpretation of results: In interpreting the results of the test of sensitivity to impact a distinction is made between "no reaction", "decomposition" (without flame or detonation; recognizable by colour-change or odour) and "explosion" [with weak to strong detonation*]. The degree of sensitivity to impact of substance is measured by determining the mass of the hammer in kg and the lowest geight of drop in cm with which an explosion occurs in at least one out of six tests, and the resultant impact energy in joules. The sensitivity of the substance to impact is greater the lower the impact energy in joules.

Appendix A.1

FALL-HAMMER TEST II Re marginal 3155 (b)

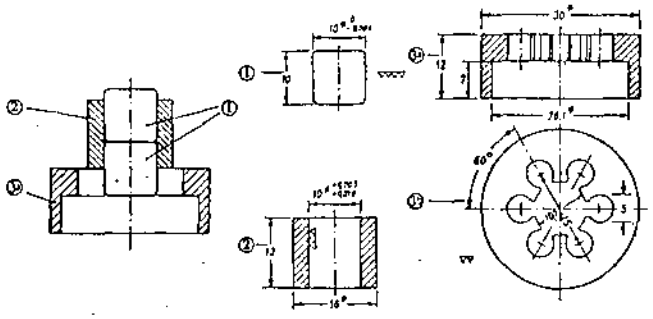


Fig. 12: Impact device for substances in powdered or paste-like form

dimensions in mm

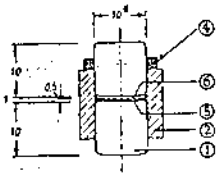


Fig. 13: Impact device for liquid substances

dimensions in mm

(1) steel cylinders*
(2) guide ring for steel cylinders*
(3) locating ring with orifices
  (a) vertical section
  (b) plan
(4) rubber ring
(5) liquid substance (40 mm^3)
(6) space free from liquid

* Steel can have the following composition:
Cr ± 1.55%, C ± 1%, Si max 0.25%
Mn ± 0.35/, HRC 58...65 (heat-treated steel)

* For some substances there is "ignition without detonation". This reaction is, however, regarded as an explosion (and designated by the terms in inverted commas) because it involves the entire sample and an explosion can also occur under identical conditions.

Test of sensitivity to friction (see marginals 3103 to 3110 and 3112). 3156

(a) Friction test in a porcelain mortar

(1) The explosive is dried over calcium chloride. A sample of the explosive is compressed and ground in an unglazed porcelain mortar by means of a pestle, also unglazed. The mortar and pestle must have a temperature about 10 degrees higher than the ambient temperature (15° to 30°C).

(2) The results of the test are compared with those obtained with the standard (control) explosive, and are classified as follows:

(i) no effect;

(ii) faint occasional crackling;

(iii) frequent crackling or very pronounced occasional crackling.

Appendix A.1

TEST WITH FRICTION APPARATUS Re marginal 3156 (b)

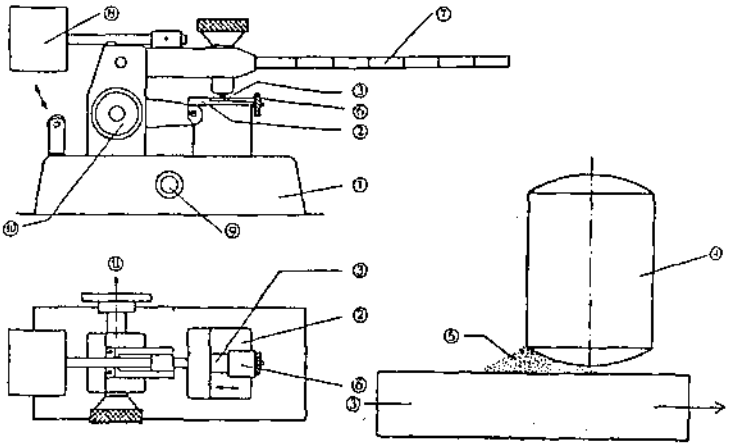


Fig. 14: Friction apparatus; elevation and plan view

Fig. 15: Starting position of peg on sample

(1) steel base
(2) movable carriage
(3) porcelain plate, 25×25×5 mm, held on the carriage
(4) fixed porcelain peg, 10 diameter × 15 mm
(5) sample under test, approximately 10 mm^3
(6) peg-holder
(7) loading arm
(8) counterweight
(9) switch
(10) wheel for setting carriage at starting position
(11) direction to electric drive motor

(3) Explosives which, under test, give the result set out in 1. are to be considered as practically insensitive to friction; if they give the result set out in 2. they are to be considered as moderately sensitive to friction; if they give the result set out in 3. they are to be considered as very sensitive to friction.

(b) Test with the friction apparatus (figs. 14 and 15)

(1) The test described in (a) may be replaced by the following test.

(2) Description of the apparatus: The friction apparatus is made up of a cast-steel base on which the friction device proper, comprising a fixed porcelain peg and a movable porcelain plate (fig. 14), is mounted. The porcelain plate is held in a carriage which runs in two guides: On operation of a push-button switch the carriage is moved by an electric motor through a connecting-rod, an eccentric disc and suit-

able gearing in such a way that the porcelain plate moves back and forth once only beneath the porcelain peg. the distance of travel being 10 mm. The peg-holder pivots on an axis so that the porcelain peg can be changed; it is extended by a loading arm with six notches for hanging a mass. Balance in the "zero" position (without masses) is achieved by adjusting a counter-weight. When the peg-holder is lowered on to the porcelain plate the longitudinal axis of the porcelain peg is perpendicular to the upper surcace of the plate. One of the masses is hung by means of a ring and hook in the appropriate notch; the load on the peg can be varied from 0.5 to 36 kg.

(3) Description of the porcelain plate and peg: The flat porcelain plastes are made of pure technical white porcelain and have the following dimensions: 25 mm × 25 mm × 5 mm. Before being fired. their two rubbing surfaces are thoroughly roughened by being rubbed with a sponge. The sponge-marks are clearly visible.

The cylindrical porcelain pegs are also made of technical white porcelain: they are 15 mm long and 10 mm in diameter and their roughened ends are rounded, with a radius of curvature of 10 mm.

Samples of porcelain pegs and plates of the quality described above are deposited with the Bundesantalt für Materialprüfung, Berlin-Dahlem, which can supply the addresses of manufacturers.

As the natural undamaged roughness of the plates and pegs is an essential condition for the reaction of the explosive substance, each part of the surface must be used only once. In consequence, the two end surfaces of each peg are sufficient for two tests, and the two friction surfaces of a plate will each serve for about three to six tests.

(4) Preparation of samples: The explosive substances are tested in the dry state. Substances of marginal 2101, 11° to 14° are tested as delivered, provided that their water content agrees with the value indicated by the manufacturer. If the water content is higher, the mixtures must be dried before the test until their moisture content is that indicated.

In addition, for solid substances, except those in paste-like form. the following points should be observed:

a. substances in powdered form are sieved (sieve mesh 0.5 mm); everything that passes through the sieve is used for the test;

b. substances which have been compressed, cast or otherwise consolidated are broken into small pieces and sieved; everything that passes through a sieve mesh of 0.5 mm is used for the test.

(5) Test procedure: A porcelain plate is fixed on the carriage of the friction apparatus so that the grooves of the sponge - marks on it run transversely to the direction of movement. The quantity to be tested, about 10 mm3, is taken from substances in powdered form by means of a cylindrical measure (2.3 mm diameter × 2.4 mm); in the case of substances in paste-like form the sample is measured by a cylindrical tube which is plunged into the mass. After levelling off the excess extending beyond the measure, the sample is taken out by means of a wooden rod and placed on the porcelain plate. The firmly - clamped porcelain peg is set on the heaped-up quantity as shown in figure 15; the loading arm is loaded with the required mass and the push-button switch is operated. Care must be taken that the peg rests on the sample and that there is enough of the substance in front of it to come under the peg as the plate moves.

(6)Interpretation of results: In interpreting the results of the test a distinction is made between "no reaction", "decomposition" (change of colour, smell), «ignition", "crackling" and "explosion".

The relative degree of sensitivity of a substance to friction in the friction apparatus as described is indicated (without taking the coefficient of friction into account) by the smallest load on the peg in kg, with which ignition, crackling or an explosion occurs in at least one out of six test. In this connection, even ignition and crackling are deemed to be dangerous reactions. The sensitivity of an explosive substance to friction is greater the lower the ascertained load on the peg (loading weight in relation to length of loading peg).

Explosive liquids and substances in paste-like form are not in general sensitive to friction under the conditions of this test, since because of the lubricating effect the slight frictional heat produced is insufficient to induce ignition. With such subtances the absence of any reaction is no indication that the substance is not dangerous.

The stability of the products referred to in marginal 3111 is to be checked by ordinary laboratory methods. 3157

Test of dynamite for exudation (see marginal 3107) 3158

(1) The apparatus for testing dynamite for exudation (figs. 16 to 18) consists of a hollow bronze cylinder. This cylinder which is closed at one end by a plate of the same metal, has an internal diameter of 15.7 mm and a depth of 40 mm. It is pierced by 20 holes 0.5 mm in diameter (4 sets of 5 holes) on the circumference. A bronze piston, cylindrical over 48 mm of its total length of 52 mm, can slide in the vertical cylinder; this piston, whose diameter is 15.6 mm, is loaded with a mass of 2 220 g so as to produce a pressure of 118 kPa (1.18 bar).

(2) A small plug of dynamite weighing 5 to 8 g, 30 mm long and 15 mm in diameter, is wrapped in very fine gauze and placed in the cylinder; the piston and its loading mass are then placed on it so that the dynamite is subjected to a pressure of 118 kPa (1.18 bar).

The time taken for the appearance of the first signs of oily droplets (nitroglycerine) at the outer orifices of the cylinder holes is noted.

(3) The dynamit is considered satisfactory if the time elapsing before the appearance of the liquid exudations is more than five minutes, the test having been carried out at a temperature of 15° to 25° C.

3159
-3199

TEST OF DYNAMINE FOR EXUDATION Re marginal 3158

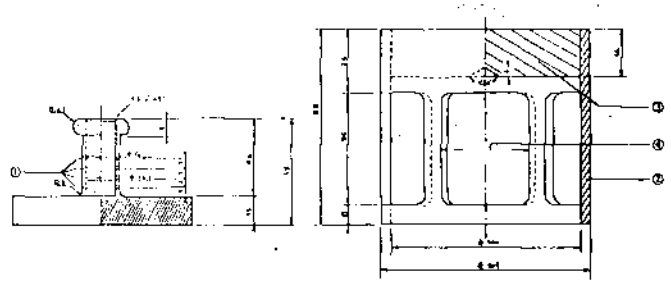


Fig. 17: Bell-shaped mass of 2 220 g capable of being suspended on the bronze piston

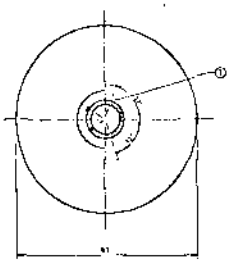


Fig. 16: Hollow bronze cylinder, closed at one end; plan and vertical section

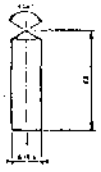


Fig. 18: Cylindrical bronze piston

(dimensions in mm)

(1) 4 sets of 5 holes of 0.5 diameter
(2) copper
(3) lead plate with central tapered recess on underside
(4) 4 openings, about 46 × 56, evenly spaced round periphery

A. Provisions relating to the nature of aluminium-alloy receptacles for certain gases of Class 2

I. Quality of the material

(1) The materials of aluminium-alloy receptacles which are to be accepted for the gases referred to in marginal 2203 (2) (b) shall satisfy the following requirements: 3200

	A	B	C	D
Tensile strength, Rm, in MPa (= N/mm²)	49 to 186	196 to 372	196 to 372	343 to 490
Yield scress, Re, in MPa (= N/mm²) (permanent set = 0.2%)	10 to 167	59 to 314	137 to 334	206 to 412
Permanent elongation at fracture (l = 5d) in per cent	12 to 40	12 to 30	12 to 30	11 to 16
Bend test (diameter of former d = n.e., where e is the thicknees of the test piece)	n = 5 (Rm ≤ 98)	n = 6 (Rm ≤ 325)	n = 6 (Rm ≤ 325)	n = 7 (Rm ≤ 392)
	n = 6 (Rm > 98)	n = 7 (Rm > 325)	n = 7 (Rm > 325)	n = 8 (Rm > 392)
Aluminium Association Series Number*	1000	5000	6000	2000

* See «Aluminium Standards and Data», fifth edition, January 1976, published by the Aluminium Association, 750 Third Avenue, New York.

The actual properties will depend on the composition of the alloy concerned and on the final treatment of the receptacle, but whatever alloy is used the thickness of the receptacle shall be calculated by the following formulae:

$$e = \frac{P_{MPa} \times D}{\frac{2 \times Re}{1.30} + P_{MPa}} \quad \text{or} \quad e = \frac{P_{bar} \times D}{\frac{20 \times Re}{1.30} \times P_{bar}}$$

where e = minimum thickness of receptacle wall, in mm;
P_{MPa} = test pressure, in MPa (P_{bar} = test pressure, in bar)
D = nominal external diameter of the receptacle, in mm; and
Re = guaranteed minimum 0.2 - per cent proof stress, in MPa (= N/mm²).

In addition, the value of the minimum guaranteed proof stress (Re) introduced into the formula is no case to be greater than 0.85 times the guaranteed minimum tensile strength (Rm), whatever the type of alloy used.

Notes: 1. The above characteristics are based on previous experience with the following materials used for receptacles:

Column A: Aluminium, unalloyed, 99.5 per cent pure;

Column B: Alloys of aluminium and magnesium;

Column C: Alloys of aluminium, silicon and magnesium, such as ISO/R209-Al-Si-Mg (Aluminium Association 6351);

Column D: Alloys of aluminium, copper and magnesium.

2. The permanent elongation at fracture (l=5d) is measured by means of test-pieces of circular section in which the gauge length l is equal to five times the dimeter d; if test-pieces of rectangular section are used the gauge length must be calculated by the formula $l=5.65\sqrt{F_0}$, where F_0 is the initial cross-sectional area of the test-piece.

3. (a) The bend test (see diagram) shall be carried out on specimens obtained by cutting into two equal parts of width 3e, but in no case less than 25 mm, an annular section of a cylinder. The specimens shall not be machined elsewhere than on the edges.

(b) The bend test shall be carried out between a mandrel of diameter (d) and two circular supports separated by a distance of (d + 3e). During the test the inner faces shall be separated by a distance not greater than the diameter of the mandrel.

(c) The specimen shall not exhibit cracks when it has been bent inwards around the mandrel until the inner faces are separated by a distance not greater than the diameter of the mandrel.

(d) The ratio (n) between the diameter of the mandrel and the thickness of the specimen shall conform to the values given in the table.

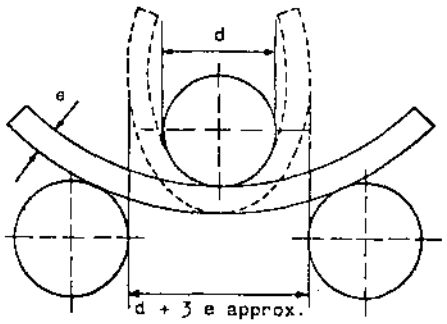


Diagram of bend test

(2) A lower minimum elongation value is acceptable on condition that an additional test approved by the competent authority of the country in which the receptacles are made proves that safety of carriage is ensured to the same extent as in the case of receptacles constructed to comply with the characteristics given in the table in paragraph (1).

(3) The wall thickness of the receptacles at the thinnest point shall be the following:

where the diameter of the receptacle is less than 50 mm: not less than 1.5 mm;

where the diameter of the receptacle is from 50 to 150 mm:

not less than 2 mm; and

where the diameter of the receptacle is more than 150 mm:

not less than 3 mm.

(4) The ends of the receptacles shall have a semicircular, elliptical or «basket-handle» section; they shall afford the same degree of safety as the body of the receptacle.

II. Additional official test for aluminium alloys

3201 (1) In additional to the tests required by marginals 2215, 2216 and 2217, it is necessary to test for possible intercrystalline corrosion of the inside wall of the receptacle where use is made of an aluminium alloy containing copper, or where use is made of an aluminium alloy containing magnesium and manganese and the magnesium content is greater than 3.5 per cent or the manganese content lower than 0.5 per cent.

(2) In the case of an aluminium/copper alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy by the competent authority; it shall thereafter be repeated, in the course of production, for each pour of the alloy.

(3) In the case of an aluminium/magnesium alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy and of the manufacturing process by the competent authority. The test shall be repeated whenever a change is made in the composition of the alloy or in the manufacturing process.

(4) (a) Preparation of aluminium/copper alloys

Before the aluminium/copper alloy is subjected to the corrosion test, the samples shall be cleansed of grease by means of a suitable solvent, and dried.

(b) Preparation of aluminium/magnesium alloys

Before the aluminium/magnesium alloy is subjected to the corrosion test, the samples shall be heated for seven days at 100°C; they shall then be cleansed of grease by means of a suitable solvent, and dried.

(c) Performance of test

The inner side of a speciment measuring 1 000 mm² (33.3 × 30 mm) of the material containing copper shall be treated at ambient temperature, for 24 hours, with 1 000 ml of an aqueous solution containing 3 per cent NaCl and 0.5 per cent HCl.

(d) Examination

After being washed and dried, a section of the specimen 20 mm long shall be examined micrographically at a magnification of 100 to 500 ×, preferably after electropolishing.

The depth of attack shall not go beyond the second layer of grains from the surface subjected to the corrosion test; in principle, if the entire first layer of grains is attacked, only part of the second row should be.

In the case of sections, examination shall be performed at right angles to the surface.

Where after electropolishing it is found necessary to render the grain boundaries particularly visible for subsequent examination, this shall be done by a method acceptable to the competent authority.

III. Protection of the inner surface

3202 The inner surface of aluminium-alloy receptacles shall be provided with a suitable anti-corrosion coating if the competent testing stations so consider necessary.

3203-3249

B. Requirements concerning the materials and construction of receptacles intended for the carriage of deeply-refrigerated liquefied gases of Class 2

3250 (1) Receptacles shall be made of steel, aluminium, aluminium alloy, copper, or copper alloy, e.g. brass. However, receptacles, tanks and shells made of copper or copper alloy shall be accepted only for gases containing no acetylene; ethylene may however contain not more than 0.005 per cent acetylene.

(2) Only materials appropriate to the lowest working temperature of the receptacles, and of their fittings and accessories, may be used.

3251 The following materials shall be accepted for the manufacture of receptacles:

(a) steels not subject to brittle fracture at the lowest working temperature (see marginal 3265);

1. fine-grained unalloyed steels, down to a temperature of -60°C;

2. nickel steels (with a nickel content of 0.5 to 9 per cent), down to a temperature of -196°C, depending on the nickel content;

3. austenitic chrome-nickel steels, down to a temperature of -270°C.

(b) aluminium not less than 99.5 per cent pure, or aluminium alloys (see marginal 3266);

(c) deoxidized copper not ness than 99.9 per cent pure, or copper alloys having a copper content of over 56 per cent (see marginal 3267).

3252 (1) Receptacles shall be either seamless or welded.

(2) Receptacles under marginal 2207 made of austenitic steel, of copper or of copper alloy may alternatively be hard-soldered.

3253 The fittings and accessores may either be screwed to the receptacles, or be affixed thereto as follows:

(a) aluminium alloy: by welding;

(b) receptacles made of austenitic steel, of copper or of copper alloy: by welding or hand-soldering.

3254 The construction of receptacles and their mode of affixing to the vehicle, to the underframe or in the container frame shall be such as to preclude with certainty any such reduction in the temperature of the load-bearing components as would be likely to render them brittle. The fastenings of the receptacles, tanks and shells shall themselves be so sesigned that even when the receptacle, tank or shell is at its lowest working temperature they still possess the necessary mechanical properties.

3255-3264

1. Materials, receptacles

(a) Steel receptacles

3265 The materials used for the manufacture of receptacles, and the weld beads, shall at their lowest working temperatures meet at least the following requirements as to impact strength.

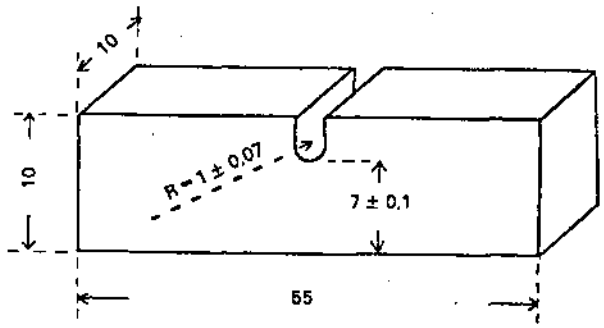
The tests may be conducted with test-pieces having either a Ushaped or a V-shaped notch.

Material	Impact strength[a] of sheet metal and weld beads at lowest working temperatures J/cm²[b]	J/cm²[c]
Unalloyed killed steel	34.3	27.4
Ferritic alloy steel Ni<5%	34.3	21.6
Ferritic alloy steel 5%≤Ni≤9%	44.1	34.3
Austenitic Cr-Ni steel	39.2	31.4

[a] Impact strengths determined with different test-pieces are not mutually comparable. See also marginals 3275 to 3277.

[b] The values relate to test-pieces with a U-shaped notch as illustrated below.

[c] The values relate to test-pieces with a V-shaped notch conforming to ISO R 148.



In the case of austenitic steels, only the weld bead need be subjected to an impact-strength test.

For working temperatures below -196°C, the impact-strength test is not performed at the lowest working temperature, but at -196°C.

(b) Receptacles made of aluminium or aluminium alloy

The seams of receptacles shall at ambient temperature meet the following requirements as to bending coefficient: 3266

Thickness of sheet e in mm	Bending coefficient k[a] for the seam	
	Root in compression zone	Root in tension zone
⩽12	⩾15	⩾12
>12 to 20	⩾12	⩾10
>20	⩾ 9	⩾ 8

[a] See marginal 3285.

c) Receptacles, tank and shells made of copper or copper alloy

It is not necessary to carry out tests to determine whether the impact strength is adequate. 3267

3268
-3274

2. Tests

(a) Impact-strength tests

The impact strength shown in marginal 3265 relate to test-pieces measuring 10×10 mm and having a U-shaped or a V-shaped notch. 3275

Notes: 1. With regard to the shape of the test piece, see marginal 3265 (table), foot-notes[b] and [c].

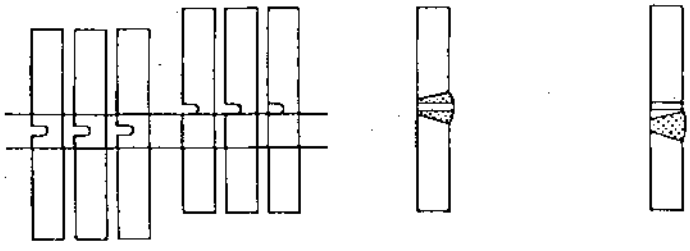
2. For sheets less than 10 mm but not less than 5 mm thick, test-pieces having a cross-section of 10×e mm, where «e» represents the thickness of the sheet, shall be used. Such impact-strength tests generally yield higher values than do such tests on standard test-pieces.

3. No impact-strength test shall be carried out on sheets less than 5 mm thick, or on their seams.

(1) For testing sheet metal the impact strength shall be determined on three test-pieces. The test-pieces shall be removed at right angles to the direction of rolling in the case of test-pieces with a U-shaped notch and in the direction of rolling in the case of test-pieces with a V-shaped notch. 3276

(2) For testing seams the test-pieces shall be taken as follows:

e⩽10:: three test-pieces from the centre of the weld: three-test-pieces from the zone of deformation created by the weld (the notch shall be completely outside the melted area but as near to it as possible):

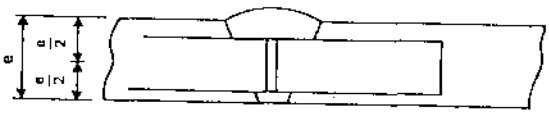


centre of weld

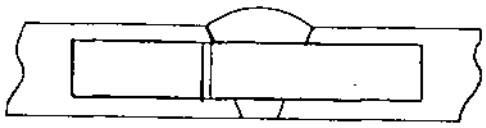
Zone of deformation

The test-pieces shall be so machined as to have the maximum possible thickness.

10< e ⩽ 20: three test-pieces from the centre of the weld; three test-pieces from the zone of deformation:



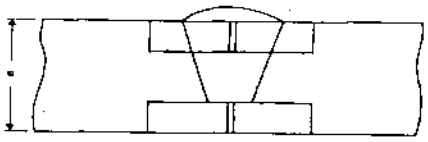
Centre of weld



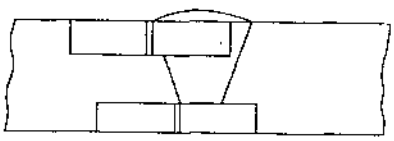
Zone of deformation

i.e. twelve test-pieces in all.

e< 20: two sets of three test-pieces (one set on the upper face, one set on the lower face) at each of the points indicated below:



Centre of weld



Zone of deformation

i.e. six test-pieces in all.

(1) For sheet metal the average of three tests shall meet the minimum values given in marginal 3265; none of the values may be more than 30 per cent below the minimum specified. 3277

(2) For welds the average values obtained from three of the test-pieces taken at the different points, centre of weld and zone of deformation, shall correspond to the minimum values shown. None of the values may be more than 30 per cent below the minimum specified.

3278
-3284

(b) Determination of bending coefficient

(1) The bending coefficient k referred to in marginal 3266 is defined as follows: 3285

$$K = 50\,\frac{4}{r}$$

where

e = thickness of sheet in mm; and

r = mean radius of curvature in mm of the test-piece when the first crack appears in the tension zone.

(2) The bending coefficient k shall be determined for the seam. The width of the test piece shall be equal to 3 e.

(3) Four tests shall be performed on the seam, two with the root in the compression zone (fig. 1) and two with the root in the tension zone (fig. 2); all values obtained shall meet the minium value requirements of marginal 3266.

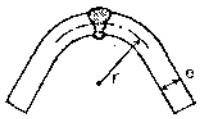


Fig. 1

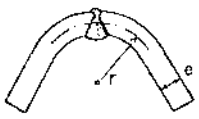


Fig. 2

3286
-3290

C. Provisions relating to tests on aerosol dispensers and nonrefillable containers for gases under pressure of Class 2, 10° and 11°.

1. Pressure and bursting tests on receptacle model

Hydraulic pressure tests shall be carried out on at least five empty receptacles of each model; 3291

(a) until the prescribed test pressure is reached, by which time no leakage or visible permanent deformation shall have occured; and

(b) until leakage or bursting occurs; the dished end, if any, should yield first and the receptacle not leak or burst until a pressure 1.2 times the test pressure has been reached or passed.

2. Tightness (leakproofness) tests on all receptacles

(1) For the test on aerosol dispensers (10°) and nonrefillable containers for gas under pressure (11°) in a hot-water bath, the temperature of the bath and the duration of the test shall be such that the internal pressure of each receptacle reaches at least 90 per cent of the internal pressure that would be reached at 55°C. 3292

However, if the contents are sensitive to heat or if the receptacles are made of a plastics material which softens at this test temperature, the temperature of the bath shall be from 20° to 30°C; in addition, one dispenser out of every 2,000 shall be tested at the temperature prescribed in the foregoing paragraph.

(2) No leakage or permanent deformation of receptacles shall occur. The provision concerning permanent deformation is not applicable to receptacles which, being made of a plastics material, soften.

3293
-3299

Tests relating to inflammable liquids of classes 3, 6.1 and 8

Test for determining flash-point

(1) The flash-point is determined by means of one of the following types of apparatus: 3300

(a) for use at temperatures not exceeding 50°C: Abel, Abel-Pensky, Luchaire-Finances, Tag;

(b) for use at temperatures above 50°C: Pensky-Martens, Luchaire-Finances;

(c) failing these, any other closed-cup apparatus capable of giving results within 2°C of those which an apparatus listed above would give at the same place.

(2) To dermine the flash-point of paints, gums and similar viscous products containing solvents, only apparatus and test methods suitable for determining the flash-point of viscous liquids may be used, such as method A of IP standard 170/59 or more recent IP standards, German standards DIN 53 213 and TGL 14 301, leaflet 2.

The test procedure shall be: 3301

(a) for the Able apparatus, that of IP* standard 33/44; this standard may also be used for the Able-Pensky apparatus;

(b) for the Pensky-Martens apparatus, that of IP* standard 34/47, or that of ASTM** standard D.93/46;

(c) for the Tag apparatus, that of ASTM** standard D.53/46;

(d) for the Luchaire apparatus, that of the Instruction annexed to the ministerial order (arrêtc ministériel) (France) of 26 October 1925 issued by the Ministère du Commerce et de l'Industrie and published in the Journal Officiel of 29 October 1925.

If any other apparatus is used, the following precautions must be taken:

1. The test must be performed in a place free from draughts.

2. The rate of temperature increase of the liquid being tested must never exceed 5°C per minute.

3. The pilot-flame must be 5 mm (± 0.5 mm) long.

4. The pilot-flame must be applied to the opening of the receptacle after each rise of 1°C in the temperature of the liquid.

In the event of a dispute as to the classification of an inflammable liquid, the item number proposed by the sender shall be accepted if a check-test of the flash-point, carried out on the liquid in question, yields a result not differing by more than 2° from the limits (21°, 55° and 100° respectively) stated in marginal 2301. If a check-test yields a result differing by more than 2°C from these limits, a second check-test must be carried out, and the highest figure obtained shall be adopted. 3302

Test for determining peroxide content

The peroxide content of a liquid shall be determined as follows: a quantity p (about 5 g, weighed to the nearest cg) of the liquid to be titrated is placed in an Erlenmeyer flask; 20 cm^3 of acetic anhydride and about 1 g of powdered solid potassium iodide are added; the flask is shaken and, after 10 minutes, heated for 3 minutes to about 60°C; it is then allowed to cool for 5 minutes, after which 25 cm^3 of water are added. After being left standing for half an hour, the iodine liberated is titrated with a decinormal solution of sodium thiosulphate, no indicator being added. Complete decolorization indicates the end of the reaction. If n is the number of cm^3 of thiosulphate solution required, the percentage of peroxide (calculated as H_2O_2) present in the sample is obtained by the formula 17n/100p. 3303

3304
-3309

Test for determining fluidity

To determine the fluidity of liquid or viscous substances and mixtures of Class 3, the following test method should be used.

(a) test apparatus

Commercial penetrometer conforming to ISO Standard 2137/1972, with a guide rod of 47.5 ± 0.05 g; sieve disc of duralumin with conical bores and a mass of 102.5 ± 0.05 g (see figure); penetration vessel with an inside diameter of 72 mm to 80 mm for reception of the sample.

(b) Test procedure

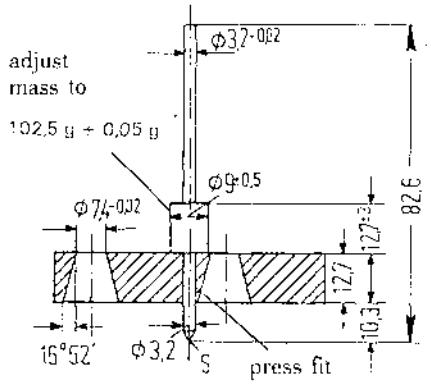
The sample is poured into the penetration vessel not less than half an hour before the measurement. The vessel,

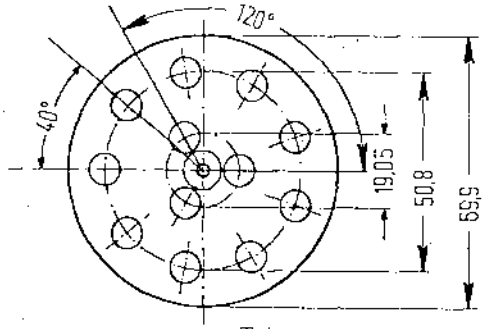
* The Institute of Petroleum, 61, New Cavendish Street, London, W.1.

** American Society for Testing and Materials, 1916 Race Street, Philadelphia 3, (pa.).

which is hermetically closed, is kept immobile until the measurement. The sample is heated in the hermetically closed penetration vessel to 35 °C ± 0.5 K and is placed on the penetrometer table only directly before the measurement (not more than two minutes). The centre S of the sieve disc is then brought into contact with the surface of the liquid and the penetration depth measured in relation to time.

PENETROMETER





Tolerances not specified are ± 0.1 mm

Evaluation of test results 3311

A substance shall not be subject to the conditions of class 3 of ADR if, after the centre S has been brought into contact with the surface of the sample, the penetration indicated by the dial gauge

(a) after a loading time of 5 s ± 0.1 s, is less than 15.0 mm ± 0.3 mm, or

(b) after a loading time of 5 s ± 0.1 s, is less than 15.0 mm ± 0.3 mm, but the additional penetration after another 55 s ± 0.5 s is smaller than 5.0 mm ± 0.5 mm.

Note: In the case of samples having a flow point, it is often impossible to produce a plane surface in the penetration vessel and, hence, to fix clear initial measuring conditions for the contact of the centre S. Furthermore, with some samples, the impact of the sieve disc can cause an elastic deformation of the surface and in the first few seconds simulate a deeper penetration. In all these cases it may be useful to make the evaluation mentioned in (b) above.

3312
-3399

Appendix A.4

3400
-3499

Reserved

Appendix A.5

GENERAL PACKING CONDITIONS: TYPES OF PACKAGING: REQUIREMENTS APPLICABLE TO PACKAGINGS: TEST REQUIREMENTS FOR PACKAGINGS

Note: These requirements apply to packagings containing substances of classes 3, 6.1 or 8.

Section I General packing conditions

(1) Packagings shall be so manufactured and closed as 3500
to prevent any leakage of contents from a package prepared for dispatch such as might be caused in normal conditions of carriage particularly by changes in temperature, humidity or pressure. No dangerous substance shall adhere to the outside of packages. These provisions apply both to new and to reused packagings.

(2) Parts of packagings which are in direct contact with dangerous substances shall not be affected by chemical or other action of those substances; where necessary, they shall be provided with a suitable inner coating or treatment. Such parts of packagings shall not incorporate constituents liable to react dangerously with the contents, to form hazardous produts, or significantly to weaken them.

(3) Each packaging except inner packagings of combination packagings shall conform to a design type tested and approved in accordance with the requirements laid down in section IV. Mass-produced packagings shall conform to the approved design type.

(4) Where packagings are filled with liquid substances, sufficient ullage shall be left to ensure that no leakage or liquid substance and no permanent distortion of the packaging occurs as a result of expansion of the liquid substance, due to temperatures which may be attained during carriage. For a filling temperature which may be attained during carriage. For a filling temperature of 15 °C, the degree of filling shall be determined as follows, unless otherwise provided under a particular class, either:

(a)

boiling point (initial boiling point) of the Substance in °C	< 60	⩾ 60 < 100	⩾ 100 < 200	⩾ 200 < 300	⩾ 300
Degree of filling as a percentage of the capacity of the packaging	90	92	94	96	98

or (b) Degree of filling $= \frac{98}{1 + \alpha (50 - t_F)}$

per cent of the capacity of the packaging.

In this formula a represents the mean coefficient of cubic expansion of the liquid substance between 15° and 50°; that is to say, for a maximum rise in temperature of 35 °C a is calculated according to the formula:

$$\alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$$

d_{15} and d_{50} being the relative densities */ of the liquid at 15 °C and 50 °C and t_F the mean temperature of the liquid at the time of filling.

* Relative density (d) is considered to be synonymous with specific gravity (SG) and will be used throughout this appendix

(5) Inner packagings shall be packed in an outer packaging in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the outer packaging. Inner packagings which are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials, etc., shall be secured in outer packagings with suitable cushioning material. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material or of the outer packaging.

(6) Inner packagings containing different substances which may react dangerously with one anotehr shall not be placed in the same outer packaging (see also the mixed packing provisions under the various classes).

(7) The closure of packagings containing wetted or diluted substances shall be such that the percentage of liquid (water, solvent or phlegmatizer) does not fall below the prescribed limits during carriage.

(8) Where overpressure may develop in a package through the emission of gas from the contents (as a result of temperature increase or other causes), the packaging may be fitted with a vent provided that the gas emitted will not cause any danger on account of its toxicity, its inflammability, the quantity released, etc. The vent shall be so designed that, when the packaging is in the attitude in which it is intended to be transported, leakages of liquid and the penetration of foreign matter are prevented under normal conditions of carriage. However, a substance may be carried in such a packaging only where a vent is expressly prescribed for that substance in the conditions of carriage of the relevant class.

(9) New, reused or reconditioned packagings shall be capable of passing the tests prescribed in section IV. Before being filled and handed over for carriage, every packaging shall be inspected and its freedom from corrosion, contamination or other damage, verified. Any packaging which shows signs of reduced strenght in comparison with the approved design type shall no longer be used or shall be so reconditioned that it is able to withstand the design-type tests.

(10) Packagings used for liquids shall undergo a leakproofness test if so required by and under the conditions prescribed in marginal 3560.

(11) Liquids shall be filled only into packagings which have an appropriate resistance to the internal pressure that may be developed under normal conditions of carriage. Packagings marked with the hydraulic test pressure as prescribed in marginal 3512 (1) (d) shall be filled only with a liquid having a vapour pressure:

(a) such that the total gauge pressure in the packaging (i.e. the vapour pressure of the filling substance plus the partial pressure of air or other inert gases, less 100 kPa) at 55°C determined on the basis of a maximum degree of filling in accordance with (4) above and a filling temperature of 15°C, will not exceed two-thirds of the marked test pressure; or

(b) at 50°C less than four-sevenths of the sum of the marked test pressure plus 100 kPa; or

(c) at 55°C less than two-thirds of sum of the marked test pressure plus 100 kPa.

3501
-3509

Section II Types of packaging

Definitions

(1) Subject to the special provisions for each class, the packagings listed below may be used: 3510

Drums: flat-ended or convex-ended cylindrical packagings made of metal, fibre, plastics, plywood or other suitable materials. This definition also includes packagings of other shapes made of metal or plastics, e.g. round taper-necked packagings, or pail, shaped packagings. Wooden barrels and jerricans are not covered by this definition.

Wooden barrels: packagings made of natural wood, of round cross-section, having convex walls, constisting of staves and heads and fitted with hoops.

Jerricans: metal or plastics packagings of rectangular or polygonal cross-section with one or more orifices.

Boxes: packagings with full rectangular or polygonal sides, made of metal, wood, plywood, reconstituted wood, fibreboard, plastics or other suitable metarial, without orifices.

Bags: flexible packagings made of paper, plastics film, textiles, woven material or other suitable materials.

Composite packagings (plastics material): packagings consisting of an inner plastics receptacle and an outer packaging (made of metal, fibreboard, plywood, etc.). Once assembled, such a packaging remains thereafter an inseparable unit; it is filled, stored, despatched and emptied as such.

Composite packagings (glass, porcelain or stoneware): packagings consisting of an inner glass, porcelain or stoneware receptacle and an outer packaging (made of metal, wood, fibreboard, plastics material, expanded plastics material, etc.). Once assembled, such a packaging remains thereafter an inseparable unit; it is filled, stored, despatched and emptied as such. It shall be tested in accordance with marginals 3552 (1) (a) or (b), 3553 and 3554.

Compination packagings: a combination of packagings for transport purposes, consisting of one or more inner packagings secured in an outer packaging in accordance with marginal 3500 (5).

(2) Subject to the special provisions for each class, the following packagings may also be used:

Composite packagings (glass, porcelain or stoneware): if tested in accordance with marginal (3552 (1) (e).

Light gauge metal packagings: packagings of circular, elliptical, rectangular or polygonal cross-section, (also conical) and tapernecked and pail-shaped packagings made of tinplate or light metal, having a wall thickness of less than 0.5 mm, flat or convex bottoned and with one or more orifices which are not covered in marginal 3510 (1) as drums or jerricans.

(3) The following definitions are applicable to packagings in (1) and (2) above:

Closures: devices shich close an opening in a receptacle;

Inner packagings: packagings for which an outer packaging is required for carriage.

Inner receptacles: receptacles which require an outer packaging in order to perform their containment function.

Maximum capacity (as used in Section III): the maximum inner volume receptacles or packagings expressed in litres.

Maximum net mass: the maximum net mass of contents in a single packaging or maximum conbined mass of inner packagings and the contents thereof expressed in kilograms.

Outer packaging: the outer protection of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

Packages: the complete product of the packing operation, consisting of the packaging and its contents prepared for dispatch.

Packagings: receptacles and any other components or materials necessary for the receptale to perform its containment function.

Receptacles: containment vessels for receiving and holding substances of articles, including any means of closing.

Note: the "inners" of "combination packagings" are always termed "inner packagings" not "inner receptacles" A glass bottle is an example of such an "inner packaging". The "inners" of "composite packagings" are normally termed "inner receptacles". For example, the "inner" of a 6HA1 composite packaging (plastics material) is such an "inner receptacle" since it is normally not designed to per-

form a containment function without its "outer packaging" and is not therefore an "inner packaging".

Coding of design types for packagings conforming to marginal 3510 (1) and (2)

3511 (1) The code number consists of

an Arabic numeral indicating the type of packaging, e.g. drum, jerrican etc.;

a capital letter or letters (latin characters) indicating the nature of the material, e.g. steel, wood, etc.;

where necessary, an Arabic numeral indicating the category of packaging within the type to which the packaging belongs.

In the case of composite packagings, two capital letters (Latin characters) shall be used. The first shall indicate the material of the inner receptacle and the second that of the outer packaging.

In the case of combination packagings, only the code number for the outer packaging shall be used.

The following numerals shall be used for the type of packaging:

1. Drum
2. Wooden barrel
3. Jerrican
4. Box
5. Bag
6. Composite packaging
0. Light gauge metal packagings

The following capital letters shall be used for the types of material:

A. Steel (all types and surface treatments)
B. Aluminium
C. Natural wood
D. Plywood
F. Reconstituted wood
G. Fibreboard
H. Plastics material, including expanded plastics material
L. Textile
M. Paper, multiwall
N. Metal (other than steel or aluminium)
P. Glass, porcelain or stoneware

(2) Three packing groups are provided for in the special requirements for each class, according to the degree of danger presented by the substances to be carried:

Packing Group I: for substances of group (a);
Packing Group II: for substances of group (b);
Packing Group III: for substances of group (c) of the items in the list of substances.

The code number of the packaging shall be followed in the marking by a letter indicating the groups of substances for wich the design type is approved as follows:

X for packagings for substances in packing groups I to III;

Y for packagings for substances in packing groups II and III;

and

Z for packagings for substances in packing group III.

Marking

3512 (1) Each packaging shall bear durable and clearly visible marking.

The marking for new packagings manufactured in conformity with the approved type consists of:

(a) (i) the symbol  for packagings conforming to marginal 3510 (1). For metal packagings on which the marking is stamped, the letters UN may be applied instead of the symbol  :

(ii) the symbol "ADR" (or "RID/ADR" for packagings approved for rail transport as well as road transport) instead of the symbol 

for packagings conforming to marginal 3510 (2)

(b) the packaging code number in accordance with marginal 3511 (1);

(c) a code in two parts:

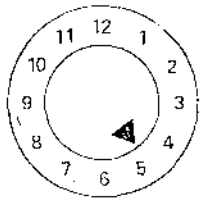
(i) a letter (X, Y or Z) designating the packing group (s) for which the design type has been approved;

(ii) for packagings without inner packagings, intended to contain liquids having a viscosity at 23 °C of 200 mm^2/s or less, the relative density (rounded off to the first decimal), to which the design type has been tested if more than 1.2.

For packagings intended to contain liquids having viscosity at 23 °C of more than 200 mm^2/s solids or inner packagings, the maximum gross mass in kilograms;

(d) either a letter "S" denoting that the packaging is intended to contain liquids having a viscosity at 23 °C of more than 200 mm^2/s solids or inner packagings, or, where a hydraulic pressure test has been successfully passed, the test pressure in Kpa rounded off to the nearest 10 Kpa.

(e) the year of manufacture (last two digits); in addition for packagings of types 1H and 3H, the month of manufacture; this part of the marking may be affixed in a different place from other particulars. A suitable method is;



(f) the mark* of the State in which the approval was issued;

(g) either a registration number and the name of mark of the manufacturer or some other pakaging identification mark specified by the competent authorities.

(2) Every re-usable packaging liable to undergo reconditioning which might obliterate the packaging markings shall bear the marks specified in (a), (b), (c), (d) and (e) in a parmanent form (e.g. by stamping) so as to withstand the reconditioning process.

(3) The registration number is valid for only one design type or series of design types. Different surface treatmens may fall within the same design type.

A "series of design types" means packagings of the same structural design, wall thickness, material and cross-section, which differ only in their lesser design heights from the design type approved.

The closures of receptacles shall be identifiable as those referred to in the test report.

(4) After reconditioning a packaging the reconditioner shall affix to it, near the durable marks required by (a) to (e) the following sequence of marks:

(h) the mark* of the State in whose territory the reconditioning was carried out;

(i) the name or authorized of the reconditioner;

(j) the year of reconditioning, the letter "R" and, for every packaging which has successfully undergone the leakproofness test in accordance with marginal 3500 (10), the additional letter "L".

(5) Packagings marked in accordance with this paragraph but which were approved in a State which is not a contracting party to the ADR may nevertheless be used for carriage under ADR.

* Distinguishing sign for motor vehicles in international trafic prescribed in the Vienna Convention on Road Traffic (1968).

(6) Examples of the markings for a new steel drum:



1A1/Y1.4/150/83 (a) (i), (b), (c), (d) and (e)
NL/VL123 (f) and (g)

For a reconditioned steel drum:



1A1/Y1.4/150/83 (a) (i), (b), (c), (d) and (e)
NL/RB/84/RL (h), (i) and (j)

For new light gauge metal packagings:
RID/ADR/OA1/Y/75/83
(a) (ii), (b), (c), (d) and (e) Non-removable head
NL/VL 123 (f) and (g)
RID/ADR/OA2/Y/83
(a) (ii), (b), (c) and (e) Removable head, intended for liquids with a viscosity at 23°C esxeeding 200 mm^2/s
NL/VL 124
(f) and (g)

Certification 3513

The manufacturer certifies, by affixing marking in accordance with marginal 3512 (1) that mass-produced packagings correspond to the approved design type and that the requirements referred to in the approval have been met.

Index of packagings 3514

The following types and codes of packagings are assigned:

Type	Material	Category	Code	Marginal
A. Conforming to marginal 3510 (1) and marked "UN"				
1. Drums	A. Steel	non-removable head	1A1	3520
		removable head	1A2	
	B. Aluminium	non-removable head	1B1	3521
		removable head	1B2	
	D. Plywood		1D	3523
	G. Fibre		1G	3525
	H. Plastics	non-removable head	1H1	3526
		removable head	1H2	
2. Barrels	C. Wood	bung type	2C1	3524
		removable head		
3. Jerricans	A. Steel	non-removable head	3A1	3522
		removable head	3A2	
	H. Plastics	non-removable head	3H1	3626
		removable head		
4. Boxes	A. Steel	--	4A1	3532*
		with liner	4A2	
	B. Aluminium		4B1	3532*
		with liner	4B2	
	C. Natural wood	ordinary	4C1	3527*
		with sift-proof walls	4C2	
	D. Plywood	--	4D	3528*
	F. Reconstituted wood	–	4F	3529*
	G. Fibreboard	–	4G	3530*
	H. Plastics	expanded	4H1	3531*
		solid	4H2	

* Under 3538 these packagings may be used as the outer packaging of combination packaging.

Type	Material	Category	Code	Marginal
A. Conforming to marginal 3510 (1) and marked "UN"				
5. Bags	H. Woven plastics	without inner lining or coating	5H1	3534
		sift-proof	5H2	
		water resistant	5H3	
	H. Plastics film	--	5H4	3535
	L. Textile	without inner lining or coating	5L1	3533
		sift-proof	5L2	
		water resistant	5L3	
	M. Paper	multiwall	5M1	3536
		multiwall, water resistant	5M2	
6. Composite packagings	H. Plastics receptacle	in steel drum	6HA1	3537
		in steel crate or box	6HA2	
		in aluminium drum	6HB1	
		in aluminium crate or box	6HB2	
		in wooden box	6HC	
		in plywood drum	6HD1	
		in plywood box	6HD2	
		in fibre drum	6HG1	
		in fibreboard box	6HG2	
		in plastics drum	6HH	
B. Packagings which may conform to marginal 3510 (1) or (2)				
6. Composite packagings	P. Class porcelain or stoneware receptacle	in steel drum	6PA1	3539
		in steel crate or box	6PA2	
		in aluminium drum	6PB1	
		in aluminium crate or box	6PB2	
		in wooden box	6PC	
		in plywood drum	6PD1	
		in wickerwork hamper	6PD2	
		in fibre drum	6PG1	
		in fibreboard box	6PG2	
		in expanded plastics packaging	6PH1	
		in solid plastics packaging	6PH2	

Type	Material	Category	Code	Marginal
C. Conforming only to marginal 3510 (2) and marked "ADR" (or "RID/ADR")				
O. Light gauge metal packagings	A. Steel	non-removable head	OA1	3540
		removable head	OA2	

3515
-3519

Section III. Requirements for packagings

A. Packagings conforming to marginal 3510 (1)

Steel drums

1A1 non-removable head 3520

1A2 removable head

(a) The sheet metal for the body and ends shall be of suitable steel and of a gauge appropriate to the drum's capacity and intended use.

(b) Body seams shall be welded on drums intended to contain more than 40 litres of liquid. Body seams shall be mechanically seamed or welded on drums intended to contain solids or 40 litres or less of liquids.

(c) Head and chime seams shall be mechanically seamed or welded.

(d) If there are built-on rolling hoops they shall be fitted tightly on the body and so secured that they cannont shift. Rolling hoops shall not be spot-welded.

(e) Internal coatings of lead, zinc, tin, lacquer and the like shall be tough and resilient and shall adhere to the steel at every point, including the closures.

(f) Openings for filling, emptying and venting in the bodies or heads of non-removable head (1A1) drums shall not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1A2).

(g) Closures shall incorporate a leakproof gasket except where a taper thread ensures comparable leakprofness.

(h) Closures of non-removable-head drums shall either be of the screw-threaded type or be capable of being secured by a screw-threaded device or at least equally effective device.

(i) Closure devices for removable head drums shall be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of carriage. Caskets or other sealing elements shall be used with all removable heads.

(j) Maximum capacity of drum: 450 litres.

(k) Maximum net mass: 400 kg.

Aluminium drums

1B1 non-removable head 3521

1B2 removable head

(a) The body and heads shall be of aluminium at least 99 per cent pure, or of an aluminium-base alloy having corrosion resistance and mechanical properties appropriate to the capacity of the drum and its intended use.

(b) Openings for fillings, emptying and venting in the bodies or heads of non-removable head (1B1) drums shall not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1B2).

(c) Aluminium drums 1B1.

End seams, if any, shall be adequately reinforced for their protection. If there are any body and end seams they shall be welded. The closure shall either be of the screw-threaded type or be capable of being secured by a screw-threaded device or a device at least equally effective. Closures shall incorporate a leakproof gasket except where a taper thread ensures comparable leakproofness.

(d) Aluminium drums 1B2.

The body of the drum shall either be seamless or have a welded seam. The closures shall be so designed and fitted that they will remain secure and the drums will remain leakproof under normal conditions of carriage. Caskets or other sealing elements shall be used with all removable heads.

(e) Maximum capacity of drum: 450 litres.

(f) Maximum net mass: 400 kg.

Steel jerricans

3A1 non-removable head 3522

3A2 removable head

(a) Body and heads shall be constructed of steel sheet of a suitable type and of adequate thickness in relation to the capacity of the jerrican and its intended use.

(b) Chimes of all jerricans shall be mechanically seamed or welded. Body seams of jerricans intended to contain more than 40 litres of liquid shall be welded. Body seams of jerricans intended to carry 40 litres or less shall be mechanically seamed or welded.

(c) Openings in jerricans (3A1) shall not exceed 7 cm in diameter. Jerricans with larger openings are considered to be of the removable head type (3A2).

(d) The closure shall either be of the screw-threaded type or be capable of being secured by a screw-threaded device or a device at least equally effective.

(e) Maximum capacity of jerrican: 60 litres.

(f) Maximum net mass: 120 kg.

Plywood drums

1D 3523

(a) The wood used shall be well seasoned, commercially dry and free from any defect likely to lessen the effectiveness of the drum for the purpose intended. If a material other than plywood is used for the manufacture of the ends, it shall be of a quality equivalent to the plywood.

(b) At least two-ply plywood shall be used for the body and at least three-ply plywood for the ends; the plies shall be firmly glued together, with their grain crosswise, by a water-resistant adhesive.

(c) The body and ends shall be of a design appropriate to the capacity of the drum and its intended use.

(d) In order to prevent sifting of the contents, lids shall be lined with kraft paper or same other equivalent material which shall be securely fastened to the lid and extend to the outside along its full circumference.

(e) Maximum capacity of drum: 250 litres.

(f) Maximum net mass: 400 kg.

Wooden barrels

2C1 bung type 3524

2C2 removable head

(a) The wood used shall be of good quality, straight-grained, well-seasoned and free from knots, bark, rotten wood, sapwood or other defects likely to lessen the effectiveness of the barrel for the purpose intended.

(b) The body and ends shall be of a design appropriate to the capacity of the barrel and its intended use.

(c) Staves and ends shall be sawn or cleft with the grain so that no annual ring shall extend over more than half the thickness of a stave or head.

(d) Barrel hoops shall be of steel or iron and good quality. The hoops of 2C2 barrels with removable heads may be of a suitable hardwood.

(e) Wooden barrels 2C1:

The diameter of the bung-hole shall not exceed half the width of the stave in which it is placed.

(f) Wooden barrels 2C2:

Heads shall fit tightly into the orozes.

(g) Maximum capacity of barrel: 250 litres.

(h) Maximum net mass: 400 kg.

Fibre drums

1G 3525

(a) The body of the drum shall consist of multiple plies of heavy paper or fibreaboard (without corrugations) firmly glued or laminated together and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

(b) Heads shall be of natural wood, fibreboard, metal, plywood or plastics material and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

(c) The body and heads of the drum and their joins shall be of a design appropriate to the capacity of the drum and its intended use.

(d) The assembled packaging shall be sufficiently water-resistant so as not to delaminate under normal conditions of carriage.

(e) Maximum capacity of drum: 450 litres.

(f) Maximum net mass: 400 kg.

Plastics drums and jerricans

1 H1 drums, non-removable head 3526

1 H2 drums, removable head

3 H1 jerricans, non-removable head

3 H2 jerricans, removable head

(a) The packagings shall be capable of withstanding the physical (in particular mechanical and thermal) and chemical stresses to be expected in carriage and of remaining leakproof. They shall be capable of withstanding dangerous substances and their vapours. They shall also have the necessary degree of resistance to ageing and ultra-violet radiation. Packagings shall be safe to handle.

(b) The permitted period of use of the packagings for the carriage of dangerous goods shall be five years from the date of their manufacture except where the conditions for carriage of the various Classes prescribe a shorter period of use.

(c) If protection against ultra-violet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2 per cent by mass or if the pigment content does not exceed 3 per cent by mass; the content of inhibitors of ulstra-violet radiation is not limited.

(d) Additives serving purposes other than protection against ultra violet radiation may be included in the composition of the plastics material provided that they do not adversely affect the chemical and physical properties of the material of the packaging. In such circumstances, retesting may be waived.

(e) Appropriate steps shall be taken to ensure that the plastics material to be used in the manufacture of the packaging is chemically compatible with the goods which the packaging is intended to contain, see marginal 3551 (5).

(f) Packagings shall be manufactured from suitable plastics material of known origin and specifications; their construction shall be fully appropriate to plastics materials and in accordance with technological developments. For new packagings, no used material other than production residues or regrind from the same manufacturing process may be used.

(g) The wall thickness at every point of the packaging shall be appropriate to its capacity and intended use, taking into account however the stresses to which each point is liable to be exposed.

(h) Openings for filling, emptying and venting in the bodies or heads of non-removable head drums (1H1) and jerricans (3H1) shall not exceed 7 cm in diameter. Drums and jerricans with larger openings are considered to be of the removable head type (1H2, 3H2).

(i) Removable head drums (1H2) and jerricans (3H2) used for solid substances shall remain leakproof at every point with respect to the filling substance.

Closure devices for removable head drums and jerricans shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Gaskets shall be used with all removable heads unless the drum or jerrican design is such that, where the removable head is properly secured, the drum or jerrican is inherently leakproof.

(j) The maximum permissible permeation for inflammable liquids shall be 0.008g/1.h at 23°C (see marginal 3556).

(k) Maximum capacity of drums and jerricans:

1H1, 1H2: 450 litres

3H1, 3H2: 60 litres

(l) Maximum net mass:

1H1, 1H2: 400 kg

3H1, 3H2: 120 kg.

Boxes of natural wood

4C1 ordinary 3527

4C2 with sift-proof walls

Note: For plywood boxes, see marginal 3528: for reconstituted wood boxes, see marginal 3529.

(a) The wood used shall be well seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the box. The strength of the material used and the method of construction shall be appropriate to the capacity of the box and its intended use. The tops and bottoms may be made of water-resistant reconstituted wood such as hardboard, particle board or other suitable type.

(b) Boxes with sift-proof walls 4C2:

Each part of the box shall be in one piece or equivalent thereto. A part shall be deemed equivalent to a part in one piece if it is glued together by one of the following methods: Lindermann (dovetail) jointing, tongue-and-groove jointing, ship-lap or rabbet jointing, or butt-jointing with at least two corrugated metal fasteners at each joint.

(c) Maximum net mass: 400 kg.

Plywood boxes

4D 3528

(a) The plywood used shall have at least threee plies. It shall be made of well-seasoned rotary-cut, sliced or sawn veneer commercially dry and free from defects likely to lessen the strenght of the box. All plies shall be glued by means of a water-resistant adhesive. Other suitable materials may be used together with plywood in the manufacture of boxes. Boxes shall be firmly nailed or secured to corner posts or ends or be assembled by other equally suitable devices.

(b) Maximum net mass: 400 kg.

Reconstituted wood boxes

4F 3529

(a) The walls of boxes shall be made of water-resistant reconstituted wood such as hardboard, particle board or other suitable type. the strength of the material used and the method of construction shall be appropriate to the capacity of the box and its intended use.

(b) Other parts of the boxes may be made of other suitable material.

(c) Boxes shall be securely assembled by means of suitable devices

(d) Maximum net mass: 400 kg.

Fibreboard boxes

4C 3530

(a) Good quality solid or double-faced (single-wall or multiwall) corrugated fibreboard appropriate to the capacity and intended use of the boxes shall be used. The water-resistance of the outer surface shall be such that the increase in mass, as measured in a test carried out over a period of 30 minutes by the Cobb method of water-absorption determination, is not greater than 155 g/m² (in accordance with ISO International Standard 535 - 1976). The fibreboard shall be capable of bending sufficiently without breaking. It shall be cut, creased without scoring and slotted so as to permit assembly without cracking and without its surfaces tearing or bulging unduly. The fluting of corrugated fibreboard shall be firmly glued to the facing.

(b) Ends of boxes may have a wooden frame or be entirely of wood. Reinforcements of wooden battens may be used.

(c) Joins of boxes shall be taped with adhesive tape, be lapped and glued, or be lapped and metal-stapled. Lapped joins shall have a suitable overlap. Where closure is effected by gluing or by applying adhesive tape, the adhesive shall be water-resistant.

The dimensions of the box shall be appropriate for the contents.

(d) Maximum net mass: 400 kg.

Plastics boxes

4H1 expanded plastics boxes 3531

4H2 solid plastics boxes

(a) The box shall be manufactured from suitable plastics material and be of adequate strength in relation to its capacity and intended use. The box shall be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation.

(b) An expanded plastics box shall comprise two parts made of a moulded expanded plastics material, a bottom section containing cavities for the inner packagings and a top section covering and interlocking with the bottom section. The top and bottom sections shall be designed so that the inner packagings fit snugly. The closure cap for any inner packaging shall not be in contact with the inside of the top section of this box.

(c) For dispatch, an expanded plastics box shall be closed with a self-adhesive tape having sufficient tensile strength to prevent the box from opening. The adhesive tape shall be weather-resistant and its adhesive compatible with the expanded plastics material of the box. Other closing devices at least equally effective may be used.

(d) For solid plastics boxes, protextion againts ultra-violet radiation, if required, shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the box. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2 per cent by mass or if the pigment content does not exceed 3 per cent by mass; the content or inhibitors of ultra-violet radiation is not limited.

(e) Solid plastics boxes shall have closure devices made of a suitable material of adequate strenght and so designed as to prevent the box from unintentional opening.

(f) Additives serving purposes other than protection against ultra - violet radiation may be included in the composition of the plastics material of boxes 4H1 and 4H2 provided that they do not adversely affect the chemical and physical properties of the material. In such circumstances, retesting may be waived.

(g) Maximum net mass

4H1: 60 kg
4H2: 400 kg.

Steel or aluminium boxes

4A1 steel 3532

4A2 steel, with liner

4B1 aluminium

4B2 aluminium, with liner

(a) The strength of the metal and the construction of the box shall be appropriate to the capacity of the box and to its intended use.

(b) Boxes 4A2 and 4B2 shall be lined with fibreboard or felt packing pieces as required or shall have an inner liner or coating of suitable material. If a double seamed metal liner is used, steps shall be taken to prevent the ingress of substances into the recesses of the seams.

(c) Closures may be of any suitable type, they shall remain secured under normal conditions of carriage.

(d) Maximum net mass: 400 kg.

Textile bags

5L1 without inner lining or coating 3533

5L2 sift-proof

5L3 water-resistant

(a) The textiles used shall be of good quality. The strength of the fabric and the construction of the bag shall be appropriate to the capacity of the bag and its intended use.

(b) Bags, sift-proof, 5L2.

The bag shall be made sift-proof, for example by the use of:

paper bonded to the inner surface of the bag by a water-resistant adhesive such as bitumen; or

plastics film bonded to the inner surface of the bag; or

one or more inner liners made of paper or plastics material.

(c) Bags, water-resistant, 5L3

To prevent any entry of moisture the bag shall be made waterproof, for example by the use of:

separate inner liners of water-resistant paper (e.g. waxed kraft paper, tapped paper or plastics-coated kraft paper); or

plastics film bonded to the inner surface of the bag; or

one or more inner liners made of plastics material.

(d) Maximum net mass: 50 kg.

Woven plastics bags

5H1 without inner lining or coating 3534

5H2 sift-proof

5H3 water-resistant

(a) Bags shall be made from stretched tapes or stretched monofilaments of a suitable plastics material. The strength of the material used and the construction of the bag shall be appropriate to the capacity of the bag and its intended use.

(b) Bags may be fitted with an inner liner of plastics film or given a thin inner coating of plastics material

(c) If the fabric is woven flat, the bags shall be formed by sewing or some other method ensuring closure of the bottom and one side. If the fabric is tubular, the bottom of the bag shall be closed by sewing, weaving or some other equally strong method of closure.

(d) Bags, sift-proof, 5H2:

The bag shall be made sift-proof, for example by means by:

paper or a plastics film bonded to the inner surface of the bag; or

one or more separate inner liners made of paper or plastics material.

(e) Bags, water-resistant, 5H3

To prevent any entry of moisture, the bag shall be made waterproof, e.g. by means of:

separate inner liners of water-resistant paper (e.g. waxed kraft paper, double-tarred kraft paper or plastics-coated kraft paper);

plastics film bonded to the inner or outer surface of the bag;

or

one or more inner plastics liners.

(f) Maximum net mass: 50 kg.

Plastics film bags

5H4

(a) Bags shall be made of suitable plastics material. The strength of the material used and the construction of the bag shall be appropriate to the capacity of the bag and its intended use. Seams shall withstand pressures and impacts liable to occur in normal conditions of carriage.

(b) Maximum net mass: 50 kg.

Paper bags

5M1, multiwall

5M2, multiwall, water-resistant

(a) Bags shall be made of a suitable kraft paper or of an equivalent paper with at least three plies. The strength of the paper and the construction of the bags shall be appropriate to the capacity of the bag and its intended use. Joins and closures shall be sift-proof.

(b) Paper bags 5M2:

Water-resistant paper shall be used for the outermost ply or for the one in contact with it. Where there is a danger of the intended contents reacting to moisture, or where they are packed damp, the innermost ply also shall be water-resistant. The side seams and top and bottom closures shall be sift-proof and water-resistant.

(c) Maximum net mass: 50 kg.

Composite packagings (plastics material)

6HA1 plastics receptacle with outer steel drum

6HA2 plastics receptacle with outer steel crate* or box

6HB1 plastics receptacle with outer aluminium drum

6HB2 plastics receptacle with outer aluminium crate* or box

6HC plastics receptacle with outer wooden box

6HD1 plastics receptacle with outer plywood drum

6HD2 plastics receptacle with outer plywood box

6HG1 plastics receptacle with outer fibre drum

6HG2 plastics receptacle with outer fibreboard box

6HH plastics receptacle with outer plastics drum

(a) Inner receptacle

(1) The provisions of marginal 3526 (a) and (c) - (h) shall apply to plastics inner receptacles.

(2) The plastics inner receptacle shall fit snugly inside the outer packaging, which shall be free of any projection that might abrade the plastics material.

(3) Maximum capacity of inner receptacle:

6HA1, 6HB1, 6DH1, 6HH: 250 litres

6HA2, 6HB2, 6HD2, 6HG2: 60 litres.

(4) Maximum net mass:

6HA1, 6HB1, 6HD1, 6HG1, 6HH: 400 kg

6HA2, 6HB2, 6HC, 6HD2, 6HG2: 75 kg.

(b) Outer packaging

(1) Plastics receptacle with outer steel or aluminium drum 6HA1 or 6HB1; the provisions or marginal 3520 (a) - (i) or 3521 (a) - (d), as appropriate, shall apply to the construction of the outer packaging.

(2) Plastics receptacle with outer steel or aluminium crate or box 6HA2 or 6HB2; the provisions of marginal 3532 shall apply to the construction of the outer packaging.

(3) Plastics receptacle with outer wooden box 6HC; the provisions of marginal 3527 shall apply to the construction of the outer packaging.

(4) Plastics receptacle with outer plywood drum 6HD1; the provisions of marginal 3523 shall aply to the construction of the outer packaging.

(5) Plastics receptacle with outer plywood box 6HD2; the provisions of marginal 3528 shall apply to the construction of the outer packaging.

(6) Plastics receptacle with outer fibre drum 6HG1; the provisions of marginal 3525 (a) - (d) shall apply to the construction of the outer packaging.

(7) Plastics receptacle with outer fibreboard box 6HG2; the provisions of marginal 3530 (a) - (c) shall apply to the construction of the outer packaging.

(8) Plastics receptacle with outer plastics drum 6HH; the provisions of marginal 3526 (a) and (c) - (h) shall apply to the construction on the outer packaging.

Combination packagings

(a) Inner packagings

The following may be used:

glass, porcelain or stoneware packagings with a maximum permissible capacity of 5 litres for liquids or 5 kg for solids;

plastics packagings with a maximum permissible capacity of 30 litres for liquids or 30 kg for solids;

metal packagings with a maximum permissible capacity of 40 litres for liquids or 40 kg for solids;

paper, textile, woven plastics or plastics-film sachets and bags with a maximum permissible capacity of 5 kg for solids in sachets and 50 kg in bags;

cans, folding cartons and boxes made of fibreboard or plastics with a maximum permissible capacity of 10 kg for solids;

other types of small packagings such a tubes with a maximum permissible capacity of 1 litre or liquids or 1 kg for solids.

(b) Outer packaging

The following may be used:

outer packagings made of steel or aluminium (marginal 3532), plywood (marginal 3528), natural wood (marginal 3527), fibreboard (marginal 3530), reconstituted wood (marginal 3529) or plastics material (marginal 3531).

B. Packagings which may conform to marginal 3510 (1) or (2)

Composite packagings (glass, porcelain or stoneware)

6PA1 receptacle with outer steel drum

6PA2 receptacle with outer steel crate* or box

6PB1 receptacle with outer aluminium drum

6PB2 receptacle with outer aluminium crate* or box

6PC receptacle with outer wooden box

6PD1 receptacle with outer plywood drum

6PD2 receptacle with outer wickerwork hamper

6PG1 receptacle with outer fibre drum

6PG2 receptacle with outer fibreboard box

6PH1 receptacle with outer expanded plastics packaging

6PH2 receptacle with outer solid plastics packaging

(a) Inner receptacle

(1) The receptacle shall be suitably moulded (cylindrical or pear-shaped) and be made of good quality material free from any defect that could impair its strength. The walls shall be sufficiently thick at every point and free from internal stresses.

(2) Screw-threaded plastics closures, ground glass stoppers or closures at least equally effective shall be used as closures for receptacles. Any part of the closure likely to come into contact with the contents of the receptacle shall be resistant to those contents.

Care should be taken to ensure that the closures are so fitted as to be leakproof and are suitably secured to prevent any loosening during carriage.

If vented closures are necessary, they shall be leakproof.

(3) The receptacle shall be firmly secured in the outer packagings by means of cushioning and/or absorbent materials.

3535 3536 3537 3538 3539

* Crates are outer packagings with incomplete surfaces.

(4) Maximum capacity of receptacle: 60 litres
(5) Maximum net mass: 75 kg.
(b) Outer packaging

(1) Receptacle with outer steel drum 6PA1.

The provisions of marginal 3520 (a) - (i) shall apply to the construction of the outer packaging. The removable lid required for this type of packaging may however be in the form of a cap.

(2) Receptacle with outer steel crate or box 6PA2.

The provisions of marginal 3532 (a) - (c) shall apply to the construction of the outer packaging. For cylindrical receptacles the outer packaging should, when upright, rise above the receptacle and its closure. If the protective crate surrounds a pear-shaped receptacle and is of matching shape, the outer packaging shall be fitted with a protective cover (cap).

(3) Receptacle with outer aluminium drum 6PB1.

The provisions of marginal 3521 (a) - (d) shall apply to the construction of the outer packaging.

(4) Receptacle with outer aluminium crate or box 6PB2.

The provisions of marginal 3532 shall apply to the construction of the outer packaging.

(5) Receptacle with outer wooden box 6PC.

The provisions of marginal 3527 shall apply to the construction of the outer packaging.

(6) Receptacle with outer plywood drum 6PD1.

The provisions of marginal 3523 shall apply to the construction of the outer packaging.

(7) Receptacle with outer wickerwork hamper 6PD2.

The wickerwork hamper shall be properly made with material of good quality. It shall be fitted with a protective cover (cap) so as to prevent damage to the receptacle.

(8) Receptacle with outer fibre drum 6PG1.

The provisions of marginal 3525 (a) - (d) shall apply to the construction of the outer packaging.

(9) Receptacle with outer fibreboard box 6PG2.

The provisions of marginal 3530 (a) - (c) shall apply to the construction of the outer packaging.

(10) Receptacle with outer expanded plastics or solid plastics packaging (6PH1 or 6PH2).

The materials of both outer packagings shall meet the provisions of marginal 3531 (a) - (f). Solid plastics packaging shall be made of high density polyethylene or other comparable plastics material. The removable lid for this type of packaging may however be in the form of a cap.

C. Packagings conforming only to marginal 3510 (2)
Light gauge metal packagings
OA1 non-removable-head 3540
OA2 removable-head.

(a) The sheet metal for the body and ends shall be of suitable steel, and of a gauge appropriate to the capacity and intended use of the packaging.

(b) The joints shall be welded, at least double-seamed by welting or produced by a method ensuring a similar degree of strength and leakproofness.

(c) Inner coatings of zinc, tin, lacquer, etc., shall be tough and shall adhere to the steel at every point, including the closures.

(d) Openings for filling, emptying and venting in the bodies or heads of non-removable head (OA1) packagings shall not exceed 7 cm in diameter. Packagings with larger openings shall be considered to be of the removable-head type (OA2).

(e) The closures of non-removable-head packagings shall either be of the screw-threaded type or be capable of being secured by a screwable device or a device at least equally effective.

(f) Maximum capacity of packagings: 40 litres.
(g) Maximum net mass: 50 kg.

Section IV Test requirements for packagings

A. Design-type tests
Performance and frequency of tests 3550

(1) The design type of each packaging shall be tested and approved by the competent authority or by a body designated by that authority.

(2) Tests in accordance with (1) shall be carried out again after any modification of the design type unless the authorized testing body has agreed to the modification of the design type. In the latter event a new approval of the design type is not required.

(3) The competent authority may at any time require proof, through tests in accordance with this section, that mass-produced packagings meet the requirements of the design-type tests.

(4) For verification purposes the authorized testing body shall keep a record of the materials used, through materials testing or by retaining samples or pieces of the materials.

(5) If an inner coating is required for safety reasons, it shall retain its protective properties even after the tests.

Preparation of packagings and packages for testing 3551

(1) Tests shall be carried out on packagings and packages prepared as for despatch, including inner packagings of combination packagings. Inner or single receptacles or packagings shall be filled to not less than 95 per cent of their capacity for solids or 98 per cent for liquids. The substances to be carried in the packages may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used it shall have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected. Suitable mixtures of powdery solids, such as polyethylene or PVC powder with sawdust, fine sand etc., may be used as a substitute filling substance for substances having a viscosity in excess of 2680 mm^2/s at 23°C.

(2) In the drop tests for liquids, when another substance is used its relative density and viscosity shall be similar to those of the substance to be carried. Water may also be used for the liquid drop test under the conditions in marginal 3552 (4).

(3) Paper or fibreboard packagings shall be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which shall be chosen. The preferred atmosphere is 23° ± 2°C and 50 per cent ± 2 per r.h. The two other options are 20° ± 2°C and 65 per cent ± 2 per cent r.h. or 27 ± 2°C and 65 per cent ± 2 per cent r.h.

(4) Bung-type barrels made of natural wood shall be left filled with water for at least 24 hours before the tests.

(5) To check that their chemical compatibility with the liquids is sufficient, plastics drums and jerricans in accordance with marginal 3526 and if necessary composite packagings (plastics material) in accordance with marginal 3537 shall be subjected to storage at ambient temperature for six months, during which time the test samples shall be kept filled with the goods they are intended to carry.

For the first and last 24 hours of storage, the test samples shall be placed with the closure downwards. However, packagings fitted with a vent shall be so placed on each occasion for five minutes only. After this storage the test samples shall undergo the tests prescribed in marginals 3552 to 3556.

When it is known that the strength properties of the plastics material of the inner receptacles of composite packagings (plastics material) are not significantly altered by the action of the filling substance, it shall not be necessary to check that the chemical compatibility is sufficient.

A significant alteration in strength properties means:

(a) distinct embrittlement; or

(b) a considerable decrease in elasticity, unless related to a not less than proportionate increase in the elongation under load.

Note: Fore plastics drums and jerricans and composite packagings (plastics material) made of high molecular mass polyethylene, see also (6) below.

(6) For high molecular mass polyethylene drums and jerricans in accordance with marginal 3526 and if necessary composite packagings of high molecular mass polyethylene in accordance with marginal 3537, conforming to the following specifications:

relative density at 23°C after thermal conditioning for one hour at 100°C $\geq$ 0.940, in accordance with ISO Standard 1183, melt flow rate at 190°C/21.6 kg load $\leq$ 12 g/10 min. in accordance with ISO Standard 1133,

chemical compatibility with the liquids listed in section II of the annex to this appendix may be verified as follows with standard liquids (see section I of the annex to this appendix).

The sufficient chemical compatibility of these packagings may be verified by storage for three weeks at 40°C with the appropriate standard liquid; where this standard liquid is water, proof of chemical compatibility is not required.

For the first and last 24 hours of storage, the test samples shall be placed with the closure downwards. However, packagings fitted with a vent shall be so placed on each occasion for five minutes only. After this storage, the test samples shall undergo the tests prescribed in marginals 3552 to 3556. When a packaging design-type has satisfied the approval tests with a standard liquid, the comparable filling substances listed in section II of the annex to this appendix may be accepted for carriage without further testing, subject to the following conditions:

the relative densities of the filling substances shall not exceed that used to determine the height for the drop test and the mass for the stacking test;

the vapour pressures of the filling substances at 50°C or 55°C shall not exceed that used to determine the pressure for the internal pressure test.

(7) For drums and jerricans conforming to marginal 3526, and where necessary composite packagings conforming to marginal 3537, made of high molecular mass polyethylene, which have passed the test in paragraph (6) of this marginal, filling substances other than those listed in section II of the annex may also be approved. Such approval shall be based on laboratory tests proving that the effect of such filling substances on the test specimens is less than that of the standard liquids. The processes of deterioration to be taken into account shall be the following: softening through swelling, cracking under stress and molecular degradation. The same conditions as those set out in (6) above shall apply with respect to relative density and vapour pressure.

Drop test* 3552

(1) Number of test samples (per design type and manufacturer) and drop orientation.

For other than flat drops the centre of gravity shall be vertically over the point of impact.

Packaging	No. of test samples	Drop orientation
(a) Steel drums Aluminium drums Steel jerricans Plywood drums Wooden barrels Fibre drums Plastics drums and jerricans Composite packagings (plastics material) which are in the shape of a drum Composite packagings (glass, stoneware or porcelain) conforming to marginal 3510 (1) and which are in the shape of a drum Light gauge metal packagings	Six (three for each drop)	First drop (using three samples). the packaging shall strike the target diagonally on the chime or, if the packaging has no chime, on a circumferential seam or an edge. Second drop (using the other three samples): the packaging shall strike the target on the weakest part not tested by the first drop, for example a closure or, for some cylindrical drums, the welded longitudinal seam of the drum body.
(b) Boxes of natural wood Plywood boxes Reconstituted wood boxes Fibreboard boxes Plastics boxes Steel or aluminium boxes Composite packagings (plastics material) which are in the shape of a box Composite packagings (glass, stoneware or porcelain) conforming to marginal 3510 (1) and which are in the shape of a box	Five (one for each drop)	First drop: flat on the bottom Second drop: flat on the thop Third drop: flat on the long side Fourth drop: flat on the short side Fifth drop: on a corner
(c) Textile bags Paper bags	Three (two drops per bag)	First drop: flat on a face of the bag Second drop: on the end of the bag
(d) Woven plastics bags Plastics film bags	Three- (three drops per bag)	First drop: flat on a wide face Second drop: flat on a narrow face Third drop: on the end of the bag
(e) Composite packagings (glass, stoneware of porcelain) conforming to marginal 3510 (2) and which are in the shape of a drum or box	Three (one for each drop)	Diagonally on the bottom chime, or, if there is no chime, on a circumferential seam or the bottom edge

* See ISO Standard 2248

(2) Special preparation of test samples for the drop test:

Testing of plastics drums, jerricans and boxes in accordance with marginals 3526 and 3531, of composite packagings (plastics material) in accordance with marginal 3537 and of combination packagings with plastics inner packagings - with the exception of bags and plastics boxes - in accordance with marginal 3538 shall be carried out when the temperature of the test sample and its contents has been reduced to −18°C or lower; where test samples with an outer packaging of fibreboard are prepared in this way the conditioning specified in marginal 3551 (3) may be waived. Test liquids shall be kept in the liquid state, if necessary by the addition of anti-freeze.

(3) Target

The target shall be a rigid, non-resilient, flat and horizontal surface.

(4) Drop height

For solids:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

For liquids:

If the test is performed with water:

(a) where the substances to be carried have a relative density not exceeding 1.2

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

(b) where the substances to be carried have a relative density exceeding 1.2, the drop height shall be calculated on the basis of the relative density of the substance to be carried, rounded up to the first decimal, as follows:

Packing group I	Packing group II	Packing group III
relative density × 1.5 (m)	relative density × 1.0 (m)	relative density × 0.67 (m)

(c) for light-gauge metal packagings intended for the carriage of substances having a viscosity at 23 °C greater than 200 mm^2/s (corresponding to a flow time of 30 seconds with an ISO flow cup having a jet orifice of 6 mm diameter in accordance with ISO Standard 2431-1980):

(i) if the relative density does not exceed 1.2:

Packing group II	Packing group III
0.6 m	0.4 m

(ii) where the substances to be carried have a relative density exceeding 1.2 the drop height shall be calculated on the basis of the relative density of the substance to be carried, rounded up to the first decimal place, as follows:

Packing group II	Packing group III
relative density × 0.5 (m)	relative density × 0.33 (m)

If the test is performed with the substance to be carried or with a liquid of at least equal relative density:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

(5) Criteria for passing the test:

(a) Every packaging containing liquid shall be leakproof when equilibrium has been reached between the internal and external pressues, except for inner packagings of combination packagings or composite packagings (glass, porcelain or stoneware) when it is not necessary that the pressures be equalized.

(b) Where removable-head drums for solids undergo a drop test and their upper faces strike the target, the test sample passes the test if the entire contents are retained by an inner packaging (e.g. a plastics bag) even if the closure on the top face of the drum is no longer sift-proof.

(c) The outermost ply of a bag shall not exhibit any damage liable to effect safety in carriage.

(d) The outer packaging of a composite or combination packaging shall not exhibit any damage liable to affect safety in carriage. There shall be no leakage of the filling substance from the inner packaging.

(e) A slight discharge from the closure (s) upon impact shall not be considered to be a failure of the packaging provided that no further leakage occurs.

Leakproofness test

3553 (1) The leakproofness test shall be performed on all types of packagings intended to contain liquids: however, this test is not required for:

inner packagings of combination packagings:

inner receptacles of composite packagings (glass, porcelain or stoneware) conforming to marginal 3510 (2):

removable head packagings intended for substance with a viscosity at 23°C exceeding 200 mm2/s.

(2) Number of test samples:

Three test samples per design type and manufacturer.

(3) Special preparation of test samples for the test:

Test samples shall be pierced for entry of the compressed air at a neutral point, so as also to test the tightness of the closure. Vented closures of packagings shall be replaced by non-vented closures.

(4) Test method:

The test samples shall be immersed in water: they shall be kept under water in such a way as not to distort the result of the test. The packaging may also be covered with soap solution, heavy oil or other suitable liquid on the seams or at any other place where leakage might occur. Other methods at least equally effective may also be used.

(5) Air pressure to be applied:

Packing group I	Packing group II	Packing group III
Not less than 30 kPa	Not less than 20 KPa	Not less than 20 kPa

(6) Criterion for passing the test:

There shall be no leakage.

Internal pressure (hydraulic) test:

3554 (1) The hydraulic pressure test shall be carried out on all types of steel, aluminium and plastics packagings, and on all composite packagings intended to contain liquids. However, this test is not required for:

inner packagings of combination packagings:

inner receptacles of composite packagings (glass, porcelain or stoneware) conforming to marginal 3510 (2):

remobable head packagings intended for substances with a viscosity at 23°C exceeding 200 mm2/s.

(2) Number of test samples:

Three test samples per design type and manufacturer.

(3) Special preparation of packagings for the test. Test samples shall be pierced for entry of the pressure at neutral point, so as also to test the tightness of the closure. Vented closures of packagings shall be replaced by non-vented closures.

(4) Test method and pressure to be applied:

The packagings shall be subjected for five minutes (30 minutes in the case of plastics packagings) to a hydraulic gauge pressure not lower than:

(a) the total gauge pressure measured in the packaging (i.e. the vapour pressure of the filling substance and the partial pressure of the air or other inert gases, less 100 kPa) at 55°C, multiplied by a safety factor of 1.5: this total gauge pressure shall be determined on the basis of a maximum degree of filling in accordance with marginal 3500 (4) and a filling temperature of 15°C.

or

(b) 1.75 times the vapour pressure of the filling substance at 50°C, less 100 kPa, but a gauge pressure of not less than 100 kPa,

or

(c) 1.5 times the vapour pressure of the filling substance at 55°C, less 100 kPa, but at a gauge pressure of not less than 100 kPa.

The manner in which the packagings are maintained in place shall not distort the results of the test. Pressure shall be applied continuously and evenly. The test pressure shall be kept constant throughout the test period.

The minimum test pressure for packagings for Packing Group I shall be 250 kPa.

(5) Criterion for passing the test:

No packaging shall leak.

Stacking test.

3555 (1) All packagings other than bags and non-stackable composite packagings (glass, porcelain or stoneware) conforming to marginal 3510 (2), shall be subjected to a stacking test.

(2) Number of test samples:

Three test samples per design type and manufacturer.

(3) Test method:

The test samples shall be capable of withstanding an additional mass placed on a flat surface resting on the test sample and equivalent to the total mass of identical packages which might be stacked on it during carriage.

The duration of the test shall be 24 hours, except for plastics drums and jerricans in accordance with marginal 3526, or plastics composite packagings 6HH, intended for liquids.

The stacking height to be allowed for shall be at least 3 m.

In the stacking test account shall be taken of the highest relative density of filling substance to be approved.

Plastics drums and jerricans in accordance with marginal 3526, or plastics composite packagins (6HH), intended for liquids shall be subjected to the stacking test for a period of 28 days, with the original filling substance, at a temperature of 40°C. A stacking height of at least 3m shall be allowed for. For the test in accordance with marginal 3551 (6), a stacking test shall also be carried out with a standard liquid. The mass of the stacking load shall be determined on the basis of the highest relative density of filling substance to be approved.

(4) Criteria for passing the test:

No test sample shall leak. In composite packagings or combination packagings, there shall be no leakage of the filling substance from the inner receptacle or inner packaging.

No test sample shall show any deterioration which could adversely affect transport safety or any distortion liable to reduce its strength or cause instability in stacks of packages*.

Supplementary permeability test for plastics drums and jerricans in accordance with marginal 3526 and for composite packagings (plastics material) in accordance with marginal 3537 intended for the carriage of liquids having a flash - point $\leq$ 55°C, other than 6HA1 packagings. 3556

(1) Polyethylene packagings need be subjected to this test only if they are to be approved for the carriage of benzene, toluene, xylene or mixtures and preparations containing those substances.

(2) Number of test samples: three packagings.

3555 (3) Special preparation of the test sample for the test: the test samples are to be pre-stored with the original filling substance in accordance with marginal 3551 (5), or, for

high molecular mass polyethylene packagings, with the standard liquid mixture of hydrocarbons (white spirit) in accordance with marginal 3551 (6).

(4) Test method:

The test samples filled with the substance for which the packaging is to be approved shall be weighed before and after storage for 28 days at 23 °C and 50 per cent relative atmospheric humidity. For high molecular mass polyethylene packagings, the test may be carried out with the standard liquid mixture of hydrocarbons (white spirit) in place of benzene, toluene or xylene.

(5) Criterion for passing the test:

Permeability shall not exceed $\frac{0.008}{1.h}$

Supplementary test for natural wood bung type barrels. 3557

(1) Number of test samples:

One barrel.

(2) Test method:

Remove all hoops above the bilge of an empty barrel which has previously stood assembled for at least two days.

(3) Criterion for passing test:

The diameter of the upper part of the barrel shall not increase by more than 10 per cent.

Approval of combination packagings. 3558

Note: Combination packagings shall be tested in accordance with the provisions applicable to the outer packaging.

(1) During design-type tests of combination packagings, approval may at the same time be given for packagings:

(a) containing inner packagings of less volume;

(b) having a lower net mass than that of the design type tested.

(2) Where several types of combination packaging having different types of inner packaging have been approved, the various inner packagings may also be assembled in a single outer packaging if the sender certifies that this package meets the test requirements.

(3) Provided that the strength properties of the plastics inner packagings of a combination packaging are not significantly altered by the action of the filling substance, proof of chemical compatibility is not necessary. A significant alteration in strength properties means:

(a) distinct embrittlement,

(b) a considerable decrease in elasticity, unless related to a not less than proportionate increase in elastic elongation.

Test report. 3559

A test report giving at least the following particulars shall be drawn up:

1. Testing body;
2. Applicant;
3. Manufacturer of packaging;
4. Description of packaging (e.g. distinctive features such as material, inner lining, dimensions, wall thickness, mass, closures, colouring of plastics materials);
5. Design drawing of packaging and closures (if necessary, photographs);
6. Method of manufacture;
7. Actual capacity;
8. Permissible filling substances (in particular details of realtive densities and vapour pressures at 50 °C or 55 °C);
9. Drop height;
10. Test pressure in leakproofness test in accordance with marginal 3553;
11. Test pressure in internal pressure test in accordance with marginal 3554;
12. Stacking height;
13. Test results;
14. Marking of packaging and details to identify closures.

A copy of the test report shall be retained by the competent authority.

B. Leakfproofness test for all new or reconditioned packagings intended to contain liquids. 3560

(1) Application of the test.

Every packaging intended to contain liquids shall undergo the leakproofness test:

before it is firts used for carriage;

after reconditioning, befor it is re-used for carriage.

This test is not required for:

inner packagings of combination packagings;

inner receptacles of composite packagings (glass, porcelain or stoneware) conforming to marginal 3510 (2);

removable head packagings intended for substances with a viscosity at 23 °C exceeding 200 mm2/s;

light gauge metal packagings conforming to marginal 3510 (2).

(2) Test method.

Compressed air shall be introduced through the filling orifice of each packaging. The packaging shall be immersed in water; it shall be kept under water in such a way as not to distort the result of the test. The packaging may also be covered with soap solution, heavy oil or other suitable liquid on its seams or at any other place where leakage might occur. Other methods at least equally effective may also be used.

Packagings need not be equipped with their own closures.

(3) Air pressure to be applied:

Packing group I	Packing group II	Packing group III
Not less than 30 kPa	Not less than 20 KPa	Not less than 20 kPa

(4) Criterion for passing the test:

There shall be no leakage.

3561
-3569

Section V Transitional period

Packagings not conforming to the provisions of this appendix but which nevertheless could be used in accordance with the provisions of ADR applicable on 30 April 1985 for the corresponding substances of Classes 3, 6.1 and 8 may still be used for a transitional period of five years until 30 April 1990 for the carriage of these substances. 3570

Packagings not conforming to the provisions of this appendix, but which were used for substances not regulated by ADR on 30 April 1985 but falling under the provisions of Classes 3, 6.1 and 8 applicable from 1 May 1985, may continue to be used for a transitional period of five years until 30 April 1990 for the carriage of those substances, provided that the provisions of marginal 3500, paragraphs (1), (2), (4), (5), (6) and (7) of this appendix are complied with.

3571
-3599

ANNEX TO APPENDIX A.5

Section I

Standard liquids for verifying the chemical compatibility

of high molecular mass polyethylene packagings in accordance with marginal 3551 (6).

The following standard liquids shall be used for this plastics material.

(a) Wetting Solution for substances causing severe cracking in polyethylene under stress, in particular for all solutions and preparations containing wetting agents.

An aqueous solution of 1-10 per cent of a wetting agent shall be used. The surface tension of this solution shall be 31 to 35 mN/m at 23°C.

The stacking test shall be carried out on the basis of a relative density of not less than 1.20.

A compatibility test with acetic acid is not required if adequate chemical compatibility is proved with a wetting solution.

(b) Acetic acid for substances and preparations causing cracking in polyethylene under stress, in particular for monocarboxylic acids and monovalent alcohols.

Acetic acid in 98-100 per cent concentration shall be used.

Relative density=1.05.

The stacking test shall be carried out on the basis of a relative density not less than 1.1.

In the case of filling substances causing polyethylene to swell more than actic acid and to such an extent that the polyethylene mass is increased by up to 4 per cent, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40°C, in accordance with marginal 3551 (6) but with the original filling matter.

(c) Normal butyl acetate/normal butyl acetate - saturated wetting solution for substances and preparations causing polyethylene to swell to such an extent that the polyethylene mass in increased by up to about 4 per cent and at the same time causing cracking under stress, in particular for phyto-sanitary products, liquid paints and esters. Normal butyl acetate in 98-100 per cent concentration shall be used for preliminary storage in accordance with marginal 3551 (6).

For the stacking test in accordance with marginal 3555, a test liquid consisting of a 1 to 10 per cent aqueous wetting solution mixed with 2 per cent normal butyl acetate conforming to (a) above shall be used.

The stacking test shall be carried out on the basis of a relative density not less than 1.0.

In the case of filling substances causing polyethylene to swell more than normal cutyl acetate and to such an extent that the polyethylene mass is increased by up to 75 per cent, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40°C, in accordance with marginal 3551 (6) but with the original filling matter.

(d) Mixture of hydrocarbons (white spirit) for substances and preparations causing polyethylene to swell, in particular for hydrocarbons, esters and ketones.

A mixture of hydrocarbons having a boiling zone of 180°C-200°C, a relative density of 0.79, a flash-point above 61°C and an aromatics content of 16 to 18 per cent (C9 and higher aromatics only) shall be used.

The stacking test shall be carried out on the basis of a relative density not less than 1.0.

In the case of filling substances causing polyethylene to swell to such an extent that the polyethylene mass is increased by more than 7.5 per cent, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40°C, in accordance with marginal 3551 (6) but with the original filling matter.

(e) Nitric adic for all substances and preparations having an oxidizing effect on polyehtylene and causing molecular degradation identical to or less than 55 per cent nitric acid

Nitric acid in 55 per cent concentration shall be used.

The stacking test shall be carried out on the basis of a relative density of not less than 1.4.

In the case of filling substances more strongly oxidizing than 55 per cent nitric acid or causing degradation of the molecular mess proceed in accordance with marginal 3551 (5).

(f) Water for substances which do not attack polyethylene in any of the cases referred to under (a) to (e), in particular for inorganic acids and lyes, aqueous saline solutions, polyvalent alcohols and organic substances in aqueous solution.

The stacking test shall be carried out on the basis of a relative density of not less than 1.2.

Section II

List of substances to which the standard liquids may be regarded as equivalents in accordance with marginal 3551 (6).

Class 3

Item	Substance	Standard Liquid
A.	Substances, not toxic and not corrosive, having a flash-point below 21°C	
3°	(b) Substances having a vapour pressure at 50°C of not more than 110 kPa (1.1 bar)	
	Crude petroleums and other crude oils	Mixture of hydrocarbons
	Hydrocarbons	Miture of hydrocarbons
	Halogenated substances	*
	Alcohols	Acetic acid
	Ethers	Mixture of hydrocarbons
	Aldehydes	*
	Ketones	*
	Esters	Normal butyl acetate where the swelling effect is up to 4 per cent (mass): other cases, mixture of hydrocarbons
5°	Viscous substances: Certain colours for rotogravures and for leathers	Mixture of hydrocarbons
B.	Toxic substances having a flash-point below 21°C	
17°	(b) Methanol (methyl alcohol)	Acetic acid
D.	Substances, not toxic and not corrosive, having a flash-point between 21oC and 100°C inclusive	
31°	(c) Substances having a flash-point between 21°C and 55°C inclusive:	
	Petroleum, solvent naptha	Mixture of hydrocarbons
	White spirit (turpentine substitute)	*
	Hydrocarbons	*
	Halogenated substances	*
	Alcohols	Acetic acid
	Ethers	Mixture of hydrocarbons
	Aldehydes	*
	Ketones	*
	Esters	Normal butyl acetate where the swelling effect is up to 4 per cent (mass): other cases, mixture of hydrocarbons

	Nitrogenous substances	Mixture of hydrocarbons
32°	(c) Substances having a flash-point above 55°C, but not exceeding 100°C	
	Heavy products from distillation of petroleum	Mixture of hydrocarbons
	Heating oils, diesel oils	»
	Hydrocarbons	»
	Oxygenated substances	»
	Halogenated substances	»
	Nitrogenous substances	»
Class 6.1.		
B. Organic substances which have a flash-point of 21oC or above or are non-inflammable		
11°	Nitogenous substances having a boiling point below 200°C	
	(b) Aniline	Acetic acid
13°	Oxygenated substances having a boiling point below 200°C	
	(b) Phenol	Acetic acid
	(c) Ethylene glycol monobutyl ether	»
	Furfuryl alcohol	»
14°	Oxygenated substances having a boiling point of 200°C or above	
	(b) Cresols	»
	(c) Alkyl phenols	»
Class 8		
A. Acid substances		
Inorganic acids		
1°	(b) Sulphuric acid	Water
	Waste sulphuric acid	Mixture of hydrocarbons
2°	(b) Nitric acid containing not more than 55 per cent pure acid (HNO_3)	Nitric acid
4°	(b) Aqueous solutions of perchloric acid containing not more than 50 per cent pure acid ($HClO_4$)	Nitric acid
5°	(b) Solutions of hydrochloric acid containing not more than 36 per cent pure acid, solutions of hydrobromic acid, solutions of hydriodic acid	Water
7°	(b) Aqueous solutions of hydrofluoric acid containing not more than 60 per cent anhydrous hydrofluoric acid[1/]	Water
8°	(b) Fluoboric acid containing not more than 50 per cent pure acid (HBF_4)	Water
9°	(b) Fluosilicic acid (hydrofluosilicic acid)	Water
10°	(b) Solutions of chromic acid containing not more than 30 per cent pure acid	Nitric acid
11°	(c) Phosphoric acid	Water
Organic substances		
32°	Liquid carboxylic acids and liquid halogenated carboxylic acids and their liquid anhydrides	
	(b) Acrylic acid, formic acid, acetic acid, thioglycolic acid	Acetic acid
	(c) Methacrylic acid, propionic acid	»

[1/] Maximum 60 litres; permissible period of use two years

Item	Substance	Standard Liquid
B. Basic substances		
Inorganic substances		
42°	Solutions of alkaline substances	
	(b) Soda lye, potash lye, caustic lyes	Water
43°	(c) Ammonia solutions	Mixture of hydrocarbons
44°	Hydrazine and its aqueous solutions	
	(b) Aqueous solutions of hydrazine containing not more than 64 per cent hydrazine (N_2H_4)	
C. Other corrosive substances		
61°	Hypochlorite solutions[2/]	Nitric acid
62°	Solutions of hydrogen peroxide[3/]	
	(b), (c) Aqueous solutions containing not less than 8 per cent and not more than 60 per cent hydrogen peroxide	Water
63°	Formaldehyde solutions:	
	(c) Aqueous solutions containig not less than 5 per cent formaldehyde, even with not more than 35 per cent methanol	Water

[2/] Test to be carried out only with vent. If the test is carried out with nitric acid as the standard liquid, an acid-resistant vent shall be used. For hypochlorite solutions themselves, vents of the same design type, resistant to hypochlorite (e.g. of silicone rubber) but not resistant to nitric acid, are also permitted.
[3/] Test to be carried out only with vent.

APPENDIX A.6

REGULATIONS RELATING TO RADIOACTIVE SUBSTANCES OF CLASS 7

SECTION I - PACKAGING AND PACKAGE DESIGN REQUIREMENTS

A. General Design Requirements for Packaging and Packages

(1) The packaging shall be so designed that the package can be easily handled and can be properly secured during transport. 3600

(2) A package of gross mass 10 kg or more and up to 50 kg shall be provided with means for manual handling.

(3) A package of gross mass in excess of 50 kg shall be so designed as to enable safe handling to be done by mechanical means.

(4) The design shall be such that any lifting attachments on the package, when used in the intended manner, do not impose unsafe stresses on the structure of the package; assessment shall take account of appropriate safety factors to cover "snatch" lifting.

(5) Attachments and any other features on the outer surface of the packaging which could be used to lift the packages shall be removable or otherwise rendered inoperable for transport or shall be designed to support the weight of the package in accordance with the requirements of (4) above.

(6) The outer layer of packaging shall be so designed as to avoid, as far as practicable, the collection and the retention of water.

(7) The external surfaces of packaging shall, as far as practicable, be so designed and finished that they may be easily decontaminated.

(8) Any features added to the package at the time of transport which are not part of the package shall not reduce the safety of the package.

(9) The smallest over-all external dimension of the packaging shall not be less than 10 cm.

(10) Substances which have a critical temperature below 50°C or, at this temperature, a vapour pressure above 300 kPa (3 bar) shall be contained in receptacles which also comply with the regulations of marginals 2202 and 2211 to 2218.

B. Additional Requirements for Type A Packages

(1) The outside of every package shall incorporate a feature such as a seal, which is not readily breakable and which, while intact, will be evidence that the package has not been opened. 3601

(2) As far as practicable, packaging shall be designed so that the external surfaces are free from protruding features.

(3) The design of the packaging shall take into account the variations in temperature to which the packaging may be subjected during transport and storage. In this respect, -40°C and 70°C shall be considered as satisfactory limits to be used in the selection of the materials; special attention, however, shall be given to brittle fracture over this temperature range.

(4) The design, fabrication and manufacturing techniques for welded, brazed, or other fusion joints shall be in accordance with national or international standards or with standards acceptable to the competent authority.

(5) The package shall be capable of withstanding the effects of any acceleration, vibration or vibration resonance which may arise during normal transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole. In particular, nuts, bolts and other securing devices shall be so designed as to prevent them from becoming loose or being released unintentionally, even after repeated use.

(6) Special form radioactive substances may be considered as a component of the containment system.

(7) The design shall include a containment system closed by a positive fastening device, that is a device which cannot open by itself, can only be opened intentionally and will resist the effect of a possible increase in pressure inside the vessel.

(8) If a containment system forms a separate unit of the packaging, it shall be capable of being securely closed by a positive fastening device which is independent of any other part of the packaging.

(9) The materials of the packaging and any components or structures shall be physically and chemically compatible with each other and with the package contents; account shall be taken of their behaviour under irradiation.

(10) The design of any component of the containment system shall take into account, where applicable, the radiolytic decomposition of liquids and other vulnerable materials and the generation of gas by chemical reaction and radiolysis.

(11) The containment system shall retain its radioactive contents under the reduction of ambient pressure to 25 kPa (0.25 bar).

(12) All valves, other than pressure relief valves, through which the radioactive contents could otherwise escape shall be protected against unauthorized operation and shall be provided with an enclosure to retain any leakage from the valve.

(13) A radiation shield which encloses a component of the packaging specified as a part of the containment system shall be so designed as to prevent the unintentional release of that component from the shield. Where the radiation shield and such component within it form a separate unit, the radiation shield shall be capable of being securely closed by a positive fastening device which is independent of any other packaging structure.

(14) Any tie-down attachments on the package shall be so designed that, under both normal and accident conditions, the forces in those attachments shall not impair the ability of the package to meet the requirements of this Appendix.

(15) Type A packaging shall be so designed that, if it were subjected to the tests specified in marginal 3635 it would prevent:

(a) loss or dispersal of the radioactive contents; and

(b) any increase of the maximum radiation level recorded or calculated at the external surface for the condition before the test.

(16) Type A packaging designed for liquids shall, in addition, be adequate to meet the conditions prescribed in (15) above if the package is subjected to the tests specified in marginal 3636.

However, these tests are not required when enough absorbent material to absorb twice the volume of the liquid contents is within the containment system and:

(a) the absorbent material is within the radiation shield; or

(b) the absorbent material is outside the radiation shield, provided that it can be shown that if the liquid contents were taken up by the absorbent material the resultant radiation level at the surface of the package would not exceed 2 mSv/h (200 mrem/h).

(17) Type A packaging designed for compressed or uncompressed gases shall, in addition, prevent loss or dispersal of the radioactive contents if the package is subjected to the tests specified in marginal 3636. Packaging designed for tritium and argon-37, in gaseous form and in activities up to 7.4 TBq (200 Ci), shall be exempted from this requirement.

C. Basic Additional Requirements for Type B(U) and Type B(M) Packages

(1) Except as provided in marginal 3603 (1) (a) and 3604 (2) respectively, Type B(U) and Type B(M) packages shall be designed to meet the additional requirements specified for Type A packages in marginal 3601 (1) to (15) inclusive. 3602

(2) The packaging shall be so designed that if it were subjected to the tests in marginal 3637 it would retain sufficient radiation shielding to ensure that the radiation level at 1 m from the surface of the package would not exceed 10 mSv/h (1 rem/h) had the package contained sufficient iridium-192 to produce a radiationlevel of 100 μ Sv/h (10 mrem/h) at 1 m from the surface before the tests. Where the use of the packaging is to be restricted to particular radionuclides, those radionuclides may be used as the reference source in place of iridium-192. In addition, if the packaging is to be used for neutron emitters, an appropriate neutron reference source should also be used. It is not required that a measurement necessarily be made with a test radiation source but only that calculations be made with respect to the particular reference radiation source considered.

(3) Type B(U) and Type B(M) packages shall be so designed, constructed and prepared for shipment that, under the ambient conditions specified in (4), they shall satisfy the conditions in (a) and (b) below:

(a) Heat generated within the package by the radioactive contents will not, under normal conditions of transport (as demonstrated by the tests in marginal 3635) adversely affect the package in such a way that it will fail to meet the

applicable requirements for containment and shielding if left unattended for a period of one week. Particular attention shall be paid to the effects of heat which may:

(i) alter the arrangement, the geometrical form or the physical state of the radioactive contents or, if the material is enclosed in a can or receptacle (for example, clad fuel elements), cause the can, receptacle or material to melt;

(ii) lessen the efficiency of the packaging through differential thermal expansion or cracking or melting of the radiation shielding material;

(iii) in combination with moisture, accelerate corrosion.

(b) The temperature of the accessible surfaces of a Type B(U) or Type B(M) package shall not exceed 50°C in the shade unless the package is transported as a full load.

(4) In applying paragraph (3) (a), the following conditions shall be assumed:

(a) Ambient teperature 38°C.

(b) Insolation data according to Table I below.

In applying paragraph (3) (b), the following condition shall be assumed:

Ambient temperature 38°C.

In the case of Type B(M) packages to be transported exclusively between specified countries, alternative conditions may be assumed with the agreement of the competent authorities of these countries.

TABLE I - INSOLATION DATA

Form and location of surface	Insolation W/m² (cal/cm² for 12 hours per hour)
Flat surfaces transported horizontally:	
– base	none
– other surfaces	800
Flat surfaces not transported horizontally:	
– each surface	200[a]
Curved surfaces	400[a]

[a] Alternatively, a sine function may be used, adopting an absorption coefficient and neglecting the effects of possible reflection from neighbouring objects.

(5) Packaging which includes thermal protection for the purpose of satisfying the requirements of the thermal test specified in marginal 3637 (3) shall be so designed that such protection will remain effective if the packaging is subjected to the tests specified in marginal 3635 and marginal 3637 (2). Any such protection on the exterior of the package shall not be rendered ineffective by conditions commonly encountered in normal handling or in accidents and not simulated in the tests referred to above, e.g. by ripping, cutting, skidding, abrasion or rough handling.

D. Specific Additional Requirements for Type B(U) Packages

(1) The package shall be so designed that, if it were subjected to the tests referred to below, it would: 3603

(a) with regard to the tests specified in marginal 3635 restrict the loss of radioactive contents to not more than $A_2 \times 10^{-6}$ per hour.

(b) with regard to the tests in marginal 3637, restrict the accumulated loss of radioactive contents to not more than $A_2 \times 10^{-3}$ in a period of one week.

Where mixtures of different radionuclides are present, the provisions of marginal 3691 shall apply.

For (a) above, the evaluation shall take into account the external contamination limitations of marginal 3651. For both (a) and (b) above, the A_2 values for noble gases shall be those for the uncompressed state.

(2) Compliance with the permitted acitivty release limits shall depend neither upon filters nor upon a mechanical cooling system.

(3) A package shall not incorporate a feature which is intended to allow continuous venting during transport.

(4) The package shall not include a pressure relief system from the containment system which would allow the release of radioactive substances to the environment under the conditions of the tests specified in marginals 3635 and 3637.

(5) Where the maximum normal operating pressure (see marginal 2700 (2)) of the containment system added to any differential pressure below mean sea-level atmospheric pressure to which any component of the packaging specified as part of the containment system may be subjected exceeds 35 kPa (0.35 bar), that component shall be capable of withstanding a pressure of not less than one and a half times the sum of those pressures; the stress at this latter pressure shall not be more than 75 per cent of the minimum yield strength and not more than 40 per cent of the ultimate strength of that component at the maximum expected operating temperature.

(6) With the package at the maximum normal operating pressure (see marginal 2700 (2) subjected to the thermal test specified in marginal 3637 (3), the pressure in any component of the packaging specified as a part of the containment system shall be demonstrated not to exceed the pressure which corresponds to the minimum yield strength of that component at the maximum temperature which it would be expected to reach in the test.

(7) The package shall not have a maximum normal operating pressure (see marginal 2700 (2)) in excess of 0.7 MPa (7 bar) (gauge).

(8) The maximum temperature of any surface readily accessible during transport of the package shall not exceed 82°C in the shade under normal conditions of transport (see also marginal 3602 (3) (b) above).

(9) The containment system of a package containing liquid shall not be impaired if the package is subjected to a temperature of -40°C under normal conditions of transport.

E. Additional Requirements for Type B(M) Packages

(1) In addition to the requirements of marginal 3602, Type B(M) packages shall, as far practicable, meet the additional specific requirements for Type B(U) packages given in marginal 3603. 3604

(2) A Type B(M) package shall be so designed that, if it were subjected to the tests referred to in Table II it would restrict the loss of radioactive contents to not more than the activity limits specified in Table II. The evaluation with respect to the tests specified in marginal 3635 shall take into account the external contamination limitations of marginal 3651.

TABLE II - ACTIVITY LIMITS FOR LOSS OF RADIO ACTIVE CONTENTS FROM TYPE B(M) PACKAGES

Conditions	Type B(M) packages not designed for continuous venting	Type B(M) packages specially designed to allow continuous venting
After the tests in marginal 3635	$A_2 \times 10^{-6}$ per hour	$A_2 \times 5 \times 10^{-5}$ per hour
After the tests in marginal 3637	Krypton-85: 370 TBq (10 000 Ci) in 1 week Other radionuclides: A_2 in 1 week	Krypton-85: 370 TBq (10 000 Ci) in 1 week Other radionuclides: A_2 in 1 week

The A_2 values used for noble gases shall be for the uncompressed state. Where mixtures of radionuclides are present the provisions of marginal 3691 shall apply.

(3) If the pressure in the containment system of a Type B(M) package could result in stress exceeding, under the conditions of the tests in marginals 3635 and 3637, the minimum yield strength of any structural material of the containment system at the temperature which it would be expected to reach in the tests, the packaging shall be equipped with a presure relief system to ensure that that minimum yield strength is not exceeded.

3605 -3609

SECTION II - FISSILE SUBSTANCES 3610

A. Exemptions of Fissile Substances from Fissile Class Package Prescriptions

Packages containing radioactive substances which are also fissile substances except for the cases specified in (a) to (g) below, shall be designed to comply with the requirements of this section.

(a) Packages containing individually not more than 15 g of uranium-233, uranium-235, plutonium-238, plutonium-239, plutonium-241, or 15 g of any combination of these radionuclides, provided that the smallest external dimension of the package is not less than 10 cm. When material is transported in bulk, the quantity limitations shall apply to the vehicle.

(b) Packages containing only natural or depleted uranium which has been irradiated in thermal reactors only.

(c) Packages containing homogeneous hydrogenous solutions or mixtures satisfying the conditions listed in Table III. When material is transported in bulk, the quantity limitations shall apply to the vehicle.

TABLE III - LIMITATIONS ON HOMOGENEOUS HYDROGENOUS SOLUTIONS OR MIXTURES

Parameters	Any other fissile substances (including mixtures)	235_U only
Minimum H/X[a/]	5200	5200
Maximum concentration of fissile nuclide in g/l	5	5
Maximum mass of fissile nuclide in g/package	500	800[b/]

[a/] Where H/X is the ration of the number of hydrogen atoms to the number of atoms of fissile nuclide.

[b/] With a tolerance for Pu and 233_U of not more than 1 per cent of the mass of 235_U.

(d) Packages containing uranium enriched in uranium-235 to a maximum of 1 per cent by mass, and with a total plutonium and uranium-233 content of up to 1 per cent of the mass uranium-235, provided, that the fissile substances are distributed homogeneously throughout the material. In addition, if uranium-235 is present in metallic or oxide forms, it shall not form a lattice arrangement within the package.

(e) Packages containing any fissile substances provided that they do not contain more than 5 g of fissile substances in any 10-litre volume. The substances shall be packed in packages which will maintain the limitations on fissile substances distribution during normal transport.

(f) Packages containing individually not more than 1 kg of total plutonium, of which not more than 20 per cent by mass may consist of plutonium-239, plutonium-241, or any combination of those radionuclides.

(g) Packages containing liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2 per cent by mass, with a tolerance for plutonium and uranium-233 of up to 0.1 per cent of the mass or uranium-235.

The packages shall also comply with the other relevant parts of this Appendix.

B. General Provisions for Nuclear Safety

(1) All fissile substances shall be packed and shipped in such a manner that criticality[1/] cannot be reached under any foreseeable circumstances of transport. In particular, the following contingencies shall be considered: 3611

(a) water leaking into or out of packages;

(b) the loss of efficiency of built-in neutron abosrbers or moderators;

(c) possible rearrangement of contents into more reactive arrays, either within the package or as a result of loss from the package;

(d) reduction of spaces between packages or contents;

(e) packages becoming immersed in water or buried in snow;

(f) possible increase of reactivity due to temperature changes;

(2) In addition, for irradiated nuclear fuel or unspecified fissile substances the following assumptions shall be made:

(a) Irradiated nuclear fuel for which the degree of irradiation is not known and whose reactivity decreases with burn-up shall be regarded as unirradiated for criticality control. If its reactivity increases with burn-up, it shall be regarded as irradiated to the point of maximum reactivity. The reactivity of nuclear fuel for which the degree of irradiation is known may be assessed accordingly.

(b) For unspecified fissile substances such as residues or scrap whose inrichment, mass, concentration, moderation ratio or density is not known or cannot be identified, the assumption shall be that each parameter that is not known has the value which gives the maximum reactivity under credible conditions.

(3) Packages of fissile substances, except as provided in marginal 3610, shall be classified as follows:

(a) Fissile Class I: packages which are nuclearly safe in any number and in any arrangement under all foreseeable circumstances of transport;

(b) Fissile Class II: packages which, in limited number, are nuclearly safe in any arrangement under all foreseeable circumstances of transport;

(c) Fissile Class III: packages which are nuclearly safe under all foreseeable circumstances of transport by reason of special precautions, or special administrative or operational controls imposed upon the transport of the consignment.

C. Provisions Specific to Fissile Class I Packages

(1) Each Fissile Class I package shall be so designed that, if it were subjected to the tests specified in marginal 3635: 3612

(a) water would not leak into or out of any part of the package unless water inleakage to, or outleakage from, that part, to the optimum foreseeable extent, has been assumed for the purposes of marginal 3614 (1); and

(b) the configuration of the contents and the geometry of the containment system would not be altered so as to increase the reactivity significantly.

[1/] In applying criticality data, obtained by either calculation or experiment, to the criticality clearance of transport packages, allowance shall be made separately for any inaccuracy in the data or uncertainty concerning their validity.

(2) Fissile Class I packages shall satisfy the nuclear safety criteria specified in marginals 3613 and 3614.

1. For the individual package considered in isolation

(1) The following conditions shall be assumed: 3613

(a) the package is "damaged" (for this purpose "damaged" shall mean the evaluated or demonstrated condition of the package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3), followed by that in marginal 3638 or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting); and

(b) water can leak into or out of all void spaces of the package including those within the containment system, except that, where the package design incorporates special features to prevent the leakage of water into or out of certain void spaces even as a result of human error, absence of leakage may be assumed in respect of those void spaces. Such special features may include either:

(i) multiple high standard water barriers, each of which would remain leaktight if the package were subjected to the combinations of tests specified in paragraph (1)(a); or

(ii) high degree of quality control in the production and maintenace of packaging, coupled with special tests to demonstrate closure of each package before shipment.

(2) The package shall be sub-critical by an adequate margin[2/] under the conditions specified in paragrafph (1), the physical and chemical characteristics being taken into account, including any change in those characteristics which could occur under the conditions of paragraph (1), and with the conditions of moderation and reflection as specified below:

(a) with the substances within the containment system;

(i) the most reactive configuration and moderation foreseeable under the conditions of paragraph (1);

(ii) close full water reflection of the containment system or such greater reflection of the containment system as may additionally be provided by the surrounding material of the packaging, and, in addition,

(b) if any part of the substances escapes from the containment system under the conditions of paragraph (1):

(i) the most reactive configuration and moderation considered credible:

(ii) close full water reflection of the substances.

2. For consignments of one or more packages

(1) Any number of undamaged packages of one design in any arrangement shall be sub-critical; for this purpose "undamaged" shall mean the condition in which the packages are designed to be presented for transport. 3614

(2) Two hundred any fifty such packages when "demaged" shall be sub-critical if stacked together in any arrangement and closely reflected on all sides of the stack by the equivalent of water (for this purpose "damaged" shall mean the evaluated or demonstrated condition of the package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3), followed by that in marginal 3638, or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting). Hydrogenous moderation[3/] between packages, and water leakage into or out of the packages consistent with the test results shall be assumed to the extent which results in the greatest reactivity.

[2/] For example, if mass of fissile substance is an appropriate parameter for control, an adequate margin would be represented by limiting the mass to 80 per cent of that mass which would be critical in a similar system.

[3/] The hydrogenous moderation may be considered to consist of either a uniform layer of full density water surrounding each package of water at an appropriate density homogeneously interspersed between packages.

3. Examples of package designs requiring multilateral approval

Example I

(The calculation shall be based on the following require- 3615
ments:

(a) Each individual package shall comply with the criteria under marginals 3612 and 3613.

(b) The package, whether damaged or undamaged, shall be such as to shield the fissile contents from thermal neutrons.

(c) When a parallel beam of neutrons having an energy spectrum as specified in Table IV is incident at any angle on an undamaged package, the surface multiplication factor for epithermal neutrons, i.e. the ratio of the number of epithermal neutrons leaving the package to the number of epithermal neutrons entering the package, shall be less than one, and the energy spectrum of the neutrons that are emitted by the package in an infinite array shall be no harder than that of the incident neutron.

(d) The package design shall comply with the criteria in marginal 3614 (2).

TABLE IV - NEUTRON ENERGY SPECTRUM[4/]

Neutron energy E	Fractions of neutrons with energy less than E
11.0 MeV	1.000
2.4 MeV	0.802
1.1 MeV	0.590
0.55 MeV	0.460
0.26 MeV	0.373
0.13 MeV	0.319
43 keV	0.263
10 keV	0.210
1.6 keV	0.156
0.26 keV	0.111
42 eV	0.072
5.5 eV	0.036
0.4 eV	0

[4/] The spectrum is the epithermal portion of the equilibrium spectrum emergent from packages incorporating 5 cm thickness of wood in a critical array of such packages.

4. Examples of package designs requiring unilateral approval

Example I

(1) The packaging shall be constructed so that the fissile 3616
contents are surrounded by a layer of material capable of absorbing all thermal neutrons incident on it[4/] and this neutron absorbent layer is then surrounded by a thickness of at least 10.2 cm of wood having a minimum hydrogen content of 6.5 per cent by mass, so that the minimum external dimension over the wood is 30.5 cm.

(2) The packaging shall be so constructed that when "damaged" (for this purpose "damaged" shall have the meaning assigned in marginal 3613 (1)) the fissile contents will remain surrounded by the neutron absorbent layer, the neutron absorbent layer will remain surrounded by the wood, and wood will not be lost to an extent which would reduce the thickness of the remaining wood to less than 9.2 cm or reduce the minimum external dimension over the remaining wood to less than 28.5 cm.

[4/] This layer may consist of cadmium at least 0.38 mm thick equivalent to 0.325 g cadmium per cm^2.

(3) The contents shall not exceed that permissible mass of fissile substances shown in Tables V to XIII which is consistent with: (a) the nature of the substances; (b) the maximum moderation; and (c) the maximum diameter (or volume) which could occur if the package were "damaged" (for this purpose "damaged" shall have the meaning assigned in marginal 3613 (1)).

Note: A detailed calculation for a given package design in accordance with the method set out in marginal 3615 can give less restrictive values than those in Tables V to XIII.

Appendix A.6

TABLE V

AQUEOUS SOLUTIONS OF URANYL[a/] FLUORIDE OR URANYL[a/] NITRATE

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
10.16							No limit							
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
2	0.152	0.380	0.66	1.01	1.47	2.00	2.66	3.50	4.64	6.64	7.62	9.39	11.3	13.3
3	0.084	0.223	0.416	0.65	0.93	1.25	1.58	1.96	2.34	2.74	3.16	3.57	3.99	4.42
4	0.084	0.120	0.157	0.193	0.231	0.274	0.356	0.498	0.73	1.05	1.47	2.02	2.70	3.55
5	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.495	0.57	0.66	0.74	0.84	0.92	1.02
7	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.347	0.406	0.467	0.53	0.60	0.66	0.73
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498

[a/] Uranium which includes no U^{233} and no more than 93.5 per cent U^{235} by mass

Appendix A.6

TABLE VI

NON-HYDROGENOUS URANIUM[a/] COMPOUNDS OR MIXTURES IN WHICH THE URANIUM-235 CONCENTRATION DOES NOT EXCEED 4.8 g/cm³ [b/]

(Including unmoderated uranium metal of uranium-235 enrichment not exceeding 25 per cent by weight)

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than 0.6 g/cm³ kg uranium per package
10.16	No limit
No limit	0.69

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than g/cm³ 0.65	0.7	0.75	0.8	0.85	0.9
	kg uranium per package					
3	7.0	10.0	12.2	14.5	14.5	14.5
4	4.8	7.8	7.8	7.8	7.8	7.8
5	3.63	3.63	3.63	3.63	3.63	3.63
7	1.41	1.41	1.41	1.41	1.41	1.41
No limit	0.69	0.69	0.69	0.69	0.69	0.69

[a/] Uranium which includes no U^{233} and no more than 93.5 per cent U^{235} by mass

[b/] Mixtures containing beryllium or deuterium are excluded and mass of carbon shall not exceed five times the allowed mass of uranium

TABLE VII

NON-HYDROGENOUS URANIUM[a/] COMPOUNDS OR MIXTURES IN WHICH THE URANIUM-235 CONCENTRATION DOES NOT EXCEED 9.6 g/cm³ [b/]

(Including unmoderated uranium metal of uranium-235 enrichment not exceeding 50% by weight)

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
7.5	No limit													
8	6	No limit												
8.5	6	7	8	No limit										
9	6	7	8	9.2	10	11	No limit							
9.5	6	7	8	9.2	10	11	12	14	15	No limit				
10	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0
3	7	8	9.2	10	11	12	14	14.5
4	4.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
5	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
7	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69

[a/] Uranium which includes no U^{233} and no more than 93.5 per cent U^{235} by mass

[b/] Mixtures containing beryllium or deuterium are excluded and the mass of carbon shall not exceed five times the allowed mass of uranium.

TABLE VIII

UNMODERATED URANIUM[a] METAL

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
6	—						No Limit							
6.5	6	7	—					No Limit						
7	6	7	8	9.2	10	—				No limit				
7.5	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
10	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
No limit[b]	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	1.0	1.05	1.1	1.15	1.2	1.25	
	kg uranium per package													
2	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19
3	6	7	8	9.2	10	11	12	14	14.5	14.5	14.5	14.5	14.5	14.5
4	6	7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
5	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
7	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
No limit	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
No limit[b]	6	7	8	9.2	10	11	12	14	15	16	17	17	17	19

[a] Uranium which includes no U^{233} and no more than 93.5 per cent U^{235} by mass

[b] These enhanced masses apply where the fissile substances are in the form of massive metal pieces weighing not less than 2 kg each and free from re-entrant surfaces.

Appendix A.6

TABLE IX

URANIUM[a] COMPOUNDS OR MIXTURES IN WHICH THE URANIUM CONCENTRATION DOES NOT EXCEED $\frac{26.44}{H/U + 1.41}$ g/cm³

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle														
Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
6	—						No Limit							
6.5	2.80	6.0	—					No limit						
7	2.80	6.0	6.0	6.0	6.0	—				No limit				
7.5	2.80	6.0	6.0	6.0	6.0	6.0	6.0	14	15	15.2	15.2	15.2	15.2	15.2
10	0.330	0.87	1.10	1.80	2.50	3.50	4.6	7.1	7.7	9.6	11.6	13.8	16.1	18.3
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498
2. Limited by maximum internal volume of inner receptacle														
Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.85	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
2	0.152	0.380	0.66	1.01	1.47	2.00	2.66	3.50	4.64	6.04	7.62	9.39	11.3	13.3
3	0.084	0.223	0.416	0.65	0.93	1.25	1.58	1.96	2.34	2.74	3.16	3.57	3.99	4.42
4	0.084	0.120	0.157	0.193	0.231	0.274	0.356	0.498	0.73	1.05	1.47	2.02	2.70	3.55
5	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.495	0.57	0.66	0.74	0.84	0.92	1.02
7	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.347	0.406	0.467	0.53	0.60	0.66	0.73
No limit	0.084	0.120	0.157	0.193	0.231	0.267	0.301	0.335	0.370	0.400	0.429	0.456	0.478	0.498

[a] Uranium which includes no U^{233} and no more than 93.5 per cent U^{235} by mass

TABLE X

NON-HYDROGENOUS PLUTONIUM COMPOUNDS OR MIXTURES IN WHICH THE PLUTONIUM-239 CONCENTRATION DOS NOT EXCEED 10 g/cm³ [a]

Permissible mass of plutonium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.95	1.05	1.1	1.15	1.25
	kg plutonium per package									
6						No limit				
6.5	3.60	4.2					No limit			
7	3.60	4.2	4.7	5.3				No limit		
7.5	3.60	4.2	4.7	5.3	5.9	7.1			No limit	
10	3.60	4.2	4.7	5.3	5.9	7.1	8.3	8.3	8.6	8.9
No limit	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8
	kg plutonium per package				
3	3.60	4.2	4.7	5.3	5.9
4	3.60	3.84	3.84	3.84	3.84
5	2.44	2.44	2.44	2.44	2.44
7	1.20	1.20	1.20	1.20	1.20
No limit	0.405	0.405	0.405	0.405	0.405

[a] Mixtures containing beryllium and deuterium are excluded and the mass of carbon shall not exceed 1/10 of the allowed mass of plutonium.

Appendix A.6

TABLE XI

UNMODERATED PLUTONIUM METAL

Permissible mass of plutonium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85
	kg plutonium per package					
4	3.20			No limit		
10	3.20	3.60	3.90	4.2	4.4	4.5
No limit	0.405	0.405	0.405	0.405	0.405	0.405
No limit[a]	3.20	3.60	3.90	4.2	4.4	4.5

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85
	kg plutonium per package					
3	3.20	3.60	3.90	4.2	4.4	4.5
4	3.20	3.60	3.84	3.84	3.84	3.84
5	2.44	2.44	2.44	2.44	2.44	2.44
7	1.20	1.20	1.20	1.20	1.20	1.20
No limit	0.405	0.405	0.405	0.405	0.405	0.405
No limit[a]	3.20	3.6	3.90	4.2	4.4	4.5

[a] These enhanced masses apply where the fissile substances are in the form of massive metal pieces weighing not less than 2 kg each and free from re-entrant surfaces.

Appendix A.6

TABLE XII

PLUTONIUM COMPOUNDS OR MIXTURES IN WHICH THE PLUTONIUM CONCENTRATION DOES NOT EXCEED $\frac{26.56}{H/Pu+1.35}$ g/cm³

Permissible mass of plutonium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
4						No limit								
5	3.2	3.60	3.90	4.2	4.4	No limit								
6	2.80	3.60	3.90	4.2	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
6.5	2.50	3.40	3.80	4.2	4.4.	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
7	2.20	3.10	3.70	4.2	4.4.	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
7.5	1.90	2.70	3.40	4.1	4.4.	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
8	1.60	2.30	3.0	3.80	4.4.	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
8.5	1.30	1.80	2.40	3.20	3.80	4.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
9	0.97	1.30	1.80	2.40	3.00	3.40	3.60	3.80	4.0	4.2	4.4	4.4	4.4	4.4
9.5	0.65	0.88	1.20	1.50	1.90	2.20	2.40	2.60	2.80	3.10	3.60	4.4	4.4	4.4
10	0.330	0.42	0.50	0.58	0.70	0.83	0.99	1.20	1.50	1.90	2.70	3.90	4.5	4.5
No limit	0.022	0.053	0.084	0.114	0.143	0.171	0.199	0.226	0.250	0.274	0.294	0.311	0.327	0.339

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
2	0.152	0.309	0.52	0.80	1.16	1.59	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
3	0.047	0.133	0.247	0.380	0.700	0.76	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
4	0.022	0.076	0.095	0.133	0.700	0.700	0.700	0.700	0.700	0.89	1.19	1.55	1.98	2.47
5	0.022	0.053	0.085	0.118	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
7	0.022	0.053	0.084	0.114	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700	0.700
No limit	0.022	0.053	0.084	0.114	0.143	0.171	0.199	0.226	0.250	0.274	0.294	0.311	0.327	0.339

TABLE XIII

AQUEOUS SOLUTIONS OF URANIUM-233 NITRATE OR URANIUM-233 FLUORIDE

Permissible mass of uranium per package as a function of the packaging wood density

1. Limited by maximum internal diameter of inner receptacle

Inner receptacle diameter not exceeding (cm)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
9						No limit								
9.5	0.035	0.067	No limit											
10	0.035	0.067	0.100	No limit										
No limit	0.035	0.067	0.100	0.134	0.169	0.200	0.231	0.261	0.289	0.316	0.340	0.361	0.371	0.391

2. Limited by maximum internal volume of inner receptacle

Inner receptacle volume not exceeding (l)	Wood density not exceeding 1.25 g/cm³ and not less than (g/cm³) 0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	1.2	1.25
	kg uranium per package													
2	0.152	0.309	0.475	0.71	0.99	1.33	1.71	2.11	2.54	2.99	3.44	3.94	4.41	4.8
3	0.085	0.133	0.180	0.228	0.285	0.332	0.389	0.446	0.50	0.56	0.60	0.67	0.73	0.78
4	0.085	0.109	0.133	0.175	0.213	0.256	0.304	0.356	0.408	0.460	0.51	0.57	0.63	0.69
5	0.035	0.076	0.114	0.152	0.190	0.223	0.256	0.292	0.323	0.356	0.389	0.422	0.453	0.484
7	0.035	0.073	0.109	0.142	0.175	0.204	0.235	0.263	0.289	0.318	0.342	0.368	0.394	0.420
No Limit	0.035	0.067	0.100	0.134	0.169	0.200	0.231	0.261	0.289	0.316	0.340	0.361	0.377	0.391

D. Provisions Specific to Fissile Class II Packages

(1) Each Fissile Class II package shall be designed so 3617
that if it were subjected to the tests specified in marginal 3635:

(a) Neither the volume nor any spacing on the basis of which nuclear safety for the purpose of marginal 3619 (a) has been assessed would suffer more than 5 per cent reduction, and the construction of the package would not permit the entry of a 10 cm cube.

(b) Water would not leak into or out of any part of the package unless water inleakage to, or outleakage from, that part, to the optimum foreseeable extent had been assumed in assessing the allowable number for the purpose of marginal 3619 (a).

(c) The configuration of the contents and the geometry of the containment system would not be altered so as to increase the reactivity significantly.

(2) Fissile Class II packages shall satisfy the nucler safety criteria described in marginals 3618 and 3619.

1. The individual package considered in isolation.

(1) The following conditions shall be assumed: 3618

(a) the package is damaged (for this purpose "damaged" shall mean the evaluated or demonstrated condition of the package if it has been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3), followed by that in marginal 3638 or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting): and

(b) water can leak into or out of all void spaces of the package, including those within the containment system, except that, where the package design incorporates special features to prevent the leakage of water into or out of certain void spaces even as a result of human error, absence of leakage may be assumed in respect of those void spaces. Such special features may include either:

(i) multiple high-standard water barriers, each of which would remain leaktight if the package were subjected to the combinations of tests specified in paragraph (1) (a): or

(ii) a high degree of quality control in the production and maintenance of packaging, coupled with special tests to demonstrate closure of each package before shipment.

(2) The package shall be sub-critical by an adequate margin (see foll-note 2) under the conditions specified in paragraph (1), the physical and chemical characteristics being taken into account, including any change in those characteristics which could occur under the conditions of paragraph (1), and with the conditions of moderation and reflection as specified below:

(a) with the substances within the containment system:

(i) the most reactive configuration and moderation foresseable under the conditions of paragraph (1):

(ii) close full water reflection of the containment system or such greater reflection of the containment system as may additionally be provided by the surrounding material of the packaging and, in addition,

(b) if any part of the substances escapes from the containment system under the conditions of paragraph (1):

(i) the most reactive configuration and moderation considered creadible:

(ii) close full water reflection of the substances.

2. Consignments of one or more packages

An "allowable number" shall be derived for each Fissile 3619
Class II package design, such that:

(a) five times the allowable number of undamaged packages shall be sub-critical if stacked together in any arrangement without anything between the packages, close reflection on all sides of the stack by the equivalent of water being assumed: for this purpose "undamaged" shall mean the condition in which the packages are designed to be presented for transport: and

(b) twice the allowable of such packages when damaged shall be sub-critical if stacked together in any arrangement and closely reflected on all sides of the stack by the equivalent of water (for this purpose "damaged" shall mean the evaluated or demonstrated condition of each package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3) followed by that in marginal 3638, or to the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting); hydrogenous moderations[3] between packages and water leakage into or out of the packages consistent with test results shall be assumed to the extent which results in the greatest reactivity.

3. Examples of package designs requiring no competent authority approval

Example I (requiring multilateral approval of shipment) 3620
Packages for Fissile Class II require to competent authority approval of package design provided that the following conditions are met:

(a) Packaging: the criticality safety of these consignments does not depend upon the integrity of the packaging. Any packaging which complies with the other relevant requirements of Class 7 with respect to the non-fissile radioactive characteristics may, therefore, be used.

(b) Contents - uranium metal, compounds and/or mixtures: the contents of any consignment consisting of the "allowable number" of packages shall not exceed the permissible mass of uranium-235 given in Table XIV per consignment as a function of enrichment for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing of wrapping.

(c) Contents - uranium metal, compounds and/or mixtures not forming a lattice: the contents of any consignment consisting of the allowable number of packages shall not exceed the permissible mass of uranium-235 given in Table XV per consignment as a function of enrichment for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

TABLE XIV - PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in mass per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium-235
93	160
75	168
80	176
40	184
30	192
20	203
15	224
11	240
10	256
9.5	262
9	270

TABLE XIV - PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in mass per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium-235
8.5	276
8	284
7.5	294
7	300
6.5	312
6	324
5.5	340
5	360
4.5	380
4	400
3.5	440
3	500
2.5	600
2	820
1.5	1.360
1.35	1.600
1	3.400
0.92	6.000

(v) The fissible substances shall be distributed homogeneously throughout the contents. In addition, the substances shall not form a lattice arrangement within the package.

TABLE XV - PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in mass per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium-235
4	420
3.5	460
3	560
2.5	740
2	1.200
1.5	2.800
1.35	4.000

(d) Contents - uranium and/or plutonium metal, compounds and/or mixtures: the substances shall satisfy the following conditions:

(i) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(ii) The total mass of graphite present shall not exceed 150 times the total mass of uranium and plutonium.

(iii) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, etc., shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

The total mass of fissile substances per consignment shall be such that:

$$\frac{235_{U\ (grams)}}{160} + \frac{Pu_{(grams)}}{90} + \frac{233_{U\ (grams)}}{100} \text{ is not greater than } 1$$

(e) Allowable number: the allowable number for a particular package to this specification will depend on the actual contents and is equal to the fissile mass limit per consignment divided by the actual fissile mass present in the package. In the case of the mixed nuclides in (d) above, the allowable number is:

$$\frac{160}{235_U + 1.6 \times 233_U + 1.778 \times Pu}$$

where 235_U, 233_U and Pu are the numbers of grams of 235_U, 233_U and Pu present in the package. Where the package forms part of a mixed consignment the requirements of foot-note 1 to marginal 2700 (2) be met.

(f) Shipment shall be subject to multilateral approval.

E. Provisions Specific to Fissile Class III Packages

Fissile Class III packages shall meet the general requirements of marginal 3611 and shall be approved in accordance with marginals 3674 and 3675. 3621

1. Examples of package designs requiring unilateral approval

Example I (requiring multilateral approval of shipment)

Packages to the following specification require only unilateral approval of the package design provided that the following conditions are fulfilled: 3622

(a) The number of packages in any one consignment shall be so limited that:

(i) twice this number of undamaged packages shall be sub-critical if stacked together in any arrangement without anything between the packages, assuming close reflection on all sides of the stack by the equivalent of water; for this purpose "undamaged" shall mean the condition in which the packages are designed to be presented for transport; and

(ii) this number of packages when "damaged" shall be sub-critical if stacked together in any arrangement and closely reflected on all sides of the stack by the equivalent of water (or this purpose "damaged" shall mean the evaluated or demonstrated condition of each package if it had been subjected either to the tests specified in marginals 3635 and 3637 (1) to (3) followed by that in marginals 3638 or the tests specified in marginals 3635 and 3637 (4), whichever combination is the more limiting). Hydrogenous moderation 3/ between the packages and water leakage into or out of the packages consistent with test results shall be assumed to the extent which results in the greatest reactivity.

(b) Shipment of these packages shall be made only under arrangements approved by the competent authorities in conformity with marginal 3675, so as to prevent loading, transport of storage of these packages with other labelled packages of radioactive material.

2. Examples of fissile package design requiring no competent authority approval

Example I (requiring multilateral approval of shipment).

Packages to the following specification for fissile Class III require no competent authority approval of package design provided the following conditions are met: 3623

(a) The package is currently approved as a Fissile Class II package and the number in any one consignment does not exceed twice the allowable number associated with the Fissile Class II approval.

(b) Shipment of these packages shall be made only under arrangements approved by the competent authorities in conformity with marginal 3675, so as to prevent loading, transport or storage of these packages with otehr Fissile Class II or Class III packages. Examples of such arrangements are:

(i) no other labelled packages of radioactive substances may be carried with the consignment in the same vehicle, and

(ii) either transport shall be direct to the consignee without any intermediate transit storage; or

controls shall be imposed, by the provision of an escort, to prevent the packages of the consignment from being stacked with or allognside any other packages of radioactive substances after an accident, or at any other time. The escort shall travel in a separate vehicle.

Example II (requiring multilateral approval of shipment) 3624

Packages for Fissile Class III require no competent authority approval of package design provided that the following conditions are met:

(a) Packaging: the criticality safety of these consignments does not depend upon the integrity of the packaging. Any packaging which complies with the other relevant requirements of this Appendix may therefore be used, provided it does not incorporate lead exceeding 5 cm in thickness, tungsten or uranium shielding.

(b) Contents - uranium metal, compounds and/or mixtures: the contents of any consignment shall not exceed the permissible mass of uranium-235 given in Table XVI per consignment as a function of enrichment for substances satisfying the following conditions:

(i) Uranium-233 shall not be present.

(ii) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mas of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyehtylene for packing or wrapping.

Appendix A.6

TABLE XVI – PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in mass per cent of uranium-235 not exceeding	Permissible mass per consignment grams of uranium -235
93	400
75	420
60	440
40	460
30	480
20	520
15	560
11	600
10	640
9.5	655
9	675
8.5	690
8	710
7.5	730
7	750
6.5	780
6	810
5.5	850
5	900
4.5	950
4	1.000
3.5	1.100
3	1.250
2.5	1.500
2	2.050
1.5	3.400
1.35	4.000
1	8.500
0.92	15.000

(c) Contents - uranium metal, compounds and/or mixtures not forming a lattice: Table XVII ginves the permissible mass of uranium-235 per consignment as a function of enrichment, for substances satisfying the following conditions:

(i) Uranium -233 shall not be present.

(ii) Berullium and hydrogenous meteral enriched in deuterium shall not be present.

(iii) The total mass of graphite present shall not exceed 150 times the total mass of uranium-235.

(iv) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

Appendix A.6

(v) The fissile substances shall be distributed homogeneously throughout the contens. In addition, the substances shall not form a lattice arrangement within the package.

TABLE XVII – PERMISSIBLE MASS OF URANIUM-235 PER CONSIGNMENT

Uranium enrichment in mass per cent of uranium-235 not exceeding	Permissible mass per consignment kilograms of uranium -235
4	1.05
3.5	1.15
3	1.4
2.5	1.8
2	3
1.5	7
1.35	10

(d) Contents - uranium and/or plutonium metal, compounds and/or mixtures: the substances shall satisfy the following conditions:

(i) Beryllium and hydrogenous material enriched in deuterium shall not be present.

(ii) The total mass of graphite present shall not exceed 150 times the total mass of uranium and plutonium.

(iii) Mixtures of fissile substances with substances having a higher hydrogen density than water, e.g., some hydrocarbon oils, shall not be present. This does not preclude the use of polyethylene for packing or wrapping.

The total mass of fissile substances per consignment shall be such that:

$$\frac{235_{U\ (grams)}}{400} - \frac{Pu\ (grams)}{225} + \frac{233_{U\ (grams)}}{250}$$ is not greater than 1

(e) Conditions of transport: the following administrative controls shall be applied throughout the transport of the consignment:

(i) The quantity of substances in a consignment shall not exceed that defined in (b), (c) or (d) above;

(ii) transport shall be direct to the consignee, without any intermediate transit storage.

(f) Shipment shall be subject to multilateral approval.

3625 - 3629

SECTION III – TEST AND INSPECTION PROCEDURES

A. Demonstration of compliance with the test requirements

(1) Demonstration of compliance with the test requirements of this chapter may be accomplished by any of the methods listed below or by a combination thereof. 3630

(a) Performance of tests with prototypes or samples of the packaging as normally presented for transport, in which case the contents of the packaging for the test shall simulate as closely as practicable the expected normal radioactive contents.

(b) Reference to previous satisfactory demonstrations of sufficiently similar nature.

(c) Performance of tests with models of appropriate scale incorporating those features which are significant with respect to the item under investigation, when enginnering experience has shown results of such tests to be suitable for design purposes. When a scale model is used, the need for adjusting certain test parameters, such as the penetrator diameter or the compressive load, shall be taken into account.

(d) Calculation, or reasoned argument, when the calculative procedures and parameters are generally agreed to be reliable or conservative.

(2) With respect to the initial conditions for the tests of this chapter except those in marginals 3637(4) to 3639, the demonstration of compliance shall be based on the assumption that the package is in equilibrium at an ambient temperature of 38°C. With respect to the thermal test the effects of solar radiation can be neglected prior to and during that test but shall be taken into account in the subsequent evaluation of the test results.

B. Tests for packaging

1. Number of speciments to be tested

The number of specimens actually subjected to the tests should be related to the number of packagings of that type which are to be produced, the frequency of use and the cost. The results of the tests may necessitate an increase in the number of specimens to meet the requirements of the test procedures in respect of maximum damage.

2. Preparation of a specimen for testing

(1) All specimens shall be examined before testing to indentify and record faults or damage including the following:

(a) divergence from the specifications or the drawings;

(b) defects in construction;

(c) corrosion or other deterioration; and

(d) distortion of features.

(2) The containment system of the packaging shall be clearly specified.

(3) The external features of the specimen shall be clearly indentified so that reference may be made simply and clearly to any part of such specimen.

3. Testing the integrity of containment and shielding

After any of the applicable tests specified in marginals 3635 to 3637, it shall be further demonstrated that the integrity of the containment, or of the containment and shielding, has been retained to the extent required in marginals 3601 (15) to (17), 3602(2), 3603(1) and 3604(2) for the packaging under test.

4. Target for the drop tests specified in narginals 3635(4), 3636(2), 3637(2) and 3641(1)

The target shall be a flat, horizontal surface of such a character that any increase in its resistance to displacement or deformation upon impact by the specimen would not significantly increase the damage to the specimen.

5. Tests for demonstrating ability to withstand normal conditions of transport

(1) The tests are: the water spray test, the free drop test, the compression test and the penetration test. Prototypes of the package shall be subjected to the free drop test, the compression test and the penetration test, preceded in each case by the water spray test. One prototype may be used for all the tests, provided that the requirements of paragraph (2) are complied with.

(2) The time interval between the conclusion of the water spray test and the succeeding test shall be such that the water has soaked in to the maximum extent, without appreciable drying of the exterior of the specimen. In the absence of any evidence to the contrary, this interval shall be taken to be about two hours if the water spray is applied from four directions simultaneously. No time interval should elapse, however, if the water spray is applied from each of the four directions consecutively.

(3) Water spray test: Any water spray test shall be considered as satisfactory provided that:

(a) the amount of water per unit of ground area is approximately equivalent to a rainfall rate of 5 cm per hour;

(b) the water impinges upon the specimen at an angle of approximately 45° from the horizontal;

(c) the water is approximately uniformly distributed, as in a rainfall, over the entire surface of the specimen in the direction of the spray;

(d) the duration of the spray is at least one hour;

(e) the orientation of the packaging is such that the effects are expected to be the most severe for the features under investigation, and the specimen is supported so that it does not sit a pool of water.

(4) Free drop test: The specimen shall fall onto the target so as to suffer maximum damage in respect of the safety features to be tested.

(a) The height of fall measured from the lowest point of the package to the upper surface of the target shall be as specified in Table XVIII.

3631 TABLE XVIII. FREE-FALL DISTANCE FOR PACKAGES

3632

Packages mass (kg)	Free-fall distance (m)
less than 5000	1.2
5000 to < 10000	0.9
10000 to < 15000	0.6
15000 and greater	0.3

(b) For Fissile Class II packages, the free drop specified above shall be preceded by a free drop from a height of 0.3 m on each corner or, in the case of a cylindrical package, onto each of the quarters of each rim.

(c) For fibreboard or wood rectangular packages not exceeding 50 kg in mass, a separate specimen shall be subjected to a free drop onto each corner from a height of 0.3

3633 m.

(d) For fibreboard cylindrical packages not exceeding 100 kg in mass, a separate specimen shall be subjected to a free drop onto each of the quarters of each rim from a height of 0.3 m.

(5) Compression test: the specimen shall be subjected, for a period of 24 hours, to a compressive load exerted by a mass equal to the greater of the following:

3634 (a) the equivalent of 5 times the mass of the actual package;

(b) the equivalent of 1 300 kg/m^2 multiplied by the vertically projected area of the package.

The load shall be applied uniformly to two opposite sides

3635 of the specimen, one of which shall be the base on which the package would normally stand.

(6) Penetration test: the specimen shall be placed on a rigid, flat, horizontal surface which will not move significantly while the test is being carried out.

(a) A bar of 3.2 cm diameter with a hemispherical end and weighing 6 kg shall be dropped and directed to fall, with its longitudinal axis vertical, onto the centre of the weakest part of the specimen, so that, if it penetrates sufficiently far, it will hit the containment vessel. The bar shall not be significantly deformed by the test performance.

(b) The height of fall of the bar measured from its lower end to the upper surface of the specimen shall be 1 m.

6. Additional tests for Type A packaging designed for liquids and gases

(1) Separate specimens shall be subjected to each of the following tests unless it can be demonstrated that one test is more severe for the specimen in question than the other, in which case one specimen shall be subjected to the more severe test. 3636

(2) Free drop test: the specimen shall fall onto the target so as to suffer the maximum damage in respect of containment. The height of the fall measured from the lowest part of the specimen to the upper surface of the target shall be 9 m.

(3) Penetration test: the specimen shall be subjected to the test specified in marginal 3635 (6) except that the height of fall shall be increased to 1.7 m from the 1 m specified in marginal 3635 (6) (b).

7. Tests for demonstrating ability to withstand accident conditions in transport

(1) The specimen shall be subjected to the cumulative effects of the mechanical tests specified in paragraph (2) and the thermal test specified in paragraph (3) in that order. A separate specimen shall be subjected to the effect of the water immersion test in paragraph (4). 3637

(2) Mechanical test: the test shall consist of two drops onto a target. The order in which the specimen is subjected to the two drops shall be such that, on completion of the mechanical test, the specimen will have suffered such damage as will lead to the maximum damage in the thermal test which follows.

(a) For drop I, the specimen shall fall onto the target so as to suffer the maximum damage, and the height of fall measured from the lowest point of the specimen to the upper surface of the target shall be 9 m.

(b) For drop II, the specimen shall fall onto the target so as to suffer the maximum damage, and the height of fall measured from the intended point of impact of the specimen to the upper surface of the target shall be 1 m. The target in this case shall be the upper end of a solid mild steel bar of circular section, 15 cm ± 0.5 cm in diameter. The target surface shall be flat and horizontal with its edges rounded off to a radius of not more than 6 mm. The bar shall be rigidly mounted perpedicularly on the foundation target described in marginal 3634 and shall be 20 cm long unless a longer bar would cause greater damage; in that case, a bar of sufficient length to cause maximum damage shall be used.

(3) Thermal test: any thermal test shall be considered as satisfactory provided that the heat flux incident on the specimen is not less than that which would result from exposure for 30 minutes of the whole specimen to a radiation environment of 800°C with an emissivity coefficient of at least 0.9. For purpose of calculation, the surface absorptivity shall be either that value which the package may be expected to possess if exposed to a fire or 0.8, whichever is greater. In addition, when significant, convective heat input shall be included on the basis of still ambient air at 800°C during the thirty-minute period. After cessation of the external heat input to the specimen:

(a) the specimen shall not be cooled artificially until another three hours have elapsed or until it has been demonstrated that all internal temperatures have begun to fall, whichever is the earlier; and

(b) any combustion of materials of the specimen shall be allowed to proceed for three hours after the cessation of external heating to the specimen unless it terminates earlier naturally.

(4) Water immersion test: the specimen shall be immersed under a head of water of at least 15 m for a period of not less than eight hours. For test purposes, an external pressure of water of 0.15 MPa (1.5. bar) (gauge) will be considered to meet these conditions.

8. Water in-leakage test for packages containing fissile substances

(1) Packages other than Fissile Class I or Fissile Class II packages and any packages for which water in-leakage or out-leakage to the extent which results in greatest reactivity has been assumed for purposes of assessment under marginals 3614(2) and 3619(b) shall be exempted from the test. 3638

(2) Before the specimen is subjected to the water in-leakage test specified below, it shall be subjected to the tests in marginals 3637(2) and (3).

(3) The specimen shall be immersed under a head of water of at least 0.9 m for a period of not less than eight hours and in the attitude for which maximum leakage is expected. For this test an ambient temperature of 38°C is not required.

9. Tests for integrity of containment and shielding

Any test or inspection method may be employed to determine whether the requirements of this section have been met after the specimen has been subjected to the tests in marginals 3635 to 3637, provided that the method can be demonstrated to meet the relevant requirements of marginals 3601 to 3604. 3639

C. Tests for special form radioactive substances

1. General

(1) The tests are: the impact test, the percussion test, the bending test and the heat test. 3640

(2) Specimens (solid radioactive substances or capsules) to be tested shall be prepared as normally presented for transport. The radioactive substance shall be duplicated as closely as practicable.

(3) A different specimen may be used for each of the tests.

(4) The specimen shall not break or shatter when subjected to the impact, percussion or bending tests.

(5) The specimen shall not melt or disperse when subjected to the heat test.

(6) After each test, a leaching assessment shall be performed on the specimen by a method no less sensitive than the methods given in marginal 3642.

2. Test methods

(1) Impact test: the specimen shall fall onto the target from a height of 9 m. The target shall be as defined in marginal 3634. 3641

(2) Percussion test: the specimen shall be placed on a sheet of lead which is supported by a smooth solid surface and struck by the flat face of a steel billet so as to produce an impact equivalent to that resulting from a free fall of 1.4 kg through 1 m. The flat face of the billet shall be 25 mm in diameter with the edges rounded off to a radius of 3 mm ± 0.3 mm. The lead, of hardness number 3.5 to 4.5 on the Vickers scale and not more than 25 mm thick, shall cover and area greater than that covered by the specimen. A fresh surface of lead shall be used for each impact. The billet shall strike the specimen so as to cause maximum damage.

(3) Bending test: the test is applicable only to long, slender sources with both a minimum length of 10 cm and a length to minimum width ration of not less than 10. The specimen shall be rigidly clamped in a horizontal position so that one half of its length protrudes from the face of the clamp. The orientation of the specimen shall be such that the specimen will suffer maximum damage when its free and is struck by the flat face of a steel billet. The billet shall strike the specimen so as to produce an impact equivalent to that resulting from a free vertical fall of 1.4 kg through 1 m. The flat face of the billet shall be 25 mm in diameter with the edges rounded off to a radius of 3 mm to ± 0.3 mm.

(4) Heat test: the specimen shall be heated in air to a temperature of 800°C and held at that temperature for a period of 10 min and shall then be allowed to cool.

3. Leaching assesment methods

(1) For indispersible solid substances:

3642

(a) The specimen shall be immersed for seven days in water at ambient temperature. The water shall have a pH of 6 to 8 and a maximum conductivity of 10μS/cm at 20°C.

(b) The water with specimen shall then be heated to a temperature of 50° ± 5°C and maintained at this temperature for four hours.

(c) The activity of the water shall then be determined.

(d) The specimen shall then be stored for at least seven days in still air of humidity not less than 90 per cent at 30°C.

(e) The specimen shall then be immersed in water of the same specification as in (a) above and the water with specimen heated at 50°C ± 5°C and maintained at this temperature for four hours.

(f) The activity of the water shall then be determined.

The activities determined in (c) and (f) above shall not exceed 1.85 kBq (0.05 μ Ci).

(2) For encapsulated substances:

(a) The specimen shall be immersed in water at ambient temperature. The water shall have a pH of 6-8 with a maximum conductivity of 10μS/cm. The water and specimen shall be heated to a temperature of 50°C ± 5°C and maintained at this temperature for four hours.

(b) The activity of the water shall then be determined.

(c) The specimen shall then be stored for at least seven days in still air at a temperature not less than 30°C.

(d) Repeat (a).

(e) The activity of the water shall then be determined.

The activities determined in (b) and (e) above shall not exceed 1.85 kBq (0.05 μ Ci).

D. Inspection requirements to be fulfilled before first use and before each shipment of certain types of packages

1. Before first use

Before first use of any package, the following requirements shall be complied with by the consignor:

3643

(a) For each Type B(U) and Type B(M) package, it shall be ensured that the effectiveness of its shielding and containment, and, where necessary, the heat transfer characteristics, are within the limits applicable to or specified for the approved design.

(b) If the design pressure of the containment system exceeds 35 kPa (0.35 bar) (gauge), it shall be ensured that the containment system of each package conforms with the approved design requirements relating to the capability of that system to maintain its integrity under pressure.

(c) Where, in order to comply with the unclear safety criteria, neutron poisons are specifically included as components of the packaging primarily for this purpose, tests shall be performed to confirm the presence and distribution of that poisoning.

2. Before each shipment

Before each shipment of any package, the following requirements shall be complied with by the consignor:

3644

(a) Type B(U) and Type B(M) packages shall be held until equilibrium conditions have been closely enough approached to demonstrate compliance with the shipment requirements for temperature and pressure unless an exemption from these requirements has received unilateral approval.

(b) It shall be ensured that all the requirements specified in the approval certificates have been satisfied.

(c) It shall be ensured by examination and/or appropriate tests that all closures, valves and other openings of the containment system through which the radioactive contents might escape are properly closed and, where appropriate, sealed in the manner for which the demonstrations of marginals 3603(1) and 3604(2) were made.

(d) It shall be ensured that the provisions of marginal 3600(5), with regard to lifting attachments have been complied with.

3645
-3649

SECTION IV. —CONTROLS FOR TRANSPORT AND STORAGE IN TRANSIT

A. Mixed packing

A package containing radioactive substances shall not contain any other items except such articles and documents as are necessary for the use of the radioactive substances. Such items may be included, provided that there is no interaction between them and the packaging or contents that would reduce the safety of the package.

3650

B. Non-fixed radioactive contamination

The non-fixed radioactive contamination on any external surface of the package shall be kept as low as practicable and shall at no time during normal transport exceed the levels laid down in Table XIX. The level of non-fixed radioactive contamination may be determined by wiping an area of 300 cm^2 of the surface concerned by hand with a filter paper, or a wad of cotton wool or any other material of this nature.

3651

TABLE XIX. MAXIMUM PERMISSIBLE LEVELS OF NON-FIXED RADIOACTIVE CONTAMINATION

Contaminant	Maximum permissible level (see Note[a/]) Bq/cm^2	(μCi/cm^2)
Natural and depleted uranium and natural thorium only	37	10^{-3}
Beta and gamma emitters and the low-toxicity alpha emitters specified in Note[b/] below	3.7	10^{-4}
All other alpha emitters	0.37	10^{-5}

[a/] The above levels are permissible when averaged over any area of 300 cm^2 of any part of the surface.

[b/] Low toxicity alpha emitters:

Uranium-235 or uranium-238; thorium-232; thorium 228 and thorium-230 when diluted to a specific activity of the same order as that of natural uranium and natural thorium; radionuclides with a half-life of less than 10 days.

Packages used for the transport of radioactive substances such as irradiated fuel, shall be assessed to determine whether activity is likely to be leached to the surface e.g. by rain. The frequency of such assessment shall be related to the likelihood of radioactive contamination having been absorbed into the surface coating, particularly paint. When activity is likely to be leached to the surface of the package, the continued use of such a package shall be conditional upon a radiation safety assessment by a qualified person.

C. Categories

Packages and containers (both large and small) shall be in one of the following three categories:

3652

1. Category I-WHITE

(1) Packages: When the radiation level originating from the package at any time during normal transport does not exceed 5 μSv/h (0.5 mrem/h) at any location on the external surface of the package, and the package does not belong to Fissile Class II or III.

3653

(2) Containers: When the container contains packages of radioactive substances none of which is in a category higher than Category I-WHITE.

2. Category II-YELLOW

(1) Packages: When the radiation level limit in marginal 3653(1) is exceeded, or the package belongs to Fissile Class II, provided that: 3654

(a) the radiation level originating from the package at any time during normal transport does not exceed 0.5 mSv/h (50 mrem/h) at any location on the external surface of the package; and

(b) the transport index at any time during normal transport does not exceed 1.0.

(2) Containers: When the transport index of the container at any time during normal transport does not exceed 1.0, and when it contains no packages of Fissile Class III.

3. Category III-YELLOW

(1) Packages: When either of the two limits in marginal 3654(1) is exceeded, or when the package belongs to Fissile Class II or Class III, or when the package is being transported under special arrangement, provided that: 3655

(a) the radiation level originating from the package at any time during normal transport does not exceed 2 mSv/h (200 mrem/h) at any location on the external surface of the package, except that, for full load shipments under the conditions specified in marginal 3659(7), the maximum allowable level shall be 10 mSv/h (1.000 mrem/h); and

(b) the transport index at any time during normal transport does not exceed 10 unless the package is being transported as full load.

(2) Containers: when the transport index of the container, at any time during normal transport, exceeds 1.0, or when the container carries packages belonging to Fissile Class III, or when it is being transported under special arrangement.

D. Labelling and marking (see Appendix A.9)

(1) Each package and container (both large and small) shall bear at least two labels which conform to the models 7A, 7B or 7C in Appendix A.9 according to the category (see marginals 3652 to 3655) of that package or container. 3656

(2) The labels shall be affixed to two opposite sides of the outside of the package, or on the outside of all four sides of the container.

(3) The labels shall be completed as follows in a clear and indelible manner:

(a) next to the word "contents" shall be indicated the radionuclide or the substance whose presence constitutes the principal danger in the event of damage to the package (for example: strontium -90; irradiated uranium, radioactive LSA);

(b) next to the word "activity" shall be written the activity in curies;

Note: This activity may also be expressed in micro, milli or kilocuries on condition that the prefixed micro, milli and kilo are written in full;

(c) on the label to Model Nos. 7B and 7C shall be written, in addition, the transport index in the largest possible figures in the frame intended for that purpose.

(4) Each package of gross mass exceeding 50 kg shall have its gross mass plainly and durably marked on the outside of the package.

(5) Each package which conforms to a Type A packaging design shall be plainly and durably marked on the outside of the package with "Type A".

(6) Each package which conforms to a design approved under marginals 3672 to 3674 shall be plainly and durably marked on the outside of the package with the identification mark allocated to that design by the competent authority and, in the case of a Type B(U) or type B(M) package deisign, with "Type B(U)" or "Type B(M)".

(7) Each package which conforms to a Type B(U) or Type B(M) package design shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in the labels to models 7A to 7C.

E. Segregation of radioactive substances

Packages of Category II-YELLOW or III-YELLOW shall be separated in carriage and in storage from packages which bear a label with the word "FOTO" by the safety distances given in the table in marginal 240 001 of Appendix B.4. 3657

F. Storage in transit

(1) Packages of radioactive substances shall not be stored near dangerous goods with which mixed loading is prohibited (see marginal 2700(3)). 3658

(2) The number of Category II-YELLOW and Category III-YELLOW packages and containers stored in any one storage area, such as a transit area, terminal building, store-room or assembly yard, shall be so limited that the total sum of the transport indices in any individual group of such packages or containers does not exceed 50. Groups of such packages and containers shall be stored so as to maintain a spacing of at least 6 metres from other groups of such packages or containers.

(3) Where control of package accumulations is effected by reference to the red bands marked on the labels there shall not be more than 50 Category II-YELLOW or 5 Category III-YELLOW packages in any one group of packages. Where packages of both categories are present, one Category III-YELLOW package shall be taken as equivalent to ten Category II-YELLOW packages.

(4) Except in the case of Fissile Class II or Class III packages, the limitations in marginal 3658(2) do not apply to packages marked "RADIOACTIVE LSA" and containing low specific activity substance or those marked "RADIOACTIVE LLS" and containing low level solid radioactive substance when they are maintained in a compact stack or in containers.

(5) Mixing of different kinds of packages, including Fissile Class I packages with Fissile Class II packages, is permitted.

G. Transport

1. Packages

(1) Packages shall be so loaded in vehicles that they cannot shift dangerously, upset or fall. 3659

(2) Provided that its average surface heat flux does not exceed 15W/m^2, and that the surrounding cargo is not in sacks or bags, a package may be carried among packaged general cargo without any special stowage provisions except as may be specially required by the competent authority in an appropriate certificate. If the heat flux exceeds 15W/m^2 the package shall be carried as full load.

(3) Categories I-WHITE, II, or III-YELLOW packages shall not be carried in cimpartments occupied by passengers, except those exclusively reserved for couriers specially authorized to accompany such packages.

(4) Mixing of different kinds of packages, including Fissile Class I packages with Fissile Class II packages, is permitted.

(5) Accumulation of packages and containers shall be controlled as follows:

(a) For both packages and containers, the number of packages and containers shall be so limited that the total sum of the transport indices in any vehicle does not exceed 50. Where this control of packages is effected by reference to the red bands marked on the packages see marginal 3658(3).

(b) In the case of full loads the limits under paragraph (5)(a) shall not apply, provided that the radiation level under normal conditions of transport does not exceed 2 mSv/h (200 mrem/h) at any point on, and 0.1 mSv/h (10 mrem/h) at 2 m from the outside surface of a freight container or vehicle. For Fissile Class II or III

consignments, or mixtures thereof, the full load shall not include more than the allowable number of packages (see foot-note to marginal 2700).

(6) Vehicles and large containers carrying packages or containers labelled with any of the labels to Models 7A, 7B or 7C, or carrying full load consignments of any radioactive substances shall display the placard model No. 7D prescribed in marginal 240 010 of Appendix B.4 on the outside of each of the two lateral sides and the rear wall in the case of a vehicle.

(7) In the case of full loads the radiation level shall not exceed:

(a) 10 mSv/h (1000 mrem/h), at any point on the external surface of any package, provided that:

(i) the vehicle is equipped with an enclosure which, during normal transport, prevents the access of unauthorized persons to the interior of the enclosure;

(ii) provisions are made to secure the packages so that their position within the vehicle remains fixed during normal transport;

(iii) thre are no loading or unloading operations between the beginning and end of the transport.

Under other conditions, the radiation level at any point on the external surface of the package shall not exceed 2 mSv/h (200 mrem/h).

(b) 2 mSv/h (200 mrem/h) at any point on the outer surface of the vehicle or large container, including the upper and lower surfaces, and, in the case of an open vehicle at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load, and on the lower external surface of the vehicle and

(c) 0.1 mSv/h (10 mrem/h) at any point 2 m from the vertical planes represented by the outer lateral surfaces of the vehicle or large container, and, if the load is transported in an open vehicle at any point 2 m from the vertical planes projected from the outer edges of the vehicle.

(8) (a) The radiation level in any normally occupied position of a vehicle shall not exceed 20 μSv/h (2 mrem/h) during transport. Under such circumstances the carrier shall ensure that the driver or any accompanying personell, shall not receive more radiation than 5 mSv (0.5 rem) in any 12 month period. Maintaining the minimum distances listed in the table in marginal 240.000 of Appendix B.4, even in the absence of a protective shield, shall be considered as keeping within the 20 μSv/h (2 mrem/h) limit.

(b) As an alternative to (a) above, the carrier may operate by a scheme of work approved by the competent authority whereby records must be kept by him of the times spent by persons travelling in his vehicles and the radiation levels those persons are subjected to, in order that no person receives a greater dose than 3.75 mSv (375 mrem) in any calendar quarter.

2. Tank Vehicles

3660 Low-specific-activity substances, LSA (1), of marginal 2703, schedule 5, other than uranium hexafluoride and substances liable to spontaneous ignition, may be carried in tank-vehicles in accordance with the requirements of Appendix B.1a.

3. Tank-Containers

3661 Low specific-activity substances, LSA (1), of marginal 2703, schedule 5, including natural or depleted uranium hexafluoride, may be carried in tank-containers in accordance with the requirements of Appendix B.1b.

3662-3669

SECTION V - ADMINISTRATIVE REQUIREMENTS

3670 Approval by competent authorities is not required for package designs for substances consigned under Schedules 1 to 4 and, provided the contents are not fissile substances requiring approval under marginal 3674, for package designs for substances consigned under schedules 5 to 8.

A. Approval of Special Form Radioactive Substances

3671 (1) Any design for special form radioactive substances, with the exception of the substances specified in Schedules 3 and 4, shall require unilateral approval. An application for approval shall include:

(a) a detailed description of the substances or, if a capsule, the contents; particular reference shall be made to both physical and chemical states;

(b) a detailed statements of the design of any capsule to be used, including complete engineering drawings and schedules of materials and methods of construction to be used;

(c) a statement of the tests which have been done and their results, or evidence based on calculative methods to show that the substances are capable of meeting the tests, or other evidence that the special form radioactive substances meet the requirements of this Appendix.

(2) The competent authority shall establish a certificate stating that the approved design meets the definition of special form radioactive substances as defined in marginal 2700 (2) and shall attribute to that design an identification mark. The certificate shall specify the details of the radioactive substances.

B. Approval of Package Designs

1. Approval of Type B(U) package designs (including those for Fissile Class I, Class II and Class III packages which are also subject to marginal 3674)

3672 (1) Any design of Type B(U) package originating in a country party to ADR shall be approved by the competent authority of this country; if the country where the package has been designed is not party to ADR, carriage is possible on condition that:

(a) a certificate has been supplied by this country, proving that the package satisfies the technical regulations of ADR, and that this certificate is counter-signed by the competent authority of the first ADR country reached by the consignment;

(b) if no certificate has been supplied, the package design is approved by the competent authority of the first ADR country reached by the consignment.

(2) An application for approval shall include:

(a) a detailed description of the proposed contents with particular reference to their physical and chemical states and the nature of the radiation emitted;

(b) a detailed statement of the design, including complete engineering drawings and schedules of materials and methods of construction to be used;

(c) a statement of the tests which have been done and their results, or evidence based on calculative methods or other evidence that the package design is adequate to meet the requirements of marginals 3602 and 3603;

(d) the proposed operating and maintenance instructions for the use of the package, in particular, in the case of packages likely to be immersed in contaminated ponds, the provisions incorporated to ensure that the surface of the package is not contaminated above the permitted levels;

(e) if the package is designed to have a maximum normal operating pressure in excess of 0.1 MPa (1 bar) (gauge), the application for approval shall, in particular, state, in respect of the materials of construction of the containment system, the specifications, the samples to be taken and the tests to be made;

(f) where the proposed contents are irradiated fuel, the applicant shall state and justify any assumption in the safety analysis relating to the characteristics of the fuel;

(g) any special stowage provisions necessary to ensure the safe dissipation of heat from the package; consideration shall be given to the type of vehicle or container (see marginal 3681 (1) (a));

(h) a reproducible illustration not larger than 21 cm × 30 cm, showing the make-up of the package.

(3) The competent authority shall establish a certificate stating that the approved design meets the requirements for Type B(U) packages (see marginals 3677 and 3678).

2. Approval of Type B(M) package design (including those for Fissile Class I, Class II and Class III packages which are also subject to marginal 3674)

(1) Each type B(M) package design shall require multilateral approval. 3673

(2) An application for approval of a Type B(M) package design shall include, in addition to the information required in marginal 3672 (2) for Type B(U) packages:

(a) a list of those specific additional requirements for Type B(U) packages specified in marginal 3603 with which the package does not conform;

(b) any proposed supplementary operational controls[5/] to compensate for the deficiencies listed in (a) above: and

(c) a statement relative to any special loading, carriage, unloading, or handling procedures;

(d) the maximum and minimum ambient conditions (temperature, solar radiation) expected to be encountered during transport and which have been taken into account in the design.

(3) The competent authority shall establish a certificate stating that the approved package design meets the requirements for Type B(M) packages (see marginals 3677 to 3679).

3. Approval of Fissile Class I, Class II and Class III package design

(1) Package designs complying with the examples in marginal 3620, 3623, or 3624 shall require no further competent authority approvals. 3674

(2) Package designs complying with the examples in marginals 3616 and 3622 shall require unilateral approval.

(3) All other package designs shall require multilateral approval.

(4) An application for approval shall include all information necessary to satisfy the competent authority that the design meets the requirements of marginals 3610 to 3624.

(5) The competent authority shall establish a certificate (see marginals 3677 to 3679) stating that the approved package design meets the requirements of marginals 3610 to 3624.

C. Approval of Shipments

(1) Multilateral shipment approvals shall be required for the following packages: 3675

(a) Type B(M) packages specially designed to allow condinuous venting.

(b) Type B(M) packages containing radioactive materials with an activity greater than 3×10^3 A_1 or 3×10^3 A_2, as appropriate, or 1110 TBq (3×10^4 Ci), whichever is the lower;

(c) Fissile Class II packages complying with marginal 3620.

(d) Fissile Class III packages.

However, a competent authority can authorize transport into or through its country, without shipment approval, by a specific provision in its design approval.

(2) An application for shipment approval shall include:

(a) the period of time, related to the shipment, for which the approval is sought;

(b) the actual contents, the type of vehicle and the probable or proposed route; and

(c) how the special precautions and special administrative and operational controls referred to in the package design certificates issued under marginals 3673 and 3674, are to be put into effect.

(3) Upon approval of the shipment, the competent authority shall issue a certificate (see marginals 3677 to 3679).

(4) The package and shipment certificates may be combined into a single certificate.

D. Approval of Transport by Special Arrangement

(1) A consignment of radioactive substances which does ot satisfy all the applicable requirements of this Appendix shall be transported only by special arrangement, which always requires multilateral approval. The special arrangements shall be adequate to ensure that the over-all level of safety in transport is at least equivalent to that which would be provided if all the applicable requirements of this Appendix had been met. 3676

(2) An application for approval shall include the information required under marginals 3672 to 3675 and also:

(a) a statement of the respects in which, and of the reasons why, the consignment cannot be made in full accordance with the applicable requirements of this Appendix; and

(b) a statement of any special precautions or special administrative or operational controls which shall be taken during transport to compensate for the failure to meet the applicable requirements of this Appendix.

(3) Upon approval of the special arrangment, the competent authority shall issue a certificate (see marginals 3677 to 3679).

E. Competent Authority Certificates of Approval

1. Competent authority identification marks

(1) Each approval certificate issued by a competent authority shall be identified by an identification mark. The mark shall be of the following generalized type: 3677

Symbol of nationality of country[6/] Number/Type Code

(a) The number shall be assigned by the competent authority, and shall be unique and specific with regard to the particular design or shipment. The shipment approval identification mark shall be clearly identified with the package design approval identification mark.

(b) The following type codes shall be used in the order listed to indicate the types of approval certificates issued:

A Type A package design (when also a fissile class package)
B(U) Type B(U) package design
B(M) Type B(M) package design
F Fissile class package design
S Special form material approval
T Shipment
X Special arrangement.

(2) These type codes shall be applied as follows:

(a) Each certificate and each package shall bear the appropriate identification mark composed of the symbols prescribed in paragraph (1) except that for packages, only the applicable package design type codes shall appear following the second stroke, i.e. the "S", "T" and "X" shall not appear in the indentification marking on the package. Where the package design approval and shipment approval are combined, the applicable Type Codes do not need to be repeated. For example:

[5/] That is, operational controls during transport not routinely provided for in this Appendix but which are considered necessary to ensure the safety of the package during transport, such as human intervention for temperature or pressure measurements or for periodical venting. These controls shall also take into account the possibility of unexpected delay.

[6/] The signs referred to are the national distinguishing signs for motor vehicles in international traffic.

A/132/B(M)F: A Type B(M) Fissile Class package approved by Austria for package design number 132 (to be marked on both the package itself and on the package design approval certificate).

A/132/B(M)FT: The shipment approval certificate identification mark issued for that package design (to be marked on the certificate only).

A/137/X: The shipment approval certificate identification mark issued for Austrian design 137 under a special arrangements shipment (to be marked on the certificate only).

(b) Where multilateral approval is effected by validation, only the identification marks issued by the country of origin of the design or shipment would be used. Where multilateral approval is effeted by issue of certificates by successive countries, each certificate would bear the appropriate mark and the package whose design was so approved would bear all appropriate identification marks. For example,

(A/132/B(M)F)
(CH/28/B(M)F)

would be the identification marks of a package which was originally approved by Austria and was subsequently approved, by separate certificate, by Switzerland. Additional indentification marks would be tabulated in a similar manner on the package.

(c) The revision of cerificate numbers shall be indicated by a parenthetical expression following the indentification mark on the certificate. For example, A/132/B(U)F. (Rev.2) would indicate revision 2 of the Austrian-approved package design certificate; or A/132/B(U)F. (Rev.0) would indicate the original issue of the Austrian-approved package design certificate. For original issue the parenthetical expression is optional and other words such as "(original issue)" may also be used in lieu of "Rev.0)". Certificate revision numbers may only be issued by the country issuing the original certificate number. Revision by other than the issuing country shall require a new certificate and identification number.

(d) Additional symbols (as may be necessitated by national requirements) may be added in brackets to the end of the identification mark. For example, A/132/B(U)F (SP503).

(e) It is not necessary to alter the identification mark on the package each time that a revision to the package certificate is made. Such alteration shall be made only in those cases where the revision of the package design certificate involves a change in the letter codes for the package design, following the second stroke.

2. Information required in certificates.

Each approval certificate issued by a competent authority shall include the relevant information from the following: 3678

(a) The competent authority identification mark.

(b) A brief description of the packaging, including materials of construction, gross mass, general outside dimensions, and appearance. This shall include a reproducible illustration not larger than 21 cm by 30 cm, showing the make-yp of the package.

(c) A brief specification of the permitted contents, including any restrictions on contents which might not be obvious from the nature of the packaging. This should include the physical and chemical forms, the activities in curies (including those of the various isotopes, if appropriate), amounts in grams for fissile substances, and whether in special form.

(d) Additionally, for fissile class packages:

(i) Fissile Class I: a detailed description of the permissible contents and any special features, on the basis of which the leakage of water in respect of certain void spaces has been assumed in the criticality assessment (see marginal 3613 (b)).

(ii) Fissile Class II: a detailed description of the permissible contents, the corresponding allowable numbers (or transport index) and any special features, on the basis of which the leakage of water in respect of certain void spaces has been assumed in the criticality assessment (see marginal 3618 (b)).

(iii) Fissile Class III: a detailed description of the individual consignments including the permissible contents and the corresponding allowable numbers (or transport indices) together with any special precautions to be taken during transport.

(e) A statement regarding the ambient conditions assumed for purpose of design (see marginal 3602 (4)).

(f) For Type B(M) packages, a statement specifying those prescriptions of marginal 3603 with which the package does not conform and any amplifying information which may be useful to other competent authorities.

(g) A reference to the following information provided by the applicant:

(i) instructions on the use and maintenance of the packaging;

(ii) the actions to be taken by the consignor prior to the shipment, e.g. any special decontamination procedures.

(h) A detailed listing of any supplementary operational requirements (see foot-note 5) for package preparation, loading transport, storage, unloading, and handling, including any special stowage provisions for the safe dissipation of heat from the package, or a statement that no such controls are required.

(j) A statement authorizing shipment where shipment approval is required under marginal 3675.

(k) Any restrictions on the types of vehicle containers, and any necessary routing instructions.

(l) Emergency arrangements specific to the approved design.

(m) The following statement: "This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported".

(n) An issue date, and, if appropriate, an expiry date.

(o) Signature and identification of the certifying official.

(p) Appendices containing certificates for alternative package contents, other competent authority validations, or additional technical data or information.

3. Validation of certificates.

Multilateral approvals may be by validation of the original certificate issued by the competent authority of the country of origin of the design or shipment. 3679

F. Consignor's Responsibilities.

1. Particulars of consignments.

The consignor shall include in the transport document for each consignment or radioactive substances, as well as the description given in the appropriate schedule, the following details: 3680

(a) The statement "The nature of the goods and the packaging are in conformity with the provisions of ADR".

(b) The identification mark for each competent authority certificate (special form, package design, and shipment) applicable to the consignment.

(c) The name of the radioactive substances, or nuclide.

(d) A description of the physical and chemical form of the substance, or whether it is in special form.

(e) The activity of the radioactive substances in appropriate curie units.

(f) The category of the package, i.e. I-WHITE, II-YELLOW, III-YELLOW.

(g) The transport index (Categories II - and III-YELLOW only).

(h) For a consignment of fissile substances:

(i) If exempted under marginal 3610, the words "FISSILE EXEMPT"; or

(ii) if not so exempted, the fissile class of the package(s).

2. Information and notification for carriers.

(1) The consignor shall provide in the transport document a statement regarding actions, if any, that must be taken by the carrier. The statement shall be in the languages deemed necessary by the carrier or the authorities concerned, and shall include at least the following points: 3681

(a) supplementary operational requirements for loading, transport, storage, unloading, handling, and stowage for safe dissipation of heat, or a statement that no supplementary operational requirements are necessary (see marginal 3678 (h));

(b) any necessary routing instructions (see marginal 3678 (k)).

(c) emergency arrangements specific to the approved design (see marginal 3678 (l)).

(2) In all cases where approval of the shipment or prior notification to the competent authority is required, all the carriers shall be informed of the requirements in advance, in order that they may take in good time any measures required for the transport.

3. Notification to competent authorities.

(1) Before the first shipment of a Type B(U) package containing radioactive substances with an activity greater than $3 \chi 10^3 A_1$ or $3 \chi 10^3 A_2$, as appropriate, or 1110 TBq ($3 \chi 10^4$Ci), whichever is the lower, the consignor shall ensure that copies of each applicable competent authority certificate applying to that package design have been submitted to the competent authority of each country in whose territory the consignment is to be transported. The consignor is not required to await an acknowledgement from the competent authority, nor is the competent authority required to make such acknowledgement of receipt of the certificate. 3682

(2) For each shipment listed in (a) to (d) below inclusive, the consignor shall notify the competent authorities of each country in whose territory the consignment is to be transported. This notification shall be in the hands of each competent authority prior to the commencement of the shipment, and preferably at least 15 days in advance.

(a) Type B(U) packages containing radioactive substances with an activity greater than $3 \chi 10^3 A_1$ or $3 \chi 10^3 A_2$, as appropriate, or 1110 TBq ($3 \chi 10^4$Ci), whichever is the lower.

(b) Type B(M) packages.

(c) Fissile Class III packages under marginal 3674 (3).

(d) Transport by special arrangement.

(3) The consignment notification shall include:

(a) sufficient information to enable the identification of the package, including all applicable certificate numbers and identification marks; and

(b) information on the date of shipment, the expected date of arrival and proposed routing.

(4) The consignor is not required to send a separate notification if the required information has been included in the application for shipment approval (see marginal 3675 (2)).

4. Possession of certificates.

The consignor shall have in his possession a copy of each certificate required under this Appendix and a copy of the instructions with regard to the proper closing of the package and other preparation for shipment before making any shipment under the terms of the certificates. 3683

C. Quality Control in Fabrication and Maintenance of Packaging.

The manufacturer, consignor, or user of an approved package design shall be prepared to demonstrate to any cognizant competent authority that: 3684

(a) the constructional methods and materials used for the construction of the packaging are in accordance with the approved design requirements; the competent authority may carry out inspection of the packaging during construction;

(b) all packagings built to an approved design shall be maintained in good condition so that they continue to comply with all relevant regulatory criteria, even after repeated use.

3685
3689

SECTION VI - ACTIVITY LIMITS
DETERMINATION OF A_1 AND A_2

1. Single radionuclides

(1) For single radionuclides of known identity, the values of A_1 and A_2, are given in Table XX. The values of A_1 and A_2 are also appicable for radionuclides contained in (α, n) or (γ, n) neutron sources.

TABLE XX. A_1 AND A_2 VALUES FOR RADIONUCLIDES

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
227	Ac	Actinium (89)	37	1000	1.11×10^{-4}	0.003	2.7×10^{-1}	7.2×10
228	Ac		0.37·	10	0.15	4	8.1×10^{4}	2.2×10^{6}
105	Ag	Silver (47)	1.48	40	1.48	40	8.1×10^{3}	3.1×10^{4}
110m	Ag		0.26	7	0.26	7	1.7×10^{2}	4.7×10^{3}
111	Ag		3.7	100	3.7	100	5.9×10^{3}	1.6×10^{5}
241	Am	Americium (95)	0.3	8	3×10^{-4}	0.008	1.2×10^{-2}	3.2
243	Am		0.3	8	3×10^{-4}	0.008	7.0 × 10-3	1.9×10^{-1}
37	Ar (compressed or uncompressed)	Argon (18)	37	1000	37	1000	3.7×10^{3}	1.0×10^{5}
41	Ar (uncompressed)		0.74	20	074	20	1.6×10^{6}	4.3×10^{7}
41	Ar (compressed)		0.74	1	0.04	1	1.6×10^{6}	4.3×10^{7}
73	As	Arsenic (33)	37	1000	14.8	400	8.9×10^{2}	2.4×10^{4}
74	As		0.74	20	0.74	20	3.7×10^{3}	1.0×10^{5}
76	As		0.37	10	0.37	10	5.9×10^{4}	1.6×10^{6}
77	As		11.1	300	11.1	300	4.1×10^{4}	1.1×10^{6}
211	At	Astatine (85)	7.4	200	0.26	7	7.8×10^{4}	2.1×10^{6}
193	Au	Cold (79)	7.4	200	7.4	200	3.4×10^{4}	9.3×10^{5}
196	Au		1.11	30	1.11	30	4.4×10^{3}	1.2×10^{5}
198	Au		1.48	40	1.48	40	9.3×10^{3}	2.5×10^{5}
199	Au		7.4	200	7.4	200	7.8×10^{3}	2.1×10^{5}
131	Ba	Barium (56)	1.48	40	1.48	40	3.2×10^{3}	8.7×10^{4}
133	Ba		1.48	40	0.37	10	1.5 × 10	4.0×10^{2}
140	Ba		0.74	20	0.74	20	2.7×10^{3}	7.3×10^{4}
7	Be	Beryllium (4)	11.1	300	11.1	300	1.3×10^{4}	3.5×10^{5}
206	Bi	Bismuth (83)	0.19	5	0.19	5	3.7×10^{3}	9.9×10^{4}
207	Bi		0.37	10	0.37	10	8.1	2.2×10^{2}

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
210	Bi (RaE)	Bismuth (83)	3.7	100	0.15	4	4.4×10^3	1.2×10^5
212	Bi		0.22	6	0.22	6	5.6×10^5	1.5×10^7
249	Bk	Barkelium (97)	37	1000	0.04	1	6.7×10	1.8×10^3
82	Br	Bromine (35)	0.22	6	0.22	6	4.1×10^4	1.1×10^6
14	C	Carbon (6)	37	1000	3.7	100	1.7×10^{-1}	4.6
45	Ca	Calcium (20)	37	1000	1.48	40	7.0×10^2	1.9×10^4
47	Ca		0.74	20	0.74	20	2.2×10^4	5.9×10^5
109	Cd	Cadmium (48)	37	1000	2.59	70	9.6×10	2.6×10^3
115m	Cd		1.11	30	1.11	30	9.6×10^2	2.6×10^4
115	Cd		2.96	80	2.96	80	1.9×10^4	5.1×10^5
139	Ce	Cerium (58)	3.7	100	3.7	100	2.4×10^2	6.5×10^3
141	Ce		11.1	300	7.4	200	1.0×10^3	2.8×10^4
143	Ce		2.22	60	2.22	60	2.4×10^4	6.6×10^5
144	Ce		0.37	10	0.26	7	1.2×10^2	3.2×10^3
249	Cf	Californium (98)	0.08	2	7.4×10^{-5}	0.002	1.2×10^{-1}	3.1
250	Cf		0.26	7	2.59×10^{-4}	0.007	4.8	1.3×10^2
252	Cf		0.08	2	7.4×10^{-5}	0.002	2.4×10	6.5×10^2
36	Cl	Chlorine (17)	11.1	300	1.11	30	1.2×10^{-3}	3.2×10^{-2}
38	Cl		0.37	10	0.37	10	4.8×10^6	1.3×10^8
242	Cm	Curium (96)	7.4	200	7.4×10^{-3}	0.2	1.2×10^2	3.3×10^3
243	Cm		0.33	9	3.33×10^{-4}	0.009	1.6	4.2×10
244	Cm		0.37	10	3.7×10^{-4}	0.01	3.0	8.2×10
245	Cm		0.22	6	2.22×10^{-4}	0.006	3.7×10^{-3}	1.0×10^{-1}
246	Cm		0.22	6	2.22×10^{-4}	0.006	1.3×10^{-2}	3.6×10^{-1}
56	Co	Cobalt (27)	0.19	5	0.19	5	1.1×10^3	3.0×10^4
57	Co		3.33	90	3.33	90	3.1×10^2	8.5×10^3
58m	Co		37	1000	37	1000	2.2×10^5	5.9×10^6
58	Co		0.74	20	0.74	20	1.2×10^3	3.1×10^4
60	Co		0.27	7	0.26	7	4.1×10	1.1×10^3
51	Cr	Chromium (24)	22.2	600	22.2	600	3.4×10^3	9.2×10^4
131	Cs	Caesium (55)	37	1000	37	1000	3.7×10^3	1.0×10^5
134m	Cs		37	1000	37	1000	2.7×10^5	7.4×10^6
134	Cs		0.37	10	0.26	7	4.4×10	1.2×10^3

Symbol of radionuclide		Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
135	Cs	Caesium (55)	37	1000	2.22	60	3.3×10^{-5}	8.8×10^{-4}
136	Cs		0.26	7	0.26	7	2.7×10^{3}	7.4×10^{4}
137	Cs		1.11	30	0.34	9	3.6	9.8×10
64	Cu	Copper (29)	2.96	80	2.96	80	1.4×10^{5}	3.8×10^{6}
165	Dy	Dysprosium (66)	3.7	100	3.7	100	3.0×10^{5}	8.2×10^{6}
166	Dy		37	1000	7.4	200	8.5×10^{3}	2.3×10^{5}
169	Er	Erbium (68)	37	1000	11.1	300	3.0×10^{3}	8.2×10^{4}
171	Er		1.85	50	1.85	50	8.9×10^{4}	2.4×10^{6}
152m	Eu	Europium (63)	1.11	30	1.11	30	8.1×10^{4}	2.2×10^{6}
152	Eu		0.74	20	0.74	20	7.0	1.9×10^{2}
154	Eu		0.37	10	0.19	5	5.6	1.5×10^{2}
155	Eu		14.8	400	3.33	90	5.2×10	1.4×10^{3}
18	F	Fluorine (9)	0.74	20	0.74	20	3.4×10^{6}	9.3×10^{7}
52	Fe	Iron (26)	0.22	6	0.22	6	2.7×10^{5}	7.3×10^{6}
55	Fe		37	1000	37	1000	8.1×10	2.2×10^{3}
59	Fe		0.37	10	0.37	10	1.5×10^{3}	4.9×10^{4}
72	Ga	Gallium (31)	0.26	7	0.26	7	1.1×10^{5}	3.1×10^{6}
153	Gd	Gadolinium (64)	7.4	200	3.7	100	1.3×10^{2}	3.6×10^{3}
159	Gd		11.1	300	11.1	300	4.1×10^{4}	1.1×10^{6}
71	Ge	Germanium (32)	37	1000	37	1000	5.9×10^{3}	1.6×10^{5}
3	H	Hydrogen (1) see T-tritium						
181	Hf	Hafnium (72)	1.11	30	1.11	30	5.9×10^{2}	1.6×10^{4}
197m	Hg	Mercury (80)	7.4	200	7.4	200	2.4×10^{4}	6.6×10^{5}
197	Hg		7.4	200	7.4	200	9.3×10^{3}	2.5×10^{5}
203	Hg		2.96	80	2.96	80	5.2×10^{2}	1.4×10^{4}
166	Ho	Holmium (67)	1.11	30	1.11	30	2.6×10^{3}	6.9×10^{5}
125	I	Iodine (53)	37	1000	2.59	70	6.3×10^{2}	1.7×10^{4}
126	I		1.48	40	0.37	10	2.9×10^{3}	7.8×10^{4}
129	I		37	1000	7.4×10^{-2}	2	5.9×10^{-6}	1.6×10^{-4}
131	I		1.48	40	0.37	10	4.4×10^{3}	1.2×10^{5}
132	I		0.26	7	0.26	7	4.1×10^{5}	1.1×10^{7}
133	I		1.11	30	1.11	30	4.1×10^{4}	1.1×10^{6}
134	I		0.3	8	0.3	8	1.0×10^{6}	2.7×10^{7}

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
135	I	Iodine (53)	0.37	10	0.37	10	1.3×10^5	3.5×10^6
113m	In	Indium (49)	2.22	60	2.22	60	5.9×10^5	1.6×10^7
114m	In		1.11	30	0.74	20	8.5×10^2	2.3×10^4
115	In		3.7	100	3.7	100	2.3×10^5	6.1×10^6
190	Ir	Iridium (77)	0.37	10	0.37	10	2.3×10^3	6.2×10^4
192	Ir		0.74	20	0.74	20	3.4×10^2	9.1×10^3
194	Ir		0.37	10	0.37	10	3.2×10^4	8.5×10^5
42	K	Potassium (19)	0.37	10	0.37	10	2.2×10^5	6.0×10^6
85m	Kr (uncompressed)	Krypton (36)	3.7	100	3.7	100	3.1×10^5	8.4×10^6
85m	Kr (compressed)		0.11	3	0.11	3	3.1×10^5	8.4×10^6
85	Kr (uncompressed)		37	1000	37	1000	1.5×10	4.0×10^2
85	Kr (compressed)		0.19	5	0.19	5	1.5×10	4.0×10^2
87	Kr (uncompressed)		0.74	20	0.74	20	1.0×10^6	2.8×10^7
87	Kr (compressed)		0.02	0.6	0.02	0.6	1.0×10^6	2.8×10^7
140	La	Lanthanum (57)	1.11	30	1.11	30	2.1×10^4	5.6×10^5
	LLS	Low-level solid radioactive material See Marginal 2700 (2)						
	LSA	Low specific activity material See Marginal 2700 (2)						
177	Lu	Luterium (71)	11.1	300	11.1	300	4.1×10^3	1.1×10^5
	MFP	Mixed fission products	0.37	10	0.015	0.4		
28	Mg	Magnesium (12)	0.22	6	0.22	6	1.9×10^5	5.2×10^6
52	Mn	Manganese (25)	0.19	5	0.19	5	1.6×10^4	4.4×10^5
54	Mn		0.74	20	0.74	20	3.1×10^2	8.3×10^3
56	Mn		0.19	5	0.19	5	8.1×10^5	2.2×10^7
99	Mo	Molybdenum (42)	3.7	100	3.7	100	1.7×10^4	4.7×10^5
22	Na	Sodium (11)	0.3	8	0.3	8	2.3×10^2	6.3×10^3
24	Na		0.19	5	0.19	5	3.2×10^5	8.7×10^6
93m	Nb	Niobium (41)	37	1000	37	1000	4.1×10	1.1×10^3
95	Nb		0.74	20	0.74	20	1.4×10^3	3.9×10^4
97	Nb		0.74	20	0.74	20	9.6×10^5	2.6×10^7
147	Nd	Neodymium (60)	3.7	100	3.7	100	3.0×10^3	8.0×10^4
149	Nd		1.11	30	1.11	30	4.1×10^5	1.1×10^7

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
59	Ni	Nickel (28)	37	1000	33.3	900	2.3×10^{-3}	8.1×10^{-2}
63	Ni		37	1000	3.7	100	1.7	0.46×10^{2}
65	Ni		0.37	10	0.37	10	7.0×10^{5}	1.9×10^{7}
237	Np	Neptunium (93)	0.19	5	1.85×10^{-4}	0.005	2.6×10^{-5}	6.9×10^{-4}
239	Np		7.4	200	7.4	200	8.5×10^{3}	2.3×10^{5}
185	Os	Osmium (76)	0.74	20	0.74	20	2.7×10^{2}	7.3×10^{3}
191	Os		22.2	600	14.8	400	1.7×10^{3}	4.6×10^{4}
191m	Os		7.4	200	7.4	200	4.4×10^{4}	1.2×10^{6}
193	Os		3.7	100	3.7	100	2.0×10^{4}	5.3×10^{5}
32	P	Phosphorous (15)	1.11	30	1.11	30	1.1×10^{4}	2.9×10^{5}
230	Pa	Proctactinium (91)	0.74	20	0.03	0.8	1.2×10^{3}	3.2×10^{4}
231	Pa		0.07	2	7.4×10^{-5}	0.002	1.7×10^{-3}	4.5×10^{-2}
233	Pa		3.7	100	3.7	100	7.8×10^{2}	2.1×10^{4}
210	Pb	Lead (82)	3.7	100	0.007	0.2	3.3	8.8×10
212	Pb		0.22	6	0.22	6	5.2×10^{4}	1.4×10^{6}
103	Pd	Palladium (46)	37	1000	25.9	700	2.8×10^{3}	7.5×10^{4}
109	Pb		3.7	100	3.7	100	7.8×10^{4}	2.1×10^{6}
147	Pm	Promethium (61)	37	1000	2.96	80	3.5×10	9.4×10^{2}
149	Pm		3.7	100	3.7	100	1.6×10^{4}	4.2×10^{5}
210	Po	Polonium (84)	7.4	200	0.007	0.2	1.7×10^{2}	4.5×10^{3}
142	Pr	Praseodymium (59)	0.37	10	0.37	10	4.4×10^{4}	1.2×10^{6}
143	Pr		11.1	300	7.4	200	2.4×10^{3}	6.6×10^{4}
191	Pt	Platinum (78)	3.7	100	3.7	100	8.5×10^{3}	2.3×10^{5}
193	Pt		7.4	200	7.4	200	7.4×10^{3}	2.0×10^{5}
197m	Pt		11.1	300	11.1	300	4.4×10^{5}	1.2×10^{7}
197	Pt		11.1	300	11.1	300	3.3×10^{4}	8.8×10^{5}
238	Pu	Plutonium (94)	0.11	3	1.11×10^{-4}	0.003	6.6×10^{-1}	1.7×10
239	Pu		0.07	2	7.4×10^{-5}	0.002	2.3×10^{-3}	6.2×10^{-2}
240	Pu		0.07	2	7.4×10^{-5}	0.002	8.5×10^{-3}	2.3×10^{-1}
241	Pu		37	1000	0.004	0.1	4.1	1.1×10^{2}
242	Pu		0.11	3	1.11×10^{-4}	0.003	1.4×10^{-4}	3.9×10^{-3}
233	Ra	Radium (88)	1.85	50	0.007	0.2	1.9×10^{3}	5.0×10^{4}

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
224	Ra	Radium (88)	0.22	6	0.02	0.5	5.9×10^3	1.6×10^5
226	Ra		0.37	10	0.002	0.05	3.7×10^{-2}	1.0
228	Ra		0.37	10	0.002	0.05	8.5	2.3×10^2
86	Rb	Rubidium (37)	1.11	30	1.11	30	2.3×10^3	8.1×10^4
87	Rb		Unlimited	Unlimited	Unlimited	Unlimited	2.4×10^{-9}	6.6×10^{-8}
	Rb (natural)		Unlimited	Unlimited	Unlimited	Unlimited	6.7×10^{-10}	1.8×10^{-8}
186	Re	Rhenium (75)	3.7	100	3.7	100	7.0×10^3	1.9×10^5
187	Re		Unlimited	Unlimited	Unlimited	Unlimited	1.4×10^{-9}	3.8×10^{-8}
188	Re		0.37	10	0.37	10	3.7×10^4	1.0×10^6
	Re (natural)		Unlimited	Unlimited	Unlimited	Unlimited	8.9×10^{-10}	2.4×10^{-8}
103m	Rh	Rhodium (45)	37	1000	37	1000	1.2×10^5	3.2×10^7
105	Rh		7.4	200	7.4	200	3.0×10^4	8.2×10^5
222	Rn	Radon (86)	0.37	10	0.07	2	5.6×10^3	1.5×10^5
97	Ru	Ruthenium (44)	2.96	80	2.96	80	2.0×10^4	5.5×10^5
103	Ru		1.11	30	1.11	30	1.2×10^3	3.2×10^4
105	Ru		0.74	20	0.74	20	2.4×10^5	6.6×10^6
106	Ru		0.37	10	0.26	7	1.3×10^2	3.4×10^3
35	S	Sulphur (16)	37	1000	11.1	300	1.6×10^3	4.3×10^4
122	Sb	Antimony (51)	1.11	30	1.11	30	1.4×10^4	3.9×10^5
124	Sb		0.19	5	0.19	5	6.7×10^2	1.8×10^4
125	Sb		1.48	40	1.11	30	5.2×10	1.4×10^3
46	Sc	Scandium (21)	0.3	8	0.3	8	1.3×10^3	3.4×10^4
47	Sc		7.4	200	7.4	200	3.0×10^4	8.2×10^5
48	Sc		0.19	5	0.19	5	5.6×10^4	1.5×10^6
75	Se	Selenium (34)	1.48	40	1.48	40	5.2×10^2	1.4×10^4
31	Si	Silicon (14)	3.7	100	3.7	100	1.4×10^6	3.9×10^7
147	Sm	Samarium (62)	Unlimited	Unlimited	Unlimited	Unlimited	7.4×10^{-10}	2.0×10^{-8}
151	Sm		37	1000	3.33	90	9.6×10^{-1}	2.6×10
153	Sm		11.1	300	11.1	300	1.6×10^4	4.4×10^5
113	Sn	Tin (50)	2.22	60	2.22	60	3.7×10^2	1.0×10^4
125	Sn		0.37	10	0.37	10	4.1×10^3	1.1×10^5
85m	Sr	Strontium (38)	2.96	80	2.96	80	1.2×10^6	3.2×10^7
85	Sr		1.11	30	1.11	30	8.9×10^2	2.4×10^4
87m	Sr		1.85	50	1.85	50	4.4×10^5	1.2×10^7

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
89	Sr	Strontium (38)	3.7	100	1.48	40	1.1×10^3	2.9×10^4
90	Sr		0.37	10	1.5×10^{-2}	0.4	5.6	1.5×10^2
91	Sr		0.37	10	0.37	10	1.3×10^5	3.6×10^6
92	Sr		0.37	10	0.37	10	4.8×10^5	1.3×10^7
	T (uncompressed)	Tritium (1)	37	1000	37	1000	3.6×10^2	9.7×10^3
	T (compressed)		37	1000	37	1000		
	T (activated luminous) paint)		37	1000	37	1000		
	T (absorbed on solid) carrier)		37	1000	37	1000		
	T (tritiated water)		37	1000	37	1000		
	T (other forms)		0.74	20	0.74	20		
182	T	Tantalum (73)	0.74	20	0.74	20	2.3×10^2	6.2×10^3
160	Tb	Terbium (65)	0.74	20	0.74	20	4.1×10^2	1.1×10^4
96m	Tc	Technetium (43)	37	1000	37	1000	1.4×10^6	3.8×10^7
96	Tc		0.22	6	0.22	6	1.2×10^4	3.2×10^5
97m	Tc		37	1000	7.4	200	5.6×10^2	1.5×10^4
97	Tc		37	1000	14.8	400	5.2×10^{-5}	1.4×10^{-3}
99m	Tc		3.7	100		100	1.9×10^5	5.2×10^6
99	Tc		37	1000	2.96	80	6.3×10^{-4}	1.7×10^{-2}
125m	Te	Tellurium (52)	37	1000	3.7	100	6.7×10^2	1.8×10^4
127m	Te	Tellurium (52)	11.1	300	1.48	40	1.5×10^3	4.0×10^4
127	Te		11.1	300	11.1	300	9.6×10^4	2.6×10^6
129m	Te		1.11	30	1.11	30	9.3×10^2	2.5×10^4
129	Te		3.7	100	3.7	100	7.4×10^5	2.0×10^7
131m	Te		0.37	10	0.37	10	3.0×10^4	8.0×10^5
132	Te		0.26	7	0.26	7	1.1×10^4	3.1×10^5
227	Th	Thorium (90)	7.4	200	7.4×10^{-3}	0.2	1.2×10^3	3.2×10^4
228	Th		0.22	6	2.96×10^{-5}	0.0008	3.1 × 10	8.3×10^2
230	Th		0.11	3	1.11×10^{-4}	0.0003	7.0×10^{-4}	1.9×10^{-2}
231	Th		37	1000	37	1000	2.0×10^4	5.3×10^5
232	Th		Unlimited	Unlimited	Unlimited	Unlimited	4.1×10^{-9}	1.1×10^{-7}
234	Th		0.37	10	0.37	10	8.5×10^2	2.3×10^4
	Th (natural)		Unlimited	Unlimited	Unlimited	Unlimited		(See Table XXI)

TABLE XX. (cont'd)

	Symbol of radionuclide	Element and atomic number	A_1 TB_q	A_1 (Ci)	A_2 TB_q	A_2 (Ci)	Specific activity TB_q/g	Specific activity (Ci/g)
Th	(irradiated)	Thorium (90) (cont'd)	a/	a/	a/	a/		
200	Tl	Thallium (81)	0.74	20	0.74	20	2.2×10^{4}	5.8×10^{5}
201	Tl		7.4	200	7.4	200	8.1×10^{3}	2.2×10^{5}
202	Tl		1.48	40	1.48	40	2.0×10^{3}	5.4×10^{4}
204	Tl		11.1	300	1.11	30	1.6×10	4.3×10^{2}
170	Tm	Thulium (69)	11.1	300	1.48	40	2.2×10^{2}	6.0×10^{3}
171	Tm		37	1000	3.7	100	4.1×10	1.1×10^{4}
230	U	Uranium (92)	3.7	100	3.7×10^{-3}	0.1	1×10^{3}	2.7×10^{4}
232	U		1.11	30	1.11×10^{-3}	0.03	7.8×10^{-1}	2.1×10
233	U		3.7	100	3.7×10^{-3}	0.1	3.5×10^{-4}	9.5×10^{-3}
234	U		3.7	100	3.7×10^{-3}	0.1	2.3×10^{-4}	6.2×10^{-3}
235	U		3.7	100	3.7×10^{-3}	0.2	7.8×10^{-8}	2.1×10^{-6}
236	U		7.4	200	7.4×10^{-3}	0.2	2.3×10^{-6}	6.3×10^{-5}
238	U		Unlimited	Unlimited	Unlimited	Unlimited	1.2×10^{-8}	3.3×10^{-7}
	U (natural)		Unlimited	Unlimited	Unlimited	Unlimited		(See Table XXI)
		20%	Unlimited	Unlimited	Unlimited	Unlimited		(See Table XXI)
	U (enriched							
		20%	3.7	100	3.7×10^{-3}	0.1		
	U (depleted)		Unlimited	Unlimited	Unlimited	Unlimited		(See Table XXI)
	U (irradiated)		b/	b/	b/	b/		
	V-48	Vanadium (23)	0.22	6	0.22	6	6.3×10^{3}	1.7×10^{5}
	W-181	Tungsten (74)	7.4	200	3.7	100	1.9×10^{2}	5.0×10^{3}
	W-185		37	1000	3.7	100	3.6×10^{-4}	9.7×10^{-3}
	W-187		1.48	40	1.48	40	2.6×10^{4}	7.0×10^{5}
131m	Xe (compressed)	Xenon (54)	0.37	10	0.37	10	3.7×10^{3}	1.0×10^{5}

a/ The values for A_1 and A_2 shall be calculated in accordance with marginal 3691(3) taking into account the activity of the fission products and uranium-233 in addition to that of thorium.

b/ The values for A_1 and A_2 shall be calculated in accordance with marginal 3691(3) taking into account the activity of the fission products and plutonium isotopes to that of the uranium.

TABLE XXI (cont'd)

	Symbol of radionuclide	Element and atomic number	A_1		A_2		Specific activity	
			TB_q	(Ci)	TB_q	(Ci)	TB_q/g	(Ci/g)
131m	Xe (uncompressed)	Xenon (54) (cont'd)	3.7	100	3.7	100	3.7×10^3	1.0×10^5
133	Xe (uncompressed)		37	1000	37	1000	7.0×10^3	1.9×10^5
133	Xe (compressed)		0.19	5	0.19	5	7.0×10^3	1.9×10^5
135	Xe (uncompressed)		2.59	70	2.59	70	9.3×10^3	2.5×10^5
135	Xe (compressed)		0.07	2	0.07	2	9.3×10^3	2.5×10^5
90	Y	Yttrium (39)	0.37	10	0.37	10	9.3×10^3	2.5×10^5
91	Ym		1.11	30	1.11	30	1.5×10^6	4.1×10^7
91	Y		1.11	30	1.11	30	9.3×10^2	2.5×10^4
92	Y		0.37	10	0.37	10	3.5×10^5	9.5×10^6
93	Y		0.37	10	0.37	10	1.2×10^5	3.2×10^6
175	Yb	Ytterbium (70)	14.8	400	14.8	400	6.7×10^3	1.8×10^5
65	Zn	Zinc (30)	1.11	30	1.11	30	3.0×10^2	8.0×10^3
69m	Zn		1.48	40	1.48	40	1.2×10^5	3.3×10^6
69	Zn		11.1	300	11.1	300	2.0×10^6	5.3×10^7
93	Zr	Zirconium (40)	37	1000	7.4	200	1.3×10^{-4}	3.5×10^{-3}
95	Zr		0.74	20	0.74	20	7.8×10^2	2.1×10^4
97	Zr		0.74	20	0.74	20	7.4×10^4	2.0×10^6

TABLE XXI. ACTIVITY-MASS RELATIONSHIPS FOR URANIUM AND NATURAL THORIUM[a/]
(This table is referred to in Table XX).

Radioactive material	TBq/g	(Ci/g)	g/TBq	(g/Ci)
Uranium (wt/235U present)				
0.45	1.9×10^{-6}	5.0×10^{-4}	5.4×10^{5}	2.0×10^{6}
0.72 (natural)	2.6×10^{-6}	7.06×10^{-4}	3.8×10^{5}	1.42×10^{6}
1.0	2.8×10^{-6}	7.6×10^{-4}	3.5×10^{5}	1.3×10^{6}
1.5	3.7×10^{-6}	1.0×10^{-3}	2.7×10^{5}	1.0×10^{6}
5.0	1.0×10^{-5}	2.7×10^{-3}	1.0×10^{5}	3.7×10^{5}
10.0	1.8×10^{-5}	4.8×10^{-3}	5.7×10^{4}	2.1×10^{5}
20.0	3.7×10^{-5}	1.0×10^{-2}	2.7×10^{4}	1.0×10^{5}
35.0	7.4×10^{-5}	2.0×10^{-2}	1.4×10^{4}	5.0×10^{4}
50.0	9.8×10^{-5}	2.5×10^{-2}	1.1×10^{4}	4.0×10^{4}
90.0	2.1×10^{-4}	5.8×10^{-3}	4.6×10^{3}	1.7×10^{4}
93.0	2.6×10^{-4}	7.0×10^{-3}	3.8×10^{3}	1.4×10^{4}
95.0	3.4×10^{-4}	9.1×10^{-3}	3.0×10^{3}	1.1×10^{4}
Natural thorium	8.1×10^{-9}	2.2×10^{-7}	1.2×10^{8}	4.6×10^{6}

[a/] The figures for uranium include the activity of uranium-234 which is concentrated during the enrichment process. The activity for thorium includes the equilibrium concentration of thorium-228.

(2) For any single radionuclide whose identity is known, but which is not listed in Table XX, the values of A_1 and A_2 shall be determined according to the procedure given below:

(a) If the radionuclide emits only one type of radiation, A_1 shall be determined according to the rules in (i), (ii), (iii) and (iv) below. For radionuclides emitting different kinds of radiation, A_1 shall be the most restrictive value of those determined for each individual radiation. However, in both cases A_1 shall be restricted to a maximum of 37 TBq (1000 Ci). If a parent nuclide decays into a shorter lived daughter, of a half-life not greater than 10 days, A_1 shall be calculated for both the parent and the daughter, and the more limiting of the two values should be assigned to the parent nuclide.

(i) For gamma emitters, A_1 is determined by the expression:

$$A_1 = \frac{4.65 \times 10^6}{\sqrt{a}} \text{ (in TBq) or } A_1 \frac{9}{\sqrt{b}} \text{ (in Ci)}$$

where Γ_a is the gamma-ray constant (in $C.m.^2.kg^{-1}$), corresponding to the dose in $C.kg.^{-1}s^{-1}$ at 1 m per Bq; the number 4.65×10^6 results from the choice of 10m Sv/h at a distance of 3m as the reference dose equivalent rate.

where Γ_b is the gamma-ray constant, corresponding to the dose in R/h at 1 m per Ci; the number 9 results from the choice of 1 rem/h at a distance of 3 m as the reference dose equivalent rate.

(ii) For X-ray emitters, A_1 = is determined by the atomic number of the nuclide:
for $Z \leq 55$; $A_1 = 37$ TBq (1000 Ci)
for $Z > 55$; $A_1 = 7.4$ TBq (200 Ci)

(iii) For beta emitters, A_1 is determined by the maximum beta energy (E_{max}) according to Table XXII.

(iv) For alpha emitters A_1 is determined by the expression:

$$A_1 = 1000\ A_3$$

where A_3 is the value listed in Table XXIII.

(b) A_2 shall be the more restrictive of the following two values:

(i) the corresponding A_1 and

(ii) the value A_3 obtained from Table XXIII.

TABLE XXII RELATIONSHIP BETWEEN A_1 AND E_{max} FOR BETA EMITTERS

E_{max} (MeV)	TBq	A_1 (Ci)
< 0.5	37	1000
$0.5 - < 1.0$	11.1	300
$1.0 - < 1.5$	3.7	100
$1.5 - < 2.0$	1.11	30
> 2.0	0.37	10

TABLE XXIII RELATIONSHIP BETWEEN A_3 AND THE ATOMIC NUMBER OF THE RADIONUCLIDE

Atomic number	A_3		
	Half-life less than 1000 days	Half-life 1000 days to 10^6 years	Half-life greater than 10^6 years
1 to 81	0.11 TBq (3 Ci)	1.85GBq (50 mCi)	0.11 TBq (3 Ci)
82 and above	74 MBq (2 mCi)	74 MBq (2 mCi)	0.11 TBq (3 Ci)

(3) For any single radionuclide whose identity is unknown, the value of A_1 shall be taken to be 74 GBq (2 Ci) and the value of A_2 shall be taken to be 74 MBq (0.002 Ci). However, if the atomic number of the radionuclide is known to be less than 82, the value of A_1 shall be taken to be 370 GBq (10 Ci) and the value of A_2 shall be taken to be 14.8 GBq (0.4 Ci).

2. Mixtures of radionuclides, including radioactive decay chains

(1) For mixed fission products the following activity limits may be assumed, if a detailed analysis of the mixture is not carried out: 3691

$A_1 = 370$ GBq (10 Ci)
$A_2 = 14.8$ GBq (0.4 Ci)

(2) A single radioactive decay chain in which the radionuclides are present in their naturally occurring proportions and in which no daughter nuclide has a half-life either longer than 10 days or longer than that of the parent nuclide shall be considered as a single radionuclide. The activity to be taken into account and the A_1 or A_2 value to be applied shall be those corresponding to the parent nuclide of that chain. However, in the case of radioactive decay chains in which any daughter nuclide has a half-life either longer than 10 days or greater than that of the parent nuclide, the parent and such daughter nuclides shall be considered as mixtures of different nuclides.

(3) In the case of a mixture of different radionuclides, where the identity and activity of each radionuclide are known, the permissible activity of each radionuclide R_1, R_2... R_n, shall be such that $F_1 + F_2 + \ldots F_n$ is not greater than unity, where

$$F_1 = \frac{\text{Total activity of } R_1}{A_1\ (R_1)}$$

$$F_2 = \frac{\text{Total activity of } R_2}{A_1\ (R_2)}$$

$$F_n = \frac{\text{Total activity of } R_n}{A_1\ (R_n)}$$

$A_1(R_1)$, $A_1(R2)$,... $A_1(R_n)$ is the value of A_1 or A_2 as appropriate for the nuclide R_1, R_2... R_n.

(4) When the identity of each radionuclide is known but the individual activities of some of the radionuclides are not known, the formula given in paragraph (3) shall be applied to establish the values of A_1 or A_2 as appropriate. All the radionuclides whose individual activities are not known (their total activity will, however, be known) shall be classed in a single group and the most restrictive value of A_1 or A_2 applicable to any one of them shall be used as the value of A_1 or A_2 in the denominator of the fraction.

(5) Where the identity of each radionuclide is known but the individual activity of none of the radionuclides is known, the most restrictive value of A_1 or A_2 applicable to any of the radionuclides present shall be adopted as the applicable value.

(6) When the identity of none or only some of the nuclides is known, the value of A_1 shall be taken to be 74 GBq (2 Ci) and the value of A_2 shall be taken to be 74 MBq (0.002 Ci). However, if alpha emitters are known to be absent, the value of A_2 shall be taken to be 14.8 GBq (0.4 Ci).

3692-3694

SECTION VII. DECONTAMINATION, LEAKING PACKAGES AND ACCIDENTS

3695

(1) If a package containing radioactive substances is broken or is visibly leaking or is involved in an accident during carriage, the vehicle or affected area shall be isolated so as to prevent all contact of persons with radioactive substances and, when possible, shall be duly marked off or surrounded by barriers. No-one shall be authorized to stay within the isolated area until qualified persons arrive to supervise the handling and salvage work. The sender and authorities concerned shall be notified immediately. Notwithstanding these provisions, the presence of radioactive substances shall not be considered as a bar to operations for the rescue of people or fire-fighting.

(2) If radioactive substances have leaked, have been spilled or have been scattered in any way whatever in a place, area or on to goods or equipment used in storage, qualified persons shall be called in as soon as possible to direct decontamination operations. The place, area or equipment thus contaminated shall only be put back into service when its use has been declared free from danger by qualified persons.

(3) Except as provided for in paragraph (4) any vehicles, equipment or part thereof, which have been contaminated in the course of carriage of radioactive substances shall be decontaminated as soon as possible by a qualified person and shall not be reused unless the non-fixed radioactive contamination is below the levels specified in Table XIX and the vehicles, equipment or part thereof have been declared safe in respect of residual radiation levels by a qualified person.

(4) Vehicles or compartments used for the bulk transport or tank transport of low specific activity substances, or for the transport of packages of low specific activity substances carried as a full load or for the transport of low level solid radioactive substances as a full load shall not be used for other goods until decontaminated as specified in paragraph (3)

3696-3699

Appendix A.7

3700-3799

Appendix A.8

3800-3899

Appendix A.9

1. Provisions relating to danger labels

3900

(1) Labels Nos. 1, 3, 4.1, 4.2, 4.3, 5, 6.1, 6.1A, 7A, 7B, 7C and 8 shall be in the form of a square of 10 cm side standing on a corner. They have a black line of 5 mm in the edge and running parallel to it. Labels to be affixed to vehicles with fixed or demountable tanks shall be of not less than 30 cm side.

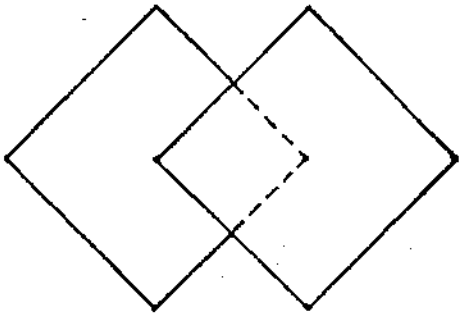
(2) Labels Nos. 10, 11 and 12 shall be rectangular, of standard format A5 (148×210 mm). For packages, these dimensions may be reduced to a format not less than A7 (74×105 mm).

(3) An inscription, in figures or letters, concerning the nature of the danger may be placed on the lower part of the labels.

3901

(1) Danger labels, where they are required under the provisions of this Annex, must be stuck on packages and fixed tanks or affixed in some other suitable manner. Only where the state of the outside of a package does not permit this should labels be stuck on cards or tablets securely attached to the package. On outer packagings and fixed tanks, indelible danger markings corresponding exactly to the prescribed models may be used instead of labels.

(2) Where a package is required to bear two labels of the same model, the labels shall be affixed in the manner indicated hereafter:



(3) It is the sender's duty to affix the labels to packages, and, where appropriate, to fixed tanks and containers.

(4) In addidition to the danger labels prscribed under ADR, danger labels conforming to the requirements of other modes of transport may be affixed to packages, containers, tank-containers and batteries of receptacles containing dangerous goods which are transported for part of a journey by road and which must be labelled in accordance with the provisions of those requirements.

2. Explanation of symbols

3902

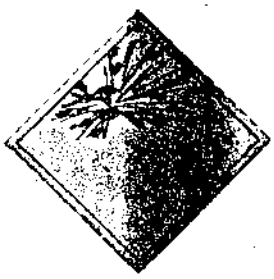
The danger labels prescribed for substances and articles of Classes 1 to 8 (see annexed plate) have the following meanings:

No. 1	(black bomb on orange ground): prescribed in marginals 2117 (1), 2145 and 2563;	liable to explosion;
No. 2	This number is reserved for possible future use of the internationally accepted gas cylinder symbol on a green background. No label embodying this symbol is at present prescribed for class 2 substances of ADR.	
No. 3	(black flame on red ground): prescribed in marginals 2225, 2312 (1), 2479 (2), 2612 (3) and 2812 (3)	danger of fire (inflammable liquids);
No.4.1	(black flame on ground of equidistant alternate red and white vertical stripes): prescribed in marginal 2414 (1);	danger of fire inflammable solids);
No. 4.2	(black flame on white ground, lower triangle of label red): prescribed in marginal 2443 (1);	substance liable to spontaneous ignition;

No. 4.3	(black flame on blue ground): prescribed in marginal 2479 (1)	danger of emission of inflammable gases on contact with water;
No. 5	(flame over a circle, black on yellow ground): prescribed in marginals 2511 (1), 2563 (1), 2703 (Schedule 5) and 2812 (3)	oxidizing substance or oganic peroxide;
No. 6.1	(death's head on cross-bones, black on white ground): prescribed in marginals 2312 (2) and 2612 (2) and 2812 (3)	toxic substance: to be kept apart in vehicles and at loading, unloading or transloading points from foodstuffs and other articles for consumption;
No. 6.1A	(St. Andrew's Cross on ear of corn, black on white background): prescribed in marginals 2312 (2) and 2612 (2)	harmful substances: to be kept apart from foodstuffs in vehicles and at loading, unloading or transloading points;
No. 6.2	This number is reserved for possible use of the internationally accepted symbol of three crescents superimposed on a circle. No label embodying this symbol is at present prescribed for class 6.2 substances of ADR.	
No. 7A	(stylized trefoil, inscription RADIOACTIVE, a vertical stripe in the lower half, with following text: Contents... Activity... Symbol and inscriptions black on white ground, vertical stripe red): prescribed in Schedules 5 to 12 of marginal 2703 as appropriate and in marginal 3656 (1), (2) and (3);	radioactive substance in packages of Category I - WHITE; in the event of damage to the packages, danger to health by ingestion or inhalation of, or contact with, spilled contents;
No. 7B	(like the foregoing, but with two vertical stripes in the lower half and the following text: Contents... Activity... Transport index. Symbol and inscriptions black; upper half of ground yellow; lower half of ground white; vertical stripes red): prescribed in Schedules 5 to 12 of marginal 2703 as appropriate and in marginal 3656 (1), (2) and (3);	radioactive substance in packages of Category II-YELLOW; packages to be kept away from packages containing undeveloped radiographic or photographic plates or films; in the event of damage to packages, danger to health by ingestion or inhalation of, or contact with, spilled contents, and risk of external irradiation at a distance;
No. 7C	(like the foregoing, but with three vertical stripes in the lower half): prescribed in Schedules 5 to 12 of marginal 2703 as appropriate and in marginal 3656 (1), (2) and (3);	radioactive substance in packages of Category III-YELLOW; packages to be kept away from packages containing undeveloped radiographic or photographic plates or films; in the event of damage to packages, danger to health by ingestion or inhalation of, or contact with, spilled contents, and risk of external irradiation at a distance;
No. 7D	This number refers to the placard prescribed in marginal 240 010 of Appendix B.4.	
No. 8	(liquid dripping from a test-tube on to a plate and from another test-tube on to a hand; black on white ground, lower triangle of label black with a white border): prescribed in marginals 2312 (2), 2479 (2), 2511 (1), 2612 (3), 2703 (Schedule 5) and 2812 (1).	corrosive substance;
No. 9	This number is reserved for possible future introduction of a Class 9 in ADR.	
No. 10	(open black umbrella on white ground): prescribed in marginal 2479 (1);	keep dry
No. 11	(two black arrows on white ground): prescribed in marginals 2117 (2), 2224 (2), 2312 (4), 2414 (2), 2443 (2) and (3), 2479 (3), 2511 (2), 2563 (2), 2612 (5), 2664 and 2812 (5)	this side up: label to be affixed, with arrows pointing upwards, on two opposite sides of the package;
No. 12	(red wineglass on white ground): prescribed in marginals 2117 (2), 2182 (2), 2224 (1) and (2), 2414 (2), 2443 (3), 2479 (3), 2511 (2), 2562 (2), 2612 (4), 2664 and 2812 (4).	handle with care, or: do not drop.
No. 13	This number is used in the international carriage of dangerous goods by rail only.	

APPENDICE A 9
DANGER LABELS
(See marginal 39021)
Reproduction on reduced scale

No. 1



No. 3



No. 4.1



No. 4.2



No. 4.3



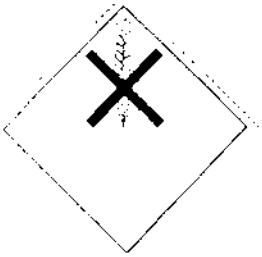
No. 5



No. 6.1



No. 6.1A



No. 8



No. 7A



No. 7B



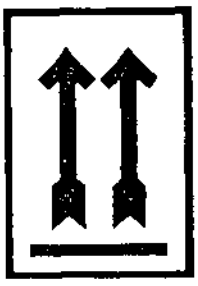
No. 7C



No. 10



No. 11



No. 12



ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

European Agreement

concerning the international carriage of dangerous goods by road (ADR) and protocol of signature

done at Geneva on 30 September 1957

VOLUME III

(Annex B)

UNITED NATIONS

New York, 1985

ANNEX B: PROVISIONS CONCERNING TRANSPORT EQUIPMENT AND TRANSPORT OPERATIONS

CONTENTS

		Marginal
Plan of the Annex		10 000
Applicability of other regulations, national or international		10 001
Applicability of the provisions of Part I		10 002
PART I.	GENERAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF ALL CLASSES	
	General	10 010 et seq.
	Scope of this Annex (including limited quantities)	10 010 et seq.
	Definitions	10 014
Section 1	Mode of carriage	10 100 et seq.
	Method of dispatch, restrictions on forwarding	10 105
	Full load	10 108
	Carriage in bulk	10 111
	Carriage in containers	10 118
	Carriage in tanks	10 121
	Labelling of tank-containers and batteries of receptacles	10 130
Section 2	Special requirements to be fulfilled by the means of transport and its equipment	10 200 et seq.
	Types of vehicle	10 204
	Vehicles with fixed or demountable tanks or batteries of receptacles	10 220
	Fire-fighting appliances	10 240
	Electrical equipment	10 251
	Miscellaneous equipment	10 260
	Approval of vehicles	10 282 and 10 283
Section 3	General service requirements	10 300 et seq.
	Vehicle crews	10 311
	Special training of drivers	10 315
	Supervision of vehicles	10 321
	Carriage of passengers	10 325
	Use of fire-fighting appliances	10 340
	Portable lighting apparatus	10 353
	Prohibition of smoking	10 374
	Empty tanks	10 378
	Documents to be carried on the transport unit	10 381
	Instructions in writing	10 385
Section 4	Special provisions concerning loading, unloading and handling	10 400 et seq.
	Limitation of the quantities carried	10 401
	Prohibition of mixed loading on one vehicle	10 403
	Prohibition of mixed loading in one container	10 404
	Prohibition of mixed loading with goods contained in a container	10 405
	Cleaning before loading	10 413
	Handling and stowage	10 414
	Cleaning after unloading	10 415
	Precautions against electrostatic charges	10 417
	Loading and unloading of dangerous substances in containers	10 419
	Running the engine during loading or unloading	10 431
Section 5	Special provisions concerning the operation of vehicles	10 500 et seq.
	Marking and labelling of vehicles	10 500
	Parking in general	10 503
	Parking at night or in poor visibility	10 505
	Parking of a vehicle constituting a special danger	10 507
	Other provisions	10 599
Section 6	Transitional provisions, derogations and provisions peculiar to certain countries	10 600 et seq.
	Rapid procedure for authorizing derogations for the purpose of trials	10 602
PART II	SPECIAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF CLASSES 1 TO 8	
Classes 1a, 1b and 1c	Explosive substances and articles; Articles filled with explosive substances; Igniters, fireworks and similar goods	11 00 et seq.
Class 2	Gases: Compressed, liquefied or dissolved under pressure	21 000 et seq.
Class 3	Inflammable liquids	31 000 et seq.
Class 4.1	Inflammable solids	41 000 et seq.
Class 4.2	Substances liable to spontaneous combustion	42 000 et seq.
Class 4.3	Substances which give off inflammable gases on contact with water	43 000 et seq.
Class 5.1	Oxidizing substances	51 000 et seq.
Class 5.2	Organic peroxides	52 000 et seq.
Class 6.1	Toxic substances	61 000 et seq.
Class 6.2	Repugnant substances and substances liable to cause infection	62 000 et seq.
Class 7	Radioactive substances	71 000 et seq.
Class 8	Corrosive substances	81 000 et seq.
	APPENDICES	
		Marginals
	Provisions common to the B.1 Appendices	200000-210999
Appendix B.1a	Provisions concerning fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles	211000-211999
Appendix B.1b	Provisions concerning tank-containers	212000-212999
Appendix B.1c	Provisions concerning fixed tanks and demountable tanks made of reinforced plastics	213000-213999

Appendix B.1d	Requirements concerning the materials and construction of fixed tanks, of demountable tanks and of shells of tank-containers, intended for the carriage of deeply-refrigerated liquefied gases of Class 2	214000-219999
Appendix B.2	Provisions concerning electrical equipment	220000-229999
Appendix B.3	Certificate of approval for vehicles carrying certain dangerous goods	230000-239999
Appendix B.4	Tables concerning the carriage of dangerous substances of Class 7; Label to be placed on vehicles carrying these substances	240000-249999
Appendix B.5	List of substances covered by marginal 10 500(2)	250000-259999
Appendix B.6	Certificate of driver's training in accordance with marginal 10 315(1)	260000-269999

ANNEX B: PROVISIONS CONCERNING TRANSPORT EQUIPMENT AND TRANSPORT OPERATIONS

Plan of the Annex

(1) This Annex comprises: 10 000

(a) General provisions applicable to the carriage of dangerous substances of all Classes (Part I);

(b) General provisions applicable to the carriage of dangerous substances of Classes 1 to 8 (Part II);

(c) Appendices as follows:

– Appendix B.1a concerning fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles;

– Appendix B.1b concerning tank-containers;

– Appendix B.1c concerning fixed tanks and demountable tanks made of reinforced plastics;

– Appendix B.1d relating to requirements concerning the materials and contruction of fixed tanks, of demountable tanks, and of shells of tank-containers, intended for the carriage of deeply-refrigerated liquefied gases of Class 2;

– Appendix B.2 concerning electrical equipment;

– Appendix B.3 containing a model certificate of approval for vehicles;

– Appendix B.4 containing tables concerning the carriage of substances of Class 7 and a model label to be affixed to vehicles carrying these substances;

– Appendix B.5 containing the list of substances covered by marginal 10 500(2);

– Appendix B.6 containing a model driver's training certificate.

(2) The general provisions of Part I and the special provisions of Part II are divided into sections with the following headings:

General	This section describes the scope of this Annex and includes the provisions concerning permitted exemptions and definitions;
Section 1	Mode of carriage of goods (this section contains the provisions concerning method of dispatch, restrictions on forwarding, full loads and the possibility of carriage of goods in bulk, in containers or in tanks);
Section 2	Special requirements to be fulfilled by the means of transport and its equipment;
Section 3	Genaral service provisions;
Section 4	Special provisions concerning loading, unloading and handling (this section contains also the prohibitions on mixed loading);
Section 5	Special provisions concerning the operation of vehicles;
Section 6	Transitional provisions, derogations and provisions peculiar to certain countries.

Applicability of other regulations, national or international.

(1) If the vehicle carrying out a transport operation subject to the provisions of ADR is conveyed over a section of the journey otherwise than by road haulage, any national or international regulations which govern the carriage of dangerous goods on that section by the mode of transport used for conveying the road vehicle shall alone be applicable to that section of the journey. 10 001

(2) In cases where a transport operation subject to the provisions of ADR is likewise subject over the whole or a part of the road journey to the provisions of an international convention which regulates the carriage of dangerous goods by a mode of transport other than road carriage by virtue of clauses extending the applicability of that convention to certain motor-vehicle services, then the provisions of that international convention shall apply over the journey in question concurrently with those of ADR which are not incompatible with them; the other clauses of ADR shall not apply over the journey in question.

Applicability of the provisions of Part I of this Annex

Where provisions of Part II or of the Appendices to this Annex conflict with provisions of Part I, those provisions of Part I shall not apply. 10 002

Nevertheless

(a) the provisions of marginal 10 010-10 013 shall take precedence over those of Part II;

(b) the provisions of marginal 10 403 shall take precedence over the prohibitions on mixed loading prescribed in the sections 4 of Part II.

10 003
-10 009

PART I – GENERAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF ALL CLASSES

(See, however, marginal 10 002)

General

Scope of this Annex

Annex A exempts, from the provisions of the present Annex, carriage performed under the conditions (of packaging, mass, etc.) laid down in marginals 2201a, 2301a, 2401a, 2431a, 2471a, 2501a, 2601a and 2801a. 10 010

Table specifying the limited quantities of dangerous substances in packages which may be carried in one transport unit without application of the provisions of this Annex relating to: 10 011

– Types of vehicles (marginals XX 204 of Parts I and II and marginals 11 205 and 11 206 of Part II concerning Classes 1a, 1b and 1c);

– Vehicle crews (marginals XX 311 of Parts I and II);

– Supervision of vehicles (marginals XX 321 of Parts I and II);

– The carriage of passengers (marginal 10 325);

– Instructions in writing (marginals 10 381(1)(b), 10 385 and 61 385);

– The special certificate of approval for vehicles (marginals 10 282 and 11 282);

– The special training for drivers (marginal 10 315);

– The special requirements to be fulfilled by the means of transport and its equipment (all sections 2 of Parts I and II), subject, however, to compliance with the provisions of marginal 21 212;

– Places of loading and unloading (marginals 11 407, 21 407 and 61 407); and

– The operation of vehicles (all sections 5 of Parts I and II), subject, however, to compliance with the provisions of marginal 61 515.

Classes	SUBSTANCES Multipliers for calculating total quantities exempted for a load which includes several substances each of which is affected by different mass limits (see note 1 below)	Maximum total quantity per transport unit (gross mass) A 200 5 kg	B 50 20 kg	C 20 50 kg	D 10 100 kg	E 3 333 kg	F 2 500 kg	G 1 1000 kg	Unlimited
1a, 2 (only the gases classified under (a) and (b)), 3, 4.2, 4.3, 5.1, 5.2, 6.1 and 8	Empty packagings (including receptacles, excluding tanks)								X
1a	1° – 14°	X							
1b	2° (b), 4°				X				
	Other articles		X						
1c	1° (a)								X
	3°				X				
	Other aticles		X						
2	Cyanogen chloride of 3° (ct)	X							
	Phosgene of 3° (at), fluorine of 1° (at)			X					
	1° (a) and (b), 2° (a) et (b)							X	
	Other substances and empty packagings having contained a gas classified under (at), (bt), (c) or (ct)					X			
3	12°, 13° and substances of "(a)" of 11° and 14° to 26°	X							
	Substances of "(b)" of 11° and 14° to 26°				X				
	1° (a), 2° (a) and (b), 3° (b), 4° (a) and (b), 5° (a), 6° (a) and (b)					X			
	32° (a) and 34° (c)							X	
	Other substances						X		
4.1	9°, 10°								X
	2° (a), 11° (b)					X			
	Other substances			X					
4.2	5° – 13°					X			
4.3	Calcium carbide of 2° (a), calcium silicide or manganese calcium silicide of 2° (d)							X	
	Other substances		X						
5.1	2°			X					
	1°, 3° and 10°				X				
	Other substances						X		
5.2	45° (b), 46° (a), 47° (a) and (b) packed in accordance with marginal 2559	X*							
	1° – 22°, 30°, 31° packed in accordance with marginal 2561		X						
	1° – 22°, 30°, 31°, 40° packed in accordance with marginals 2553 to 2556 and 2558			X					
6.1	Substances classified under (c)				X				
	Substances classified under (b)			X					
	Other substances (except 1° and 2°)	X							
8	Sodium sulphide of 45° (b)								X
	1° (a), 2° (a), 6°, 8° (b), 21° (a), 22° (b), 24°, 25°, 26° (a), 36° (a), 37° (a), 44° (a), 53° (b)		X						
	21° (b), 26° (b), 33° (b), 36° (b), 37° (b), 44° (b), 52° (c), 53° (c), other substances under (a) and (b)				X				
	Other substances						X		

* Excluding the mass of the refrigerating appliance if any.

General Provisions Applicable to the Carriage of Dangerous Substances of All Classes

NOTE: 1. The maximum quantities shown in the above table represent a degree of danger which may, from a highly simplified standpoint, be considered as equivalent for each of the substances listed. This danger level shall not be exceeded even where a load not affected by any prohibition on mixed loading includes more than one dangerous substance. 10011

Where the same exemption limit applies to the substances concerned, their respective masses are added and the total must not exceed that limit. Where, however, different exemption limits apply to the substances, the maximum quantities allowed for each shall be calculated as follows:

(a) The total actual mass of each substance referred to in any one column of the table shall be multiplied by the factor shown at the head of the column;

(b) The products so obtained are added together and their total shall not exceed 1.000.

Up to that figure, the difference divided by the factor corresponding to some other substance gives the exemption limit still not taken up.

Example of these calculations

Cl.	Substance	Maximum quantity						
		5 kg	20 kg	50 kg	100 kg	333 kg	500 kg	1000 kg
2	2° (a)							100
3	31°						50	
4.1	7° (a)			2				
6.1	6° (b)			3				
6.1	6° (c)				25			
Total of quantities carried				5	25		50	100
Multiplier factor		200	50	20	10	3	2	1
Product (factor x quantity)				100	250		100	100
Total of products				100	+ 250	+	100	+ 100 = 500

Since the total of the products is less than 1,000, the case set out above leaves available within the exemption limit 1,000 − 550 = 450, which could be used to make up the load with, for example, gas cylinders of Class 2, 11° (a) (limit 333 kg) up to a value of 450: 3 = 150 kg.

These multiplications or divisions can be avoided by using the mass tables below.

Maximum mass of each of two different substances shown in columns A to G of the above table which may be loaded (contd) together on a transport unit without exceeding the exemption limits (in kg): 10011

− Columns A et seq.

A	A
1	4
2	3
3	2
4	1
5	0

A and B	
1	16
2	12
3	8
4	4
5	0

A and C	
1	40
2	30
3	20
4	10
5	0

A and D	
1	80
2	60
3	40
4	20
5	0

A and E	
1	266
2	200
3	133
4	66
5	0

A and F	
1	400
2	300
3	200
4	100
5	0

A and G	
1	800
2	600
3	400
4	200
5	0

– Columns B et seq.

B	B
2	18
4	16
6	14
8	12
10	10
12	8
14	6
16	4
18	2
20	0

B and C	
2	45
4	40
6	35
8	30
10	25
12	20
14	15
16	10
18	5
20	0

B and D	
2	90
4	80
6	70
8	60
10	50
12	40
14	30
16	20
18	10
20	0

B and E	
2	300
4	266
6	233
8	200
10	166
12	133
14	100
16	66
18	33
20	0

B and F	
2	450
4	400
6	350
8	300
10	250
12	200
14	150
16	100
18	50
20	0

B and G	
2	900
4	800
6	700
8	600
10	500
12	400
14	300
16	200
18	100
20	0

– Columns C et seq.

C	C
5	45
10	40
15	35
20	30
25	25
30	20
35	15
40	10
45	5
50	0

C and D	
5	90
10	80
15	70
20	60
25	50
30	40
35	30
40	20
45	10
50	0

C and E	
5	300
10	266
15	233
20	200
25	166
30	133
35	100
40	66
45	33
50	0

C and F	
5	450
10	400
15	350
20	300
25	250
30	200
35	150
40	100
45	50
50	0

C and G	
5	900
10	800
15	700
20	600
25	500
30	400
35	300
40	200
45	100
50	0

– Columns D et seq.

D	D
10	90
20	80
30	70
40	60
50	50
60	40
70	30
80	20
90	10
100	0

D and E	
10	300
20	266
30	233
40	200
50	166
60	133
70	100
80	66
90	33
100	0

D and F	
10	450
20	400
30	350
40	300
50	250
60	200
70	150
80	100
90	50
100	0

D and G	
10	900
20	800
30	700
40	600
50	500
60	400
70	300
80	200
90	100
100	0

– Columns E et seq.

E	E
25	308
50	283
75	258
100	233
125	208
150	183
175	158
200	133
225	108
250	83
275	58
300	33
325	8
333	0

E and F	
25	462
50	425
75	387
100	350
125	312
150	271
175	237
200	200
225	162
250	125
275	87
300	50
325	12
333	0

F and G	
25	925
50	850
75	775
100	700
125	625
150	550
175	475
200	400
225	325
250	250
275	175
300	100
325	25
333	0

If, on taking into account the mass of the first substance to be loaded (as shown in one of the columns of a quick-reference table) the maximum quantity for the second substance is not reached (in the other column of the same table) the mass remaining available may be used for a third substance. To ascertain the permissible mass of that substance, reference should be made to the quick-reference table which is headed by the column letters corresponding to the second and third substances. if the maximum quantity for the third substance is not used up either, the same procedure may be followed in regard to loading one or more other substances.

In the left-hand column of each table, an intermediate higher value for a quantity actually loaded (e.g. in the B and D table, 9 between 8 and 10) may be rounded down to the lower value shown (in this case 8). In the right-hand column, on the other hand, an intermediate value for a quantity actually loaded (e.g., in the same table, 55 instead of 60) must be rounded up to the higher value shown (in this case 60).

– Columns E et seq.

F	F	F and G	
50	450	50	900
100	400	100	800
150	350	150	700
200	300	200	600
250	250	250	500
300	200	300	400
350	150	350	300
400	100	400	200
450	50	450	100
500	0	500	0

NOTE: 2. For the purposes of this marginal and its table, the masses of liquids or gases contained in the ordinary fixed tanks of means of transport for their propulsion or for operation of their specialized equipment (refrigerating appliances, for example) or for ensuring their safety shall not be taken into account. 10011

In the case of exemptions provided for in marginal 10011 the transport document prescribed by marginal 2002 (3) shall bear the following inscription after the particulars specified in chapter B of the special requirements for each class of Annex A: 10012

"load not exceeding the exemption limits prescribed in marginal 10011".

(1) The only provisions of this Annex applicable to the carriage of dangerous substances of Class 6.2 shall be those of Part II which relate to this Class and those of the marginals of this Part I which are expressly made applicable by those provisions of Part II. 10013

(2) Derogations from the provisions of this Annex may be made in the case of emergency transport to save human life.

Definitions

(1) For the purposes of this Annex: 10014

The term "competent authority" means the authority designated as such in each country and in each specific case by the Government;

The term "fragile package" means a package containing a fragile receptacle (i.e. a receptacle made of glass, porcelain, stoneware or similar materials) which is not enclosed in a packaging with complete sides protecting it effectively against shock (see also Annex A, marginal 2001 (7));

The term "gas" means a gas or vapour;

The term "dangerous substances", when used alone, means the substances and articles designated as being substances and articles of ADR;

The term "RID" signifies Regulations concerning the international carriage of dangerous goods by rail, which are Annex I of COTIF - Convention concerning international carriage by rail, Appendix B - Uniform rules concerning the contract for international carriage of goods by rail (CIM);

The term "carriage in bulk" means the carriage of a solid substance without packaging;

The term "container" means an article of transport equipment (lift van, demountable tank or other similar structure):

Of a permanent character and accordingly strong enough to be suitable for repeated use;

Specially designed to facilitate the carriage of goods, by one or more means of transport, without breakage of load;

Fitted with devices permitting its ready handling, particularly when being transloaded from one means of transport to another;

So designed as to be easy to fill and empty, and having an internal volume of not less than 1 m^3.

The term "container" does not cover conventional packagings, or vehicles, or tank-containers;

The term "large container" means a container having an internal volume of more than 3 m^3;

The term "small container" means a container having an internal volume of not less than 1 m^3 and not more than 3 m^3;

The term "tank-container" means an article of transport equipment conforming to the definition of the term "container" given above and built to contain liquid, gaseous, powdery or granular substances but having a capacity of more than 0.45 m^3;

The term "battery of receptacles" means an assembly comprising a number of receptacles (called "elements") whose individual or average capacity is over 150 litres and which are interconnected by a manifold and permanently mounted on a frame (for frames of gas cylinders, see Annex A, marginal 2212 (1) (d));

The term "demountable tank" means a tank, other than a fixed tank, a tank-container or a battery of receptacles, which has a capacity of over 1.000 litres, is not designed for the carriage of goods without breakage of load, and normally can only be handled when it is empty;

The term "fixed tank" means a tank which is structurally attached to a vehicle (which then becomes a tank-vehicle) or is an integral part of the frame of such vehicle;

The term "tanks" when alone, means a tank-container or a tank of a capacity exceeding 1 m^3 which may be a fixed tank, a demountable tank or a battery of receptacles. (See, however, a limitation of the meaning of the word "tank" in the provisions common to the B.1 Appendices, marginal 200 000 (2));

The term "transport unit" means a motor vehicle without an attached trailer, or a combination consisting of a motor vehicle and an attached trailer;

The term "closed vehicle" means a vehicle having a body capable of being closed;

The term "open vehicle" means a vehicle the platform of which has not superstructure or is merely provided with side boards and a tailboard;

The term "sheeted vehicle" means an open vehicle provided with a sheet to protect the load;

The term "tank-vehicle" means a vehicle built to carry liquids, gases, or powdery or granular substances and comprising one or more fixed tanks;

The term "battery-vehicle" means a tank-vehicle comprising a number of fixed tanks (called "elements") interconnected by a manifold.

(2) For the purposes of this Annex, tanks (see definition in (1) above) are not placed on the same footing as receptacles, the term "receptacle" being used in a restrictive sense. Provisions concerning receptacles apply to fixed tanks, batteries of receptacles, demountable tanks and tank-containers only if this is expressly stipulated.

(3) The term "full load" means any load originating from one sender, for which the use of a vehicle or a large container is exclusively reserved and all operations for loading and unloading are carried out in conformity with the instructions of the sender or consignee (see marginal 10108).

(1) Unless expressly stated otherwise, the sign "%" in this Annex represents: 10015

(a) In the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid: a percentage by mass based on the total mass of the mixture, the solution or the wetted solid;

(b) In the case of gaseous mixtures: a percentage by volume based on the total volume of the gaseous mixture.

(2) Whenever the mass of a package is mentioned in this Annex, the gross mass is meant unless otherwise stated.

The mass of containers or tanks used for the carriage of goods is not included in the gross mass.

(3) Pressures of all kinds relating to tanks (such as test pressure, working pressure, safety-valve opening pressure) are always indicated in gauge pressure (pressure in excess of atmospheric pressure); however, the vapour pressure of substances is always expressed in absolute pressure.

(4) Where this Annex specifies a degree of filling for tanks, the degree of filling is always given for a temperature of the substances of 15°C unless some other temperature is indicated.

10016 -10099

Section 1: Mode of carriage of goods

10100 -10104

Method of dispatch, restrictions on forwarding

The carriage of certain dangerous goods is subject to the mandatory uses of a particular type of transport or equipment. These special conditions are set out in this Annex, Part II, marginals XX 105. 10105

10106 -10107

Full load

Where the provisions relating to carriage as a "full load" are applied, the competent authorities may require the vehicle or large container used for such carriage to be loaded at only one point and unloaded at only one point. 10108

10109 -10110

Carriage in bulk

(1) Solid dangerous substances may not be carried in bulk unless this mode of carriage is expressly authorized for such substances by the provisions of Part II of this Annex, and then only under the conditions stipulated by those provisions. Nevertheless, empty packagings, uncleaned, may be carried in bulk if this mode of carriage is not explicitly prohibited by the requirements of Annex A, Part II. 10111

(2) For carriage in bulk in containers, see marginal 10118 (2) and (5).

10112 -10117

Carriage in containers

NOTE: The provisions concerning carriage in tank-containers are set out in the marginals headed "Carriage in tanks".

(1) The carriage of packages in containers is authorized. 10118

(2) Substances may not be carried in bulk in containers unless their carriage in bulk is expressly authorized (see marginal 10211); small containers shall be of the closed type and have complete walls.

(3) Large containers shall meet the requirements concerning the body of the vehicle laid down in this Annex for the load in question; the body of the vehicle need not then satisfy those provisions.

(4) Subject to the provisions of the last phrase in (3) above, the fact that dangerous substances are contained in one or more containers shall not affect the conditions to be met by the vehicle by reason of the nature and quantities of the dangerous substances carried.

(5) If the dangerous substances carried in a container are such that, under Annex A, one or more danger labels have to be affixed to the packages containing them, the same label or labels shall be affixed to the outside of the container containing those substances in packages or in bulk. However, label No. 11 need not be affixed if the container comprises a device or inscription clearly showing which way up it should be kept.

10119 -10120

Garriage in tanks

(1) Dangerous substances may be carried in tanks only if this mode of carriage is expressly authorized for those substances by the provisions on the use of fixed tanks, demountable tanks and batteries of receptacles set out in each section 1 of Appendix B.1a, Part II, and those on the use of tank-containers set out in each section 1 of Appendix B.1b, Part II. 10121

(2) Reinforced-plastics tanks may be used only if their use is expressly authorized in Appendix B.1c, marginal 213010 (Use). The temperature of the substance carried shall not exceed 50°C at the time of filling.

NOTE: See marginal 10500 for the marking and labelling of vehicles with fixed or demountable tanks.

101122 -10129

Labelling of tank-containers and batteries of receptacles

(1) Tank-containers and batteries of receptacles shall bear on both sides the labels prescribed in the XX 130 marginals of each Class. If these labels are not visible from outside the vehicle, the same labels shall be affixed to the vehicle's side and rear walls. 10130

(2) The above requirements apply equally to empty tank-containers and batteries of receptacles, uncleaned and not degassed.

NOTE: See marginal 10500 for the marking of vehicles carrying tank-containers or batteries of receptacles.

10131 -10199

Section 2: Special requirements to be fulfilled by the means of transport and its equipment

10200 -10203

Types of vehicle

(1) A transport unit loaded with dangerous substances may in no case include more than one trailer or semi-trailer. 10204

(2) Special provisions concerning the types of vehicle to be used for the carriage of certain dangerous substances will, where appropriate, be found in Part II of this Annex (see also the marginals dealing with carriage in containers, the carriage of solid substances in bulk, carriage in tanks, and tanks).

(3) Packages comprising packagings made of materials sensitive to moisture shall be loaded on to closed or on to sheeted vehicles.

10205 -10219

Vehicles with fixed or demountable tanks or batteries of receptacles

NOTES:

(a) The provisions concerning the design, inspection, filling and use of fixed tanks, demountable tanks and batteries of receptacles, and various provisions concerning tank-vehicles and their use, will be found in Appendix B.1a and, so far as the design of fixed tanks, demountable tanks and batteries of receptacles intended for the carriage of deeply refrigerated liquefied gases of Class 2 is concerned, in Appendix B.1d (for the approval of tank-vehicles, see marginal 10282).

(b) The provisions concerning the construction, items of equipment, type approval, tests, marking, etc. of tank-containers are to be found in Appendix B.1b and, so far as the construction of tank-containers intended for the carriage of deeply refrigerated liquefied gases of Class 2 is concerned, in Appendix B.1d.

(c) The provisions concerning the construction of fixed tanks and demountable tanks of reinforced plastics are to be found in Appendix B.1c.

(d) The provisions common to the B.1 Appendices are to be found in marginal 200000.

(e) For receptacles, see Annex A.

(1) Rear protection of vehicles: A bumper sufficiently 10220
resistant to rear impact shall be fitted over the full width of the tank at the rear of the vehicle. There shall be a clearance of at least 100 mm between the rear wall of the tank and the rear of the bumper. this clearance being measured from the rearmost point of the tank wall or from projecting fittings or accessories in contact with the substance being carried.

NOTE: For the protection of tanks against damage by lateral impact or overturning. see marginal 211127 (4) and its Note.

(2) Vehicles transporting liquids having a flash-point of 55°C or below or the inflammable gases listed in marginal 220002 shall in addition comply with the following further requirements:

(a) Engines and exhaust systems

The engine propelling the vehicle and where applicable, the discharge pump. shall be so equipped and situated and the exhaust pipes so directed or protected as to avoid any danger to the load through heating or ignition.

(b) Fuel tanks

The fuel tanks for supplying the engine shall be so placed as to be protected so far as possible against any collision, and so that in the event of any leakage the fuel may drain directly to the ground. Fuel tanks shall in no case be placed immediately above the exhaust pipe and tanks containing petrol shall be equipped with an effective flame-trap fitting the filler opening or with a closure with which the opening can be kepr hermetically closed.

10221
-10239

Fire-fighting appliances

(1) Every transport unit carrying dangerous substances 10240
shall be equipped with:

(a) At least one portable fire extinguisher of adequate total capacity, suitable for fighting a fire in the engine or in any other part of the transport unit. and such that. if it is used to fight a fire in the load, it does not aggravate the fire and. if possible. controls it: however. if the vehicle is equipped with a fixed fire extinguisher. automatic or easily brought into action.

for fighting a fire in the engine, the portable extinguisher need not be suitable for fighting a fire in the engine;

(b) In addition to the equipment prescribed under (a) above, at least one portable fire extinguisher of adequate total capacity, suitable for fighting a fire in the load, and such that, if it is used to fight a fire in the engine or in any other part of the tranpsort unit, it does not aggravate the fire and, if possible, controls it;

(2) The extinguishing agents contained in the fire extinguisher with which a transport unit is equipped shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

(3) Where a transport unit comprises a trailer and the laden trailer is uncoupled and left on the public highway, at a distance from the drawing vehicle, the trailer shall be equipped with at least one fire extinguisher conforming to the provisions of subparagraph (1) (b) of this marginal.

10241
-10250

Electrical equipment

The requirements concerning the electrical equipment of 10251
vehicles set out in Appendix B.2 shall apply only to the following vehicles:

(a) Vehicles with fixed tanks, vehicles carrying demountable tanks or batteries of receptacles transporting either liquids having a flash-point of 55°C or below, or the inflammable gases listed in marginal 220 002;

(b) Vehicles intended for the carriage of explosives and having to comply with the requirements set out in marginal 11 205 (2) (c) for transport units of category B.III.

10252
-10259

Miscellaneous equipment

Every transport unit carrying dangerous goods shall be 10260
equipped with:

(a) a tool kit for emergency repairs to the vehicle;

(b) for each vehicle, at least one scotch of a size suited to the weight of the vehicle and to the diameter of the wheels;

(c) two amber lights. These lights shall be independent of the electrical equipment of the vehicle and be so designed that their use cannot cause the goods being carried to ignite; they shall be steady or flashing.

10261
-10281

Approval of vehicles

(1) Thank-vehicles, vehicles carrying demountable 10282
tanks or batteries of receptacles and, where so required under the provisions of Part II of this Annex, other vehicles shall be subject to technical inspection in their country of registration to make sure that they conform to the provisions of this Annex, including those of its appendices, and to the general safety of registration; if these vehicles are trailers or semi-trailers coupled behind a drawing vehicle, the drawing vehicle shall be subject to technical inspection for the same purposes.

(2) A certificate of approval shall be issued by the competent authority of the country of registration for each vehicle whose inspection yields satisfactory results. It shall be drawn up in the language or one of the languages of the country issuing it, and also, if that language is not English, French, or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise. It shall conform to the model shown in Appendix B.3

(3) A special certificate of approval issued by the competent authorities of one Contracting Party for a vehicle registered in the territory of that Contracting Party shall be accepted, so long as its validity continues, by the competent authorities of the other Contracting Parties.

(4) The validity of a special certificate of approval shall expire not later than one year after the date of the technical inspection of the vehicle preceding the issue of the certificate. However, in the case of tanks subject to compulsory periodic inspection this provision shall not mean that tightness (leakproofness) test, hydraulic pressure tests or internal inspections of tanks have to be carried out at intervals shorter than those laid down in Appendices B.1a and B.1c.

Transport units intended for the carriage of tank- 10283
containers exceeding 3000 l capacity shall be subject to an annual technical inspection in their country of registration to ensure that they conform to the general safety regulations concerning brakes, lighting, etc. in force in their country. A certificate of approval shall be issued by the competent authority of the country of registration for each element of the transport unit whose inspection yields satisfactory results. The date of the last inspection should be specified. The model shown in Appendix B.3 may be used for this certificate

10284
-10299

Section 3: General service provisions

10300
-10310

Vehicle crews

Where the relevant provisions of Part II of this Annex 10311
require the presence in the vehicle of an assistant, the assistant must be able to take over from the driver.

10312
-10314

Special training of drivers

(1) Drivers of tank vehicles or transport units carrying tanks or tank containers with a total capacity of more than 3,000 l shall hold a certificate issued by the competent authority or by an organization recognized by that authority stating that they have successfully participated in a training course on the particular requirements that have to be met during the carriage of dangerous goods. 10315

(2) By means of appropriate endorsements on his certificate made every five years by the competent authority or by any organization recognized by that authority, a vehicle driver must be able to show that he has successfully participated in refresher training courses. However, the competent authority or any organization recognized by that authority to which an application has been made for an extension of the period of validity of the certificate may exempt the applicant from undertaking a refresher course provided that he can prove he has continued in his occupation without a break since his certificate was issued or last revalidated.

(3) Training shall take place at courses approved by the competent authority. Its main objectives are to make drivers aware of hazards arising in the carriage of dangerous goods and to give them basic information indispensable for minimizing the likelihood of an incident taking place and, if it does, to enable them to take measures which may prove necessary for their own safety and that of the environment and for limiting the effects of the incident. This training, which should include individual practical exercises where appropriate, should cover:

(a) The general requirements govering the transport of dangerous goods;

(b) The main types of hazard;

(c) Preventive and safety measures appropriate to the various types of hazard;

(d) What to do after an accident (first aid, road safety, basic knowledge about the use of protective equipment etc.);

(e) Labelling and marking to indicate danger;

(f) What a vehicle driver should and should not do during the carriage of dangerous goods;

(g) The purpose and the method of operation of technical equipment on vehicles;

(h) The behaviour of vehicles carrying tanks or tank-containers on the road, including movements of the load.

(4) All certificates of training conforming with paragraphs (1), (2) and (3) of this marginal and issued in accordance with the model shown in Appendix B.6 by the competent authorities of a Contracting Party or by any organization recognized by those authorities shall be accepted during their period of validity by the competent authorities of other Contracting Parties.

10316
-10320

Supervision of vehicles

Transport units carrying dangerous goods in the quantities shown in the relevant marginals of Part II shall be supervised or alternatively may be parked, unsupervised, in an isolated position in the open in a secure depot or secure factory premises. If such facilities are not available, the transport unit, after having been properly secured, may be parked in an isolated position meeting the requirements of paragraphs (i), (ii) or (iii) below. The parking facilities permitted in paragraph (ii) shall be used only if those described in paragraph (i) are not available, and those described in paragraph (iii) may be used only if facilities described in paragraphs (i) and (ii) are not available. 10321

(i) A vehicle park supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver;

(ii) A public or private vehicle park where the transport unit is not likely to suffer damage from other vehicles; or

(iii) A suitable open space separated from the public highway and from dwellings, where the public does not normally pass or assemble.

10322
-10324

Carriage of passengers

Apart from members of the vehicle's crew, no passengers may be carried in transport units carrying dangerous substances. 10325

10326
-10339

Use of fire-fighting appliances

The crew of the vehicle must know how to use the fire-fighting appliances. 10340

10341
-10352

Portable lighting apparatus

A vehicle may not be entered by persons carrying lighting apparatus comprising a flame. In addition, the lighting apparatus used shall not exhibit any metal surface liable to produce sparks. 10353

10354
-10373

Prohibition of smoking

Smoking shall be prohibited during handling operations, in the vicinity of packages awaiting handling, near stationary vehicles, and inside the vehicles. 10374

10375
-10377

Empty tanks

(1) For fixed tanks (tank vehicles), demountable tanks and batteries of receptacles, see marginal 211 177. 10378

(2) For tank-containers, see marginal 212 177.

10379
-10380

Documents to be carried on the transport unit

(1) In addition to the documents required under other regulations, the following documents shall be carried on the transport unit: 10381

(a) The transport documents prescribed in Annex A, marginal 2002(3) and (4), covering all the dangerous substances carried; and

(b) The instructions prescribed in marginal 10 385, relating to all the dangerous substances carried.

(2) Where the provisions of this Annex require the following documents to be drawn up, they shall likewise be carried on the transport unit:

(a) The special certificate of approval referred to in marginal 10 282 or 10 283 for each transport unit or element thereof;

(b) The driver's training certificate prescribed in marginal 10 315 and reproduced in Appendix B.6; and

(c) The permit authorizing the transport operation.

10382
-10384

Instructions in writing

(1) As a precaution against any accident or emergency that may occur or arise during carriage, the driver shall be given instructions in writing specifying concisely: 10385

(a) The nature of the danger inherent in the dangerous substances carried, and the safety measures that need to be taken to avert it;

(b) The action to be taken and treatment to be given in the event of persons coming into contact with the goods carried or with any substances which might escape therefrom;

(c) The measures to be taken in case of fire and, in particular, the fire-fighting appliances or equipment not to be used;

(d) The measures to be taken in case of breakage or deterioration of packagings or of the dangerous substances carried, particularly where such dangerous substances have spilled over the road;

(e) In the case of transport units with tanks of a capacity exceeding 3 000 l carrying one or more of the substances referred to in Appendix B.5, the name of the substance(s), the Class, item number and letter, and the substance identification and hazard identification numbers in accordance with Appendix B.5.

(2) These instructions shall be prepared for each dangerous substance or Class of dangerous substances by the manufacturer or the sender, in a language of the country of origin; where that language is not the same as those of the countries of transit or destination, the instructions shall also be drawn up in the language of those countries. A set of these instructions shall be kept in the driver's cab.

(3) These instructions shall be supplied to the carrier at the latest when the transport order is given, so as to enable him to take all necessary steps to ensure that the employees concerned are aware of these instructions and are capable of carrying them out properly.

10386
-10399

Section 4: Special provisions concerning loading, unloading and handling

10400

Limitation of the quantities carried

The fact that dangerous substances are contained in one or more containers shall not affect the weight limitations laid down by this Annex regarding carriage in a single vehicle or in a single transport unit. 10401

10402

Prohibition of mixed loading on one vehicle

Unless the contrary is explicitly prescribed by the provisions of the Sections 4 of Part II of this Annex, the prohibitions of mixed loading on one vehicle shall not apply to consignments of goods packed together in the manner permitted by the provisions on mixed packing contained in Annex A. Compliance with the prohibitions on mixed loading shall be based on the danger labels of Appendix A.9, which shall be affixed to packages in accordance with the requirements laid down for the various Classes in Annex A. 10403

NOTE: As prescribed in marginal 2002 (4), separate transport documents shall be prepared for consignments which may not be loaded together on the same vehicle.

Prohibition of mixed loading in one container

The prohibitions of mixed loading on one vehicle shall also be observed within each container. 10404

Prohibition of mixed loading with goods contained in a container

For the purpose of the application of the prohibitions of mixed loading on one vehicle, no account shall be taken of substances contained in closed containers with complete sides. 10405

General Provisions Applicable to the Carriage of Dangerous Substances of All Classes

10406
-10412

Cleaning before loading

All the provisions in this Annex which relate to the cleaning of vehicles before loading shall also apply to the cleaning of containers. 10413

Handling and stowage

(1) The various components of a load comprising dangerous substances shall be properly stowed on the vehicle and wedged by appropriate means to prevent them from being displaced in any way in relation to each other and to the walls of the vehicle. 10414

(2) If the load comprises goods of different categories the packages of dangerous substances shall be separated from the other packages.

(3) All the provisions in this Annex which relate to the loading and unloading of vehicles and to the stowage and hadling of substances shall also apply to the loading, stowage and unloading of containers on to and from vehicles.

(4) Nothing whatsoever may be loaded on top of a fragile package.

(5) A driver or a driver's assistant may not open a package containing dangerous substances.

Cleaning after unloading

(1) If, when a vehicle which has been loaded with packaged dangerous substances is unloaded, some of the contents are found to have escaped, the vehicle shall be cleaned as soon as possible and in any case before reloading. 10415

(2) Vehicles which have been loaded with dangerous substances in bulk shall be properly cleaned before reloading unless the new load consists of the same dangerous substance as the preceding load.

(3) All the provisions of this Annex which relate to the cleaning or decontamination of vehicles shall also apply to the cleaning or decontamination of containers.

10416

Precautions against electrostatic charges

In the case of substances with a flash-point of 55° C or below, a good electrical connection from the vehicle chassis to earth shall be established before tanks are filled or emptied. In addition, the rate of filling shall be limited. 10417

10418

Loading and unloading of dangerous substances in containers

The provisions of this Annex which relate to the loading and unloading of vehicles and the stowage and handling of dangerous substances shall also apply to the loading and unloading of dangerous substances in containers. 10419

10420
-10430

Running the engine during loading or unloading

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations. 10431

10432
-10499

Section 5: Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

(1) Transport units carrying dangerous substances shall display two rectangular reflectorized orange-coloured plates of 40 cm base and not less than 30 cm high, set in a vertical plane. The plates shall have a black border not more than 15 mm wide. They shall be affixed one at the front and the other at the rear of the transport unit, both perpendicular to the longitudinal axis of transport unit. They shall be clearly visible. 10500

NOTE: The colour of the orange plates in conditions of normal use should have chromaticity co-ordinates lying within the area on the chromaticity diagram formed by joining the following co-ordinates:

Chromaticity co-ordinates of points at the corners of the area on the chromaticity diagram				
X	0.52	0.52	0.578	0.618
Y	0.38	0.40	0.422	0.38

Luminance factor of reflectorized colour: B≥0.12.

Reference centre E, standard illuminant C,

normal incidence 45°, viewed at 0°.

Co-efficient of reflex luminous intensity at an angle of illimination of 5°, viewed at 0.2°: not less than 20 candelas per lux per m^2.

(2) Transport units with tanks of a capacity greater than 3,000 l carrying substances listed in Appendix B.5 shall, in addition, display on the sides of each tank or tank compartment, clearly visible and parallel to the longitudinal axis of the vehicle, orange-coloured plates identical with those prescribed in paragraph (1). These orange-coloured plates shall bear the identification numbers prescribed in Appendix B.5 for each of the substances carried in the tank or in a compartment of the tank.

(3) Where such tanks are containers (tank-containers), the plates prescribed in paragraph (2) may be replaced by a self-adhesive sheet, by paint or by any other equivalent process, provided the material used for this purpose is weather-resistant and ensures durable marking. In this case, the provisions of the last sentence of paragraph (5), concerning resistance to fire, shall not apply.

(4) For transport units with fixed or demountable tanks carrying only one of the substances listed in Appendix B.5, the orange-coloured plates prescribed in paragraph (2) shall not be necessary provided that those displayed at the front and rear in accordance with paragraph (1) bear the identification numbers prescribed in Appendix B.5.

(5) The identification numbers shall consist of black digits 100 mm high and of 15 mm stroke thickness. The hazard-identification number shall be inscribed in the upper part of the plate and the substance-identification number in the lower part; they shall be separated by a horizontal black line, 15 mm in stroke width, extending from side to side of the plate at mid-height (see Appendix B.5). The identification numbers shall be indelible and shall remain legible after 15 minutes engulfment in fire.

(6) Vehicles with fixed or demountable tanks shall also bear on both sides and at the rear the labels prescribed in marginals XX 500 of each class.

NOTE: See marginal 10 130 for the labelling of tank-containers and batteries of receptacles.

(7) The above requirements are also applicable to empty tanks, uncleaned and not degassed.

(8) After the dangerous substances have been unloaded and the tanks have been cleaned and degassed, the orange coloured plates and danger labels shall no longer be visible.

10501
-10502

Parking in general

No transport unit carrying dangerous substances may be parked without the parking brakes being applied. 10503

10504

Parking at night or in poor visibility

(1) If a vehicle is parked at night or in poor visibility and its lights are not working, the amber lights referred to in marginal 10 260 (c) shall be placed on the road. 10505

One about 10 m ahead of the vehicle; and

The other about 10 m to the rear of the vehicle.

(2) The provisions of this marginal shall not apply in the territory of the United Kingdom.

10506
-10507

Parking of a vehicle constituting a special danger

Without prejudice to the measures prescribed in marginal 10 505 above, if the nature of the dangerous substances carried in the parked vehicle constitutes a source of special danger to road-users (e.g. in the event of substances dangerous to pedestrians, animals or vehicles spilling over the road) and the crew of the vehicle is unable to eliminate the danger quickly, the driver shall alert the nearest competent authorities, or cause them to be alerted, immediately. He shall also, where necessary, take the measures prescribed in the instructions provided for in marginal 10 385.

10508
-10598

Other provisions 10599

In so far as provisions not included in this part or in Part II of this Annex which concern the operation of vehicles carrying dangerous goods are concerned, the relevant measures adopted in this sphere by each Contracting Party on the basis of its domestic legislation and relating to domestic carriage shall apply to international carriage using its territory.

Section 6: Transitional provisions, derogations, and provisions peculiar to certain countries

10600
-10601

Rapid procedure for authorizing derogations for the purpose of trials

For the purpose of carrying out the trials necessary with a view to amending the provisions of this Annex in order to adapt them to technological and industrial developments, the competent authorities of the Contracting Parties may agree directly among themselves to authorize certain transport operations in their territories by temporary derogation from the provisions of this Annex. The authority which has taken the initiative with respect to the temporary derogations so granted shall notify the competent service of the United Nations Secretariat of the derogation, which service shall bring it to the attention of the Contracting Parties. 10602

10603
-10999

Part II - SPECIAL PROVISIONS APPLICABLE TO THE CARRIAGE OF DANGEROUS SUBSTANCES OF CLASSES 1 TO 8 SUPPLEMENTING OR AMENDING THE REQUIREMENTS OF PART 1

Classes 1a Explosive substances and articles

1b Articles filled with explosive substances

1c Igniters, fireworks and similar goods

General

(Only the general provisions of Part 1 apply)

11000
-11099

Section 1: Mode of carriage

11100
-11104

Method of dispatch and restrictions on forwarding

Substances of Class 1a, 13° and 14° (a) and (b), may be carried only as a full load. However, packages weighing not more than 10 kg and handed over for carriage in a quantity not exceeding 100 kg may be carried otherwise than as a complete load. 11105

11106
-11117

Carriage in containers

Small containers shall satisfy the requirements prescribed in respect of the body of the vehicle for the transport operation concerned; it will then not be necessary for the body of the vehicle to satisfy those requirements. 11118

11119
11199

Section 2: Special requirements to be fulfilled by the means of transport and its equipment

11200
11203

Types of vehicle

(See also marginals 11205 and 11206)

Dangerous substances or articles of Classes 1a, 1b and 1c may be carried only in closed vehicles or in sheeted vehicles fitted with side boards and a tailboard. The sheet of a sheeted vehicle must be of impermeable material not readily inflammable. It must be tautened so as to cover the vehicle on all sides, with an overlap of not less than 20 cm down the walls of the vehicle, and be kept in position by lockable metal bars or chains. 11204

Categories of vehicles

For the purposes of this Annex, transport units authorized to carry dangerous substances or articles of Classes 1a, 1b and 1c are classified as follows: 11205

(1) «A» transport units: Transport units whose engines use a liquid fuel with a flash-point below 55° C.

(2) «B» transport units: Transport units whose engines use a liquid fuel with a flash-point of 55° C or avobe; this category B comprises the following subcategories:

(a) «B.I» transport units:

These have either no trailer or a trailer meeting the following conditions:

Its coupling device is quickly detachable and is robust; and

It is fitted with an effective braking device acting on all the wheels, actuated by the service-brake control of the drawing vehicle and automatically stopping the trailer in the event of breakage of the coupling.

(b) «B.II» transport units:

These have the following characteristics in addition to those of subcategory B.I:

(i) Engine and exhaust system

The engine and the exhaust system are placed forward of the front wall of the body. The esxhaust-pipe outlet is directed outwards from the vehicle.

(ii) Fuel tank

The fuel tank is placed well away from the engine, the electric wiring and the exhaust-gas piping, and in such a manner that in the event of leakage from the tank the fuel drains directly on to the ground and cannot reach the load of explosives. The fuel tank is well away from the storage battery, or is at least separated from it by a leak-proof partition. It is so placed as to be so far as possible protected in a collision. The engine is not gravity-fed.

(iii) Driver,s cab 11205

No inflammable material has been used in the construction of the driver's cab, except in the seating equipment.

(c) «B.III» transport units:

These have all the characteristics of subcategory B.II and, in addition, their body exhibits the following features:

(i) It is closed and has a continuous surface; it is separated from the driver's cab by a space of not less than 15° cm; it is robustly constructed in such a manner and of such materials that it adequately protects the goods carried; the materials used for the lining are incapable of producing sparks; the insulating and heat-resisting properties of the body are at all points at least equivalent to those of a partition consisting of a layer of asbestos board 5 mm thick between two metal walls or to those of a partition consisting of an outer metal wall lined with a layer of fire-proofed wood 10 mm thick.

(ii) The door or doors are provided with a lock and key; all joints and closures are of the overlapping type. The door or doors must be so constructed as to reduce the strength of the body as little as possible.

Restrictions on the use of vehicles of certain categories

(1) «A» transport units may carry only articles of Class 1b, 2° (b), 4° (a), (b) and (e), and of Class 1c, 1° (a) and 3°. 11206

No special limitation of mass is prescribed for such carriage.

(2) «B.I» transport units may carry

(a) Without special mass limitations, articles of Class 1b, 2° (b) and 4°, and of Class 1c, 1° (a) and 3°;

(b) Subject to the mass limitations prescribed in marginal 11401, the dangerous substances referred to in that marginal.

(3) The provisions relating to restrictions, in the light of the mass and nature of the load, on the use of «B.II» and «B.III» transport units are set out in marginal 11401.

11207
-11209

Materials to be used in the construction of vehicle bodies

In the construction of the body, no materials shall be used which are likely to form dangerous compounds with the explosives carried (e.g. lead in the case of the carriage of hexyl, picric acid, picrates, explosive organic nitrocompounds soluble in water, or explosives of an acid nature (see also marginal 11205 (2) (c). 11210

11211
11215

Driver's cab

(See marginal 11205 (2) (b), (iii).) 11216

11217
11224

Combination of drawing vehicle and trailer

(See marginal 11205 (2) (a).) 11225

11226
-11230

Engine and exhaust system

(See marginal 11205 (2) (b), (i).) 11231

11232
-11239

Fire-fighting appliances

The provisions of marginal 10240 (1) (b) and (3) shall not apply to the carriage of dangerous substances of Class 1c, 1° to 3°, 5° to 20°, 24°, 25° and 27°. 11240

11241
11250

Electrical equipment

(1) The rated voltage of the electric lighting system shall not exceed 24 V. 11251

(2) No circuit shall be installed inside the bodies of «B.II» and «B.III» transport units.

11252
11281

Approval of vehicles

The requirements of marginal 10282 shall be applicable to «B.III» transport units. 11282

11283
-11299

Section 3: General service provisions

11300
-11310

Vehicle crews

A driver's assistant shall be carried on every transport unit. If the national regulations so provide, the competent authority of a contracting country may require an approved official to be carried in the vehicle at the carrier's expense. 11311

11312
-11320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 11321

Class 1a: Substances and articles of 1° to 14° : 5 kg;
Class 1b: Articles of 1° (b), (c) and (d), 5° to 7° and 9° to 11° : 50 kg; and
Class 1c: Articles of 21° to 23° : 50 kg.

In addition, these goods shall be supervised at all times in order to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

11322
-11399

Section 4: Special provisions concerning loading, unloading and handling

11400

Limitation of the quantities carried

The quantity of dangerous substances or articles of Classes 1a, 1b and 1c which may be carried on one transport unit shall be limited as follows (see also marginal 11403 as regards the prohibition of mixed loading). 11401

(1) A "B.I" transport unit may carry only

(a) One of the loads authorized by marginals 11206 (1) and (2) (a); or

(b) Not more than 500 kg of articles of Class 1c, 1° (b); or

(c) Not more than 300 kg of substances of Class 1a, 12°; or

(d) Not more than 100 kg of substances of Class 1a, 11°, 13° and 14°.

(2) A "B.II" transport unit may carry only

(a) One of the loads authorized in (1) above for "B.I" transport units; or

(b) Not more than 500 kg of substances of Class 1a, 1° to 10° and 12°, as well as articles of Class 1b, 1°, 2° (a), (c) and (d), 3° and 6° to 11°, or dangerous goods of Class 1c. However, substances of Class 1a, 3°, 4° and 5°, must be packed in accordance with the requirements for consignments carried otherwise than as a complete load.

(3) A "B.III" transport unit may carry only

(a) One of the loads authorized in (2) above for "B.II" transport units; or

(b) Provided that the mass of the load of dangerous substances does not exceed 90 per cent of the mass of the load of ordinary goods declared permissible for the vehicle by the competent authority of the country of registration of the vehicle, not more than 9000 kg of the dangerous substances or articles of Classes 1a, 1b or 1c per articulated vehicle or vehicle without trailer, or not more than 15000 kg of those dangerous substances per transport unit of another kind. However, if the load includes one or more substances of Class 1a, 11°, 13° or 14°, or one or more articles of Class 1b, 5°, 6° or 11°, these limits shall be reduced to 6000 kg and 10000 kg respectively.

11402

Prohibition of mixed loading on one vehicle

(1) Substances and articles of Class 1a shall not be loaded together on one vehicle with: 11403

(a) Articles of Class 1b contained in packages bearing two labels conforming to model No. 1;

(b) Packages bearing a label conforming to any of the models Nos. 4.3, 7A, 7B or 7C;

(c) Packages bearing a label or two labels conforming to any of the models Nos. 3, 4.1, 4.2, 5, 6.1, 6.1A, or 8.

(2) Articles of Class 1b contained in packages bearing a label conforming to model No. 1 shall not be loaded together on one vehicle with:

(a) Articles of Class 1b contained in packages bearing two labels conforming to model No. 1;

(b) Packages bearing a label conforming to any of the models Nos. 4.3, 7A, 7B or 7C;

(c) Packages bearing a label or two labels conforming to any of the models Nos. 3, 4.1, 4.2, 5, 6.1, 6.1A or 8.

(3) Articles of Class 1b contained in packages bearing two labels conforming to model No. 1 shall not be loaded together on one vehicle with:

(a) Substances or articles of Classes 1a, 1b or 1c contained in packages bearing a label conforming to model No. 1; or

(b) The packages indicated under (2) (b) and (c) above.

(4) Articles of Class 1c contained in packages bearing a label conforming to model No. 1 shall not be loaded together in one vehicle with:

(a) Articles of Class 1b contained in packages bearing two labels conforming to model No. 1;

(b) Packages bearing a label comforming to any of the models Nos. 4.3, 7A, 7B or 7C;

(c) Packages bearing a label or two labels conforming to any of the models Nos. 3, 4.1, 4.2, 5, 6.1, 6.1A, or 8.

Prohibition of mixed loading in one container

The prohibition of mixed loading of goods laid down in marginal 11403 shall apply within each container. 11404

Prohibition of mixed loading with goods contained in a container

The provisions of marginal 11403 shall apply as between the dangerous goods contained in a container and the other dangerous goods loaded on the same vehicle, whether or not the latter are contained in one or more other containers. 11405

11406

Places of loading and unloading

(1) The following operations are prohibited: 11407

(a) Loading or unloading dangerous substances or articles of Classes 1a, 1b and 1c in a public place in a built-up area without special permission from the competent authorities;

(b) Loading or unloading dangerous substances or articles of these Classes in a public place elsewhere than in a built-up area without prior notice having been given to the competent authorities, unless these operations are justified for serious reasons of safety.

(2) If, for any reason, handling operations have to be carried out in a public place, then:

Substances and articles of different kinds shall be separated according to the labels; and

Packages fitted with means of handling shall be kept flat while being handled.

11408
-11412

Cleaning before loading

Before dangerous substances or articles of Classes 1a, 1b or 1c are loaded, all remnants of straw, rags, paper and similar materials, and all iron objects (nails, screws, etc.) that are not an integral part of the body of the vehicle shall be removed. 11413

Handling and stowage

(1) The use of readily inflammable materials for stowing packages in vehicles is prohibited. 11414

(2) Packages containing dangerous substances or articles of Classes 1a, 1b and 1c shall be loaded in such a manner that they can be unloaded one by one at the point of destination without it being necessary to rearrange the load.

(3) Packages shall be so stowed in the vehicle that they cannot be displaced therein. They shall be protected against any friction or impact.

If casks are carried lying on their sides, they shall be so arranged that their longitudinal axis lies parallel to that of the vehicle, and wooden wedges shall be applied to prevent any lateral movement.

11415
-11499

Section 5: Special provisions concerning the operation of vehicles

11500
-11507

Halts for passage through Customs

When a transport unit or convoy of vehicles carrying 11508

dangerous substances or articles of Classes 1a, 1b and 1c is to pass a frontier Customs post, the transport unit (or convoy) shall stop at least 50 m from the Customs post. The driver's assistant shall proceed to the Customs post to inform the authorities of the arrival of the transport unit (or convoy) carrying dangerous goods.

Halts of limited duration for service requirements

So far as is possible, halts for service requirements shall not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities. 11509

11510
-11519

Convoys

(1) When vehicles carrying dangerous substances or articles of Classes 1a, 1b and 1c travel in convoy, a distance of not less than 80 m shall be maintained between each transport unit and the next. 11520

(2) If, for any reason, the convoy is obliged to stop and if, in particular, loading or unloading operations have to be carried out in a public place, a distance of not less than 50 m shall be maintained between the stationary vehicles.

(3) The competent authorities may lay down rules for the order or composition of convoys.

11521
-11599

Section 6: Transitional provisions, derogations, and provisions peculiar to certain countries

11600
-11609

Provisions peculiar to certain countries

The carriage of dangerous substances or articles of Classes 1a, 1b and 1c shall be subject in the territory of the United Kingdom to the regulations in force in that country at the time of carriage. 11610

11611
-20999

Class 2: Gases: Compressed, liquefied or dissolved under pressure

General

(Only the genaral provisions of Part 1 apply)

21000
-21099

Section 1: Mode of carriage

21100
-21104

Method of dispatch and restrictions on forwarding

Carbon dioxide and nitrous oxide of 7° (a), mixtures containing carbon dioxide and nitrous oxide of 8° (a), and the gases of 7° (b) and 8° (b) may be carried only in fixed tanks, in demountable tanks, in batteries of receptacles or in tank-containers. 21105

21106
-21117

Carriage in containers

The carriage in small containers of packages containing gases of 7° (a) and 8° (a) is prohibited. 21118

21119
-21129

Labelling of tank-containers and batteries of receptacles

(1) Tank-containers and batteries of receptacles containing substances of 1° (b); 2° (b); 3° (b); chloroethane (ethyl chloride) of 3° (b t); substances of 3° (c); or substances of 4° (b), 4° (c), 5° (b), 6° (c), 7° (b) or 8° (b) shall bear on both sides a label conforming to model No. 3. 21130

(2) Tank-containers and batteries of receptacles containing oxygen of 1° (a); mixtures containing more than 20 per cent oxygen by volume, of 2° (a); nitrous oxide of 5° (a); nitrous oxide or oxygen of 7° (a); or liquid air or mixtures containing more than 20 per cent oxygen by weight, of 8° (a), shall bear on both sides a label conforming to model No. 5.

(3) Tank containers and batteries of receptacles containing boron trifluoride of 1° (a t), ammonia, bromomethane, chlorine or sulphur dioxide of 3° (a t) shall bear on both sides a label conforming to model No. 6.1.

(4) Tank-containers and batteries of receptacles containing gases of 1° (b t) or 2° (b t), or dimethylamine, ethylamine, hydrogen sulphide, methylamine, methyl chloride, methyl mercaptan or trimethylamine of 3° (b t), vinyl bromide or methyl vinyl ether of 3° (c t) or substances of 4° (c t), shall bear on both sides labels conforming to models Nos. 3 and 6.1.

(5) Tank-containers and batteries of receptacles containing nitrogen dioxide or phosgene of 3° (a t) shall bear on both sides labels conforming to models Nos. 5 and 6.1. 21130

(6) Tank-containers and batteries of receptacles containing hydrogen bromide of 3° (a t) or hydrogen chloride of 5° (a t) shall bear on both sides labels conforming to models Nos. 6.1 and 8.

21131
-21199

Section 2: Special requirements to be fulfilled by the means of transport and its equipment

21200
-21211

Ventilation

If packages containing gases of 1° to 6° and 9° (c) are carried in a closed vehicle, the vehicle shall be provided with adequate ventilation. 21212

21213
-21239

Fire-fighting appliances

The provisions of marginal 10240 (1) (b) and (3) shall not apply to carriage other than that of inflammable gases or articles listed in marginal 220002, or of empty packagings of 14° which have contained such gases. 21240

21241
-21259

Special equipment

When compressed gases or liquefied gases harmful to the respiratory organs or entailing a risk of poisoning and identified by the letter "t" in the list of substances are being carried, the crew of the vehicle shall be provided with gas masks (respirators) of a type appropriate to the gases being carried. 21260

21261
-21299

Section 3: General service provisions

21300
-21320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 21321

Boron trifluoride and fluorine of 1° (a t); the substances of 3° (a t), of 3° (b t) other than ethyl chloride and of 3° (c t); hydrogen chloride of 5° (a t); and the deeply-refrigerated liquefied gases of 7° (a) and 8° (a): 1000 kg;

The substances of 3° (b); ethyl chloride of 3° (b t); vinyl chloride of 3° (c); the substances of 4° (b); and the deeply-refrigerated liquefied gases of 7° (b) and 8° (b): 10000 kg.

21322
-21352

Portable lighting apparatus

When inflammable gases or articles listed in marginal 220 002 are being carried, a closed vehicle may not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any gases which may have penetrated into the interior of the vehicle. 21353

21354
-21377

Empty tanks

For fixed tanks (tank-vehicles), demountable tanks, batteries of receptacles and tank containers, see also Annex A, marginal 2201, 14°, Note 1. 21378

21379
-21399

Section 4: Special provisions concerning loading, unloading and handling

21400
-21402

Prohibition of mixed loading on one vehicle

Articles of Class 2 enclosed in packages bearing a label conforming to model No. 3 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing one or two labels conforming to model No. 1. 21403

21404
-21406

Places of loading and unloading

(1) The following operations are prohibited: 21407

(a) Loading or unloading the following substances in a public place in a built-up area without special permission from the competent authorities: hydrogen bromide, chlorine, nitrogen dioxide, sulphur dioxide or phosgene (3° (a t)); hydrogen sulphide (3° (b t)); and hydrogen chloride (5° (a t));

(b) Loading or unloading the substances listed under (a) above in a public place elsewhere than in a built-up area without prior notice having been given to the competent authorities, unless the said operations are justified for serious reasons of safety.

(2) If for any reason handling operations have to be carried out in a public place, then:

Substances and articles of different kinds shall be separated according to the labels; and

Packages fitted with means of handling shall be kept flat while being handled.

21408
-21413

Handling and stowage

(1) Packages shall not be thrown or subjected to impact. 21414

(2) Receptacles shall be so stowed in the vehicle that they cannot overturn or fall and that the following requirements are met:

(a) The cylinders referred to in marginal 2212 (1) (a) shall be laid parallel to or at right angles to the longitudinal axis of the vehicle; however, those situated near the forward transverse wall shall be laid at right angles to the said axis.

Short cylinders of large diameter (about 30 cm and over) may be stowed longitudinally with their valve-protecting devices directed towards the middle of the vehicle.

Cylinders which are sufficiently stable or are carried in suitable devices effectively preventing them from overturning may be placed upright.

Cylinders which are laid flat shall be so wedged or attached that they cannot shift;

(b) Receptacles containing gases of 7° (a) or 8° (a) shall always be placed in the position for which they were designed and be protected against any possibility of being damaged by other packages. 21415
-21499

Section 5: Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances listed in Appendix B.5 shall bear the following labels on both sides and at the rear: 21500

Air, liquid, deeply-refrigerated	5
Ammonia	6.1+8
Ammonia, dissolved in water	6.1+8
Butadienes	3
Butane	3
1-Butylene (1-Butene)	3
cis-2-Butylene (cis-2-Butene)	3
trans-2-Butylene (trans-2-Butene)	3
Carbon dioxide containing ethylene oxide	3
Chlorine	6.1+8
1-Chloro-1,1-difluoroethane (R 142b)	3
Cyclopropane	3
Dichlorodifluoromethane containing 12 per cent by mass of ethylene oxide	3+6.1
1,1-Difluoroethane (R 152a)	3
1,1-Difluoroethylene (Vinylidene fluoride)	3
Dimethylamine	3+6.1
Dimethyl ether	3
Ethane	3
Ethane, liquid, deeply-refrigetared	3
Ethylamine, anhydrous	3+6.1
Ethyl chloride	3+6.1
Ethylene	3
Ethylene, liquid, deeply-refrigerated	3
Ethylene oxide containing carbon dioxide	3+6.1
Ethylene oxide with nitrogen	3+6.1
Hexafluoropropylene (R 1216)	6.1
Hydrogen, liquid, deeply-refrigerated	3
Hydrogen bromide	6.1+8
Hydrogen chloride	6.1+8
Hydrogen sulphide	3+6.1
Isobutane	3
Isobutylene (Isobutene)	3
Methane, liquid, deeply-refrigerated	3
Methylamine, anhydrous	3+6.1
Methyl bromide	6.1
Methyl chloride	3+6.1
Methyl mercaptan	3+6.1
Methyl vinyl ether	3+6.1
Mixtures of 1, 3-butadiene and hydrocarbons	3
Mixtures of hydrocarbons (Mixtures A, A0, A1, B and C)	3
Mixtures of methylacetylene and propadiene with hydrocarbons (Mixtures P1 and P2)	3
Mixtures of methyl bromide and chloropicrin	6.1
Mixtures of methyl chloride and chloropicrin	3+6.1
Mixtures of methyl chloride and methylene chloride	3+6.1
Natural gas, liquid, deeply-refrigerated	3
Nitrogen dioxide NO_2(Nitrogen peroxide, Nitrogen tetroxide	5+6.1
Nitrous oxide N_2O	5
Nitrous oxide N_2O, liquid, deeply-refrigerates	5
Oxygen, liquid, deeply-refrigerated	5
Phosgene	5+6.1
Propane	3
Propylene	3
Sulphur dioxide	6.1+8
Trifluorochloroethylene (R 1113)	3+6.1
1,1,1,-Trifluoroethane	3

Trimethylamine, anhydrous	3+6.1
Vinyl bromide	3+6.1
Vinyl chloride	3
Vinyl fluoride	3

21501
-21508

Halts of limited duration for service requirements.

In the carriage of dangerous substances of Class 2 other than those of 1°(a) ans (a t), 2°(a), 7°(a), 8°(a), and 10°, halts for service requirements shall so far as possible not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities. 21509

21510
-21599

Section 6: Transitional provisions, derogations and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

21600
-30999

Class 3: Inflammable liquids

General

(Only the general provisions of Part I apply)

31000
-31099

Section 1:
Mode of carriage

31100
-31129

Labelling of tank-containers 31130

Tank-containers containing or having contained substances of 1° to 6°, 11° to 26°, 31° or 33° shall bear on both sides a label conforming to model No.3.

Those containing or having contained substances of 6° shall in addition bear labels conforming to model No. 6.1A.

Those containing or having contained substances of 11° to 20° shall in addition bear labels conforming to model No. 6.1

Those containing or having contained substances of 21° to 26° shall in addition bear labels conforming to model No.8.

31131
-31199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

(Only the general provisions of Part I apply).

31200
-31299

Section 3:
General service provisions

31300
-31320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 31321

Substances of 1° to 5° (a) and (b), 6° (a) and (b) and 21° to 26°: 10000 kg

Substances of 11° to 20°: 5.000 kg

31322
-31352

Portable lighting apparatus

A closed vehicle may not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any gases which may have penetrated into the interior of the vehicle. 31353

31354
-31399

Section 4:
Special provisions concerning loading, unloading and handling

31400
-31402

Prohibition of mixed loading on one vehicle

(1) Substances of Class 3 contained in packages bearing one or two labels conforming to model No. 3 shall not be loaded on one vehicle together with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No.1 31403

(2) Substances of Class 3 contained in packages bearing two labels conforming to model No. 3 shall not be loaded on one vehicle together with:

(a) Substances of Class 5.1 or Class 5.2 contained in packages bearing two labels conforming to model No. 5;

(b) Substances of Class 6.1 or Class 8 contained in packages bearing two labels conforming to model No. 6.1, 6.1A or 8.

31404
-31409

Precautions with respect to articles of consumption

(1) Packages bearing labels conforming to models No. 6.1 or 6.1A shall be kept apart from foodstuffs, other articles of consumption and animal feeds in vehicles and at places of loading, unloading and transloading. 31410

(2) Empty receptacles, uncleaned, bearing labels conforming to models No. 6.1 or 6.1A shall be kept apart from foodstuffs, other articles of consumption and animal feeds in vehicles and at places of loading, unloading and transloading.

(2) Empty receptacles, uncleaned, bearing labels conforming to models No. 6.1 or 6.1A shall be kept apart from foodstuffs, other articles of consumption and animal feeds in vehicles and at places of loading, unloading and transloading.

31411
-31413

Handling and stowage

The use of readily inflammable materials for stowing packages in vehicles is prohibited. 31414

Cleaning after unloading

If any substances of 6° or 11° to 20° have leaked and been spilled in a vehicle, it may not be re-used until after it has been thoroughly cleaned and, if necessary, decontaminated. Any other goods and articles carried in the same vehicle shall be examined for possible contamination. 31415

31416
-31499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

Vehicles with fixed or demountable tanks containing or having contained substances of 1° to 6°, 11° to 26°, 31° or 33° shall bear on both sides and at the rear a label conforming to model No. 3. 31500

Those containing or having contained substances of 6° shall in addition bear labels conforming to model No. 6.1 A.

Those containing or having contained substances of 11° to 20° shall in addition bear labels conforming to model No. 6.1

Those containing or having contained substances of 21° to 26° shall in addition bear labels conforming to model No. 8.

31501
-31599

Section 6:
Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

31600
-40999

Class 4.1: Inflammable solids

General

(Only the general provisions of Part I apply)

41000
-41099

Section 1:
Mode of carriage

41100
-41104

Method of dispatch and restrictions on forwarding

Sulphur in the melted state, 2° (b), and naphthalene in the melted state, 11° (c), may be carried only in tank-vehicles and tank-containers. 41105

41106
-41110

Carriage in bulk

(1) Sulphur of 2° (a) may be carried in bulk. 41111

(2) Naphthalene of 11° (a) and (b) may be carried in bulk; in that case it shall be carried in closed vehicles with a metal body or in sheeted vehicles with a non-inflammable sheet and either having a metal body or having a sheet of closely-woven material spread on the floor. For the carriage of naphthalene of 11° (a), the floors of vehicles shall be protected by an oil-proof lining.

(3) Expandable polystyrenes of 12° may be carried in bulk in open but sheeted vehicles with adequate ventilation.

41112
-41117

Carriage in containers

(1) For the carriage of naphthalene of 11° (a) and (b), small wooden containers shall be fitted with an oil-proof lining. 41118

(2) Expandable polystyrenes of 12° may also be packed without internal packaging in small containers of the closed type with complete walls. Small containers containing expandable polystyrenes shall bear the marking: "Keep away any source of ignition". This marking shall be in an official language of the country of departure, and also, if that language is English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

41119
-41129

Labelling of tank-containers

Tank containers containing or having contained sulphur of 2° (a) or 2° (b), phosphorus sesquisulphide or phosphorus pentasulphide of 8°, nephthalene of 11° (c), shall bear on both sides a label conforming to model No. 4.1 41130

41131
-41199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

41200
-41203

Types of vehicle

Packages containing substances of 4° to 8° shall be carried in closed or sheeted vehicles. 41204

41205
-41299

Section 3:
General service privisions

41300
-41320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 41321

Substances of 7° (a), (b) and (c): 1000 kg.

41322
-41399

Section 4:
Special provisions concerning loading, unloading and handling

41400
41402

Prohibition of mixed loading on one vehicle

(1) Substances of Class 4.1 contained in packages bearing a label or two labels conforming to model No. 4.1 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No. 1. 41403

(2) Substances of Class 4.1 contained in packages bearing two labels conforming to model No. 4.1 shall not be loaded together on one vehicle with:

(a) Substances of Classes 5.1 or 5.2 contained in packages bearing two labels conforming to model No. 5;

(b) Substances of Class 6.1 contained in packages bearing two labels conforming to models Nos. 6.1 or 6.1A;

(c) Substances of Class 8 contained in packages bearing two labels conforming to model No. 8.

41404
-41499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

(1) The provisions of marginal 10500, (1), (7) and (8) shall apply only to the carriage of substances of 2°, 4° to 8° and 11° (c). 41500

(2) Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances listed in Appendix B.5 shall bear on both sides and at the rear labels conforming to model No. 4.1.

41501
-41599

Section 6:
Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

41600
41999

Class 4.2: Substances liable to spontaneous combustion

(Only the general provisions of Part I apply)

4200(
4209(

Section 1:
Mode of carriage

4110(
-4211(

Carriage in bulk

Substances of 5°, dust from blast-furnace filters of 6° (a) substances of 10° may be carried in bulk. In that case, substances of 5° and 10° shall be carried in closed vehicles with a metal body, and dust from blast-furnace filters in closed vehicles with a metal body or in sheeted vehicles with a metal body. 4211

4111
-4112

Labelling of tank-containers

Tank-containers containing or having contained substances of 1° or 3° shall bear on both sides a label conforming to model No. 4.2. 42130

Those containing or having contained substances of 3° shall bear in addition labels conforming to model No. 4.3.

42131
-42199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

42200
42203

Types of vehicle

Packages containing substances of 4° and 10° shall be carried in closed or sheeted vehicles. 42204

42205
42299

Section 3:
General service provisions

42300
-42320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 42321

Substances of 1° to 3° and 6° (a): 10000 kg.

42322
-42377

Empty tanks

For empty tanks which have contained phosphorus of 1° see also marginals 211474 and 212474. 42378

42379
-42399

Section 4:
Special provisions concerning loading, unloading and hadling

42400
42402

Prohibition of mixed loading on one vehicle

(1) Substances of Class 4.2 contained in packages bearing a label or two labels conforming to model No. 4.2 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No. 1. 42403

(2) Substances of 4° contained in packages bearing two labels conforming to model No. 4.2 shall not be loaded together on one vehicle with:

(a) Substances of Classes 5.1 or 5.2 contained in packages bearing two labels conforming to model No. 5;

(b) Substances of Class 6.1 contained in packages bearing two labels conforming to models 6.1 or 6.1A;

(c) Substances of Class 8 contained in packages bearing two labels conforming to model No. 8.

42404
-42413

Handling and stowage

(1) Receptacles and packages containing substances of 1° and 3° shall not be subjected to impact. They shall be so placed in the vahicle that they cannot overturn or fall or be displaced in any way. 42414

(2) The use of readily inflammable materials for stowing packages in vehicles is prohibited.

42415
-42499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

(1) The provisions of marginal 10500, paragraphs (1), (7) and (8), shall apply only to the carriage of substances of 1° to 4° and 6°. 42500

(2) Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances listed in Appendix B.5 shall bear on both sides and at the rear labels conforming to model No. 4.2.

Those containing or having contained substances of 3° shall bear, in addition, labels conforming to model No. 4.3.

42401
-42599

Section 6:
Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

42600
42999

Class 4.3.:
Substances which give off inflammable gases on contact with water

General

(Only the general provisions of Part I apply)

43000
43099

Section 1:
Mode of carriage

43100
-43110

Carriage in bulk

Magnesium granules, coated, of 1° (d), calcium carbide of 2° (a) and calcium silicide in lumps of 2° (d) may be carried in bulk in specially-equipped vehicles. The openings used for loading or unloading shall be capable of being closed hermetically. 43111

43112
-43117

Carriage in containers

Small containers used for the carriage in bulk of the substances referred to in marginal 43111 shall conform to the provisions of that marginal concerning vehicles and the receptacles of vehicles. 43118

43119
-43129

Labelling of tank-containers

Tank containers containing or having contained substances of this Class shall bear on both sides a label conforming to model No. 4.3. Those containing, or having contained substances of 4° shall in addition bear labels conforming to model Nos. 3 and 8 43130

43131
-43199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

43200
-43203

Types of vehicle

Dangerous substances of Class 4.3 in packages shall be carried in closed or sheeted vehicles. However, receptacles containing calcium carbide of 2° (a) may also be carried in open vehicles. 43204

43205
-43299

Section 3:
General service provisions

43300
-43320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 43321

Alkali metals and substances containing alkali metals of 1°, alkali metal hydrides of 2° (b), and substances of 4°: 10000 kg.

43322
-43399

Section 4:
Special provisions concerning loading, unloading and handling

43400
-43402

Prohibition of mixed loading on one vehicle

Substances of Class 4.3 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No. 1. 43403

43404
-43413

Handling and stowage

Packages shall be so stowed in the vehicle that they cannot be displaced therein. They shall be protected against any friction or impact. While packages are being handled, special measures shall be taken prevent them from coming into contact with water. 43414

43415
-43499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances of this Class listed in Appendix B.5 shall bear on both sides and at the rear a label conforming to model No. 4.3. Those containing or having contained substances of 4° shall in addition bear labels conforming to models Nos. 3 and 8. 43500

43501
-43599

Section 6:
Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part 1 apply)

43600
-50999

Class 5.1: oxidizing substances

General
(Only the general provisions of Part 1 apply)

51000
-51099

Section 1:
Mode of carriage

51100
-51110

Carriage in bulk

(1) Substances of 4° to 6° and 7o (a) and (b) may be carried in bulk as a full load. 51111

(2) Substances of 4° and 5° shall be carried in open metal "vat vehicles" (vehicules cuves) covered with an impermeable non-inflammable sheet, or the metal containers (see marginal 51118(2)).

(3) Substances of 6° and 7°(a) and (b) shall be carried in closed vehicles or in vehicles covered with an impermeable non-inflammable sheet, the vehicles being so constructed either that the substance cannot come into contact with wood or any other combustible material or that the entire surface of the floor and walls, if combustible, has been provided with an impermeable and incombustible surfacing or treated with substances rendering the wood incombustible.

51112
-51117

Carriage in containers

(1) Fragile packages within the meaning of marginal 10014(1) and those containing hydrogen peroxide or solutions of hydrogen peroxide of 1° or tetranitromethane of 2° may not be carried in small containers. 51118

(2) Containers intended for the carriage of substances of 4° and 5° shall be made of metal, be leakproof, be covered with a lid or an impermeable sheet resistant to combustion, and be so constructed that the substances in the containers cannot come into contact with wood or any other combustible material.

(3) Containers intended for the carriage of substances of 6°, 7°(a) and (b) shall be covered with a lid or an impermeable sheet resistant to combustion and be so constructed either that the substance in the containers cannot come into contact with wood or any other combustible material or that the entire surface of the floor and walls, if made of wood, has been provided with an impermeable sufracing resistant to combustion or has been coated with sodium silicate or a similar substance.

51119
-51129

Labelling of tank-containers

Tank-containers containing or having contained substances of this Class shall bear on both sides labels conforming to model No.5. Those containing or having contained perchloric acid (in solution) of 3° shall, in addition, bear labels conforming to model No. 8. 51130

51131
-51199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

51200
-51219

Vehicles with fixed or demountable tanks

The following provisions shall apply to the carriage of liquids of 1°: 51220

(1) Cad

(a) Unless the driver's cab is made of fireproof materials, a metal shield of the same width as the tank shall be fitted at the back of the cab;

(b) Any windows in the back of the driver's cab or in the metal shield shall be hermetically closed. They shall be made of fire-resistant safety glass and have fireproof frames;

(c) There shall be a clear space of not less than 15 cm between the tank and the driver's cab or the shield.

(2) Vehicle body

No wood (unless covered with metal or a suitable synthetic material) shall be used in the construction of any part of the vehicle situated to the rear of the shield prescribed in paragraph (1) above.

(3) Engine

The engine and (except where the vehicle is driven by a diesel engine) the fuel tank shall be placed forward of the rear wall of the driver's cab or of the shield, or if placed othewise shall be specially protected.

(4) Special equipment

Vehicles shall carry on board a tank having a capacity of about 30 litres of water. The water tank shall be placed as securely as possible, and there shall be admixed to the water it contains an anti-freeze preparation which does not attack the skin or the mucous membranes and does not react chemically with the load.

51221
-51299

Section 3:
General service provisions

51300
-51320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 51321

Substances of 1° to 3° and 9°(a): 10000 kg.

51322
-51399

Section 4:
Special provisions concerning loading, unloading and handling

51400
-51402

Prohibition of mixed loading on one vehicle

(1) Substances of Class 5.1 contained in packages bearing a label or two labels conforming to model No.5 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No.1 51403

(2) Substances of Class 5.1. contained in packages bearing two labels conforming to model No.5 shall not be loaded together on one vehicle with:

(a) Substances of Classes 3, 4.1 or 4.2 contained in packages bearing two labels conforming to models Nos. 3, 4.1 or 4.2;

(b) Substances of Class 6.1 contained in packages bearing two labels conforming to models Nos. 6.1 or 6.1A;

(c) Substances of Class 8 contained in packages bearing two labels conforming to model No. 8.

51404
-51409

Precautions with respect to articles of consumption

In vehicles and at places of loading, unloading or transloading, tetranitromethane of 2°, barium chlorate of 4°(a), barium perchlorate of 4° (b), barium nitrate and lead nitrate of 7° (c), inorganic nitrites of 8°, barium dioxide of 9° (b) and barium permanganate of 9° (c) shall be kept away from foodstuffs, other articles of consumption and animal feeds. 51410

51411
-51413

Handling and stowage

(1) Packages containing substances of Class 5.1 shall be placed flat on their bottoms. In addition, receptacles containing liquids of Class 5.1 shal be so wedged that they cannot overturn. 51414

(2) The use of readily inflammable materials for stowing packages in vehicles is prohibited. 51414

Cleaning after unloading

After unloading, vehicles which have been carrying substances of 4° to 6° and 7° (a) and (b) in bulk shall be copiously swilled. 51415

51416
51499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

(1) The provisions of marginal 10500, paragraphs (1), (7) and (8), shall apply only to the carriage of substances of 1°, 2°, 3°, chlorates and inorganic chlorate weedkillers of 4° (a), barium perchlorate of 4° (b), substances of 8° and 9° (b), and barium permanganate of 9° (c). 51500

(2) Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances listed in Appendix B.5 shall bear on both sides and at the rear a label conforming to model No. 5. Those containing or having contained perchloric acid (in solution) of 3° or ammonium nitrate (hot concentrated aqueous solutions) of 6° shall in addition bear labels conforming to model No. 8.

51501
-51599

Section 6:
Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part 1 apply)

51600
51999

Class 5.2: Organic peroxides

General

(Only the general provisions of Part I apply)

52000
52099

Section 1: Mode of carriage

52100
-52104

Method of dispatch and restrictions of forwarding.

(1) Substances of Group E shall be forwarded in such manner that the ambient temperatures indicated below are not exceeded: 52105

	maximum temperature
Substances of 45°	:+ 10° C
» » 46(a)	:- 10° C
» » 46°(b) and (c)	:- 10° C
» » 47°(a)	:- 10° C
» » 47°(b)	:- 10° C
» » 48°	:+ 2° C
» » 49°(a)	:- 10° C
» » 49°(b)	
with phlegmatizer	:+ 2° C
with solvent	:- 5° C
» » 50°	: 0° C
» » 51°	: 0° C
» » 52°	:+ 20° C
» » 53°	:- 10° C
» » 54°	:+ 20° C
» » 55°	:+ 10° C

(2) Where substances of Group E are not carried in mechanically-refrigerated vehicles, the quantity of refrigerant in the protective packaging shall be so proportioned that the temperatures specified in paragraph (1) above are not exceeded at any time during carriage, including loading and unloading.

(3) The use of liquid air or liquid oxygen as a refrigerant is prohibited.

(4) The temperature of refrigeration shall be so selected as to avoid any danger which might arise from the separation of phases.

52106
-52117

Carriage in containers

Fragile packages within the meaning of marginal 10014 (1) shall not be carried in small containers. 52118

52119
-52129

Labelling of tank-containers

Tank-containers containing or having contained substances of 10°, 14°, or 15° shall bear on both sides a label conforming to model No.5. 52130

52131
-52199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

52200
52203

Types of vehicle

(1) Substances of 1° to 22°, 30° and 31° shall be carried in closed or sheeted vehicles. Substances of 45° to 55° contained in protective packagings filled with a refrigerant shall be carried in closed or sheeted vehicles. If the vehicles used are closed they shall be adequately ventilated. Sheeted vehicles shall be fitted with side boards and a tail board. The sheets of these vehicles shall be of an impermeable material not readily inflammable. 52204

(2) Where, under the provisions of marginal 52 105, substances are required to be carried in insulated, refrigerated or mechanically-refrigerated vehicles, those vehicles shall satisfy the requirements of marginal 52248.

52205
-52247

Insulated, refrigerated and mechanically-refrigerated vehicles

Insulated, refrigerated and mechanically-refrigerated vehicles used by reason of the requirements of marginal 52105 shall conform to the following provisions: 52248

(a) The vehicle used shall be such and be so equipped as regards its insulation and source of cold that the maximum temperature prescribed in marginal 52105 is not exceeded whatever the atmospheric conditions may be;

(b) The vehicle shall be so equipped that vapours from the substances carried cannot penetrate into the cab;

(c) A suitable device shall be provided enabling the temperature prevailing in the loading space to be determined at any time from the driver's cab;

(d) The loading space shall be provided with vents or ventilating valves if there is any risk of a dangerous excess pressure arising therein. Care shall be taken where necessary to ensure that refrigeration is not impaired by the vents or ventilating valves;

(e) The refrigerant used shall not be inflammable;

(f) The refrigerating appliance of a mechanically-refrigerated vehicle shall be capable of operating independently of the engine used to propel the vehicle. 52248

52249
-52299

Section 3
General service provisions

52300
-52320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 52321

Group A. Substances of 4°, 8°(a), 9°(a), 13°(a) and 17°(a): 1.000 kg

Group C. Substances of 35°: 1.000 kg

Group E. Substances of 46°(a), 47°(a) and 49°(a): 100 kg

Substances of 45°, 46°(b) and (c), 47°(b), 48°, 49°(b), 50° to 55°: 2.000 kg

In addition, vehicles carrying substances of 46°(a), 47°(a) or 49°(a) shall be subject at all times to supervision to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

52322
-52399

Section 4:
Special provisions concerning loading, unloading and handling

52400

Limitation of the quantities carried

A transport unit shall not carry more than 750 kg of substances of 46°(a), 47°(a) and 49°(a), not more than 5,000 kg of substances of 45°, 46°(b) and (c), 47°(b), 48°, 49°(b), 50° to 53° and 55°, not more than 10,000 kg of substances of 54°. 52401

52402

Prohibition of mixed loading on one vehicle

Substances of Class 5.2 shall not be loaded together on one vehicle with: 52403

(a) Substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No. 1;

(b) Substances of Classes 3, 4.1 or 4.2 contained in packages bearing two labels conforming to models Nos. 3, 4.1 or 4.2;

(c) Substances of Class 6.1 contained in packages bearing two labels conforming to models Nos. 6.1 or 6.1A;

(d) Substances of Class 6.2, 9° or 10°;

(e) Substances of Class 8 contained in packages bearing two labels conforming to model No.8.

52404
-52412

Cleaning before loading

Vehicles for the carriage of packages containing substances of Class 5.2 shall be carefully cleaned. 52413

Handling and stowage

(1) Packages containing substances of Class 5.2 shall be loaded in such a manner that they can be unloaded one by one at the point of destination without it being necessary to rearrange the load. 52414

(2) Packages containing substances of Class 5.2 shall be kept upright and be so secured and fixed that they cannot overturn or fall. They shall be protected against any damage which might be caused by other packages.

(3) The use of readily inflammable materials for stowing packages in vehicles is prohibited.

(4) Packages containing substances of Group E shall not be placed on top of other goods; in addition, they shall be so stowed as to be readily accessible.

(5) Substances of Group E shall be loaded and unloaded without intermediate storage, and shall in the event of transloading be transferred directly from one vehicle to another. The prescribed maximum temperatures shall not be exceeded during such handling (see marginal 52105(1)).

52415
-52499

Section 5:
Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

Vehicles with fixed or demountable tanks containing or having contained (empty tanks, uncleaned) substances listed in Appendix B.5 shall in addition bear on both sides and at the rear labels conforming to model No.5. 52500

52501
-52508

Halts of limited duration for service requirements

During the carriage of substances of 46°(a), 47(a) and 49°(a), halts for service requirements shall so far as possible not be made near inhabited places or places of resort. A halt near such a place may not be prolonged except with the agreement of the competent authorities. The same rule shall apply where one transport unit is loaded with more than 2000 kg of substances of 45°, 46°(b) and (c), 48°, 49°(b) and 50° to 55°. 52509

52510
-52599

Section 6:

Transitional provisions, derogations and provisions peculiar to certain countries.

(Only the general provisions of Part I apply)

52600
-60999

Class 6.1.: Toxic substances

General

(Only the general provisions of Part I apply)

61000
-61099

Section 1: Mode of carriage

61100
-61110

Carriage in bulk

(1) Substances of 44°(b), 60°(c) and 63°(c) may be carried in bulk as a full load. 61111

(2)Subsrances of 44°(b) shall in such case be carried in closed or sheeted vehicles; those of 60°(c) or 63°(c) in sheeted, open vehicles.

61112
-61129

Labelling of tank-containers

Tank-containers containing or having contained substances of 2° or 3° or substances of other items classified under (a) or (b) shall bear on both sides a label conforming to model No. 6.1. 61130

Those containing or having contained substances of any other item classified under (c) shall bear labels conforming to moded No. 6.1A.

Those containing or having contained substances having a flash-point of 55°C or lower shall in addition bear labels conforming to model No.3.

Those containing or having contained chloroformates of 16° or 17° shall in addition bear labels conforming to model No.8.

61131
-61199

Section 2:

Special requirements to be fulfilled by the means of transport and its equipment

61200
-61239

Fire-fighting appliances

The provisions of marginal 10240 (1)(b) and (3) shall apply only to the carriage of liquids having a flash-point of 55° C or below. 61240

61241
-61259

Special equipment

Whenever lead alkyls of 31°(a) or receptacles having contained them are carried, the driver shall, when he is given the transport document, at the same time be given a portable equipment box fitted with a handle and containing: 61260

Three copies of the written instructions specifying the action to be taken in the event of an accident or incident occurring during carriage (see marginal 61385);

Two pairs of gloves and two pairs of boots made of rubber or some suitable plastics material;

Two respirators with an activated-charcoal cartridge of 500 cm^3 capacity;

A bottle (made of bakelite, for example) containing 2 kg for potassium permanganate and bearing the inscription "dissolve in water before use";

Six fibreboard notices bearing the inscription "DANGER - volatile poison spilled. Do not approach without respirator" in the language or languages of each of the countries in whose territory carriage takes place.

This equipment box shall be kept in the driver's cab in a place where it can easily be found by the decontamination team.

61261
-61299

Section 3:

General service provisions

61300
-61301

Action to be taken in the event of accident (See marginal 61385). 61302

Precautions with respect to articles of consumption (See marginal 61410) 61303

61304
-61320

Supervision of vehicles

The provisions of paragraph 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 61321

Substances of 1° to 3° and substances classified under (a) of all items : 1000 kg

Substances classified under (b) of all items :5000 kg.

61322
-61352

Portable lighting apparatus

The provisions of marginal 10353 shall not apply. 61353

61354
-61373

Prohibition of smoking

The provisions of marginal 10374 shall not apply. 61374

61375
-61384

Instructions in writing

Where lead alkyls of 31°(a), or receptacles which have contained them, are carried, the text of the written instructions shall specify, inter alia, the following: 61385

(A) Precautions to be observed

The substance being carried is highly toxic. In the event of leakage from one of the receptacles the following precautions should be taken:

1. Avoid:

(a) Contact with the skin;

(b) Inhalation of vapours;

(c) Introduction of the liquid into the mouth.

2. When drums which are torn open or damaged or wetted with liquid are being handled, the use of the following is compulsory:

(a) Respirators;

(b) Gloves made of rubber or some suitable plastics material;

(c) Boots made of rubber or some suitable plastics material.

In the event of a serious accident involving obstruction of the public highway, it is essential that persons arriving to clear the site should be warned of the danger incurred.

(B) Action to be taken

All practicable steps, including the use of the notices referred to in marginal 61260, shall be taken to keep persons at a distance of not less than 15 metres from the site of the accident; the notices contained in the equipment box shall be set up round the enclosure and onlookers shall be kept away.

The respirators, gloves and boots will enable one person to approach the load and verify its condition.

Should any of the drums be torn open, the following should be done:

(a) Additional respirators, gloves and boots with which to equip the workmen should be procured urgently;

(b) Drums still intact should be set aside;

(c) The liquid spilled on the vehicle or on the ground should be neutralized by copious swilling with an aqueous solution of potassium permanganate (a neutralizing agent a bottle of which is kept in the equipment box); the solution is easily prepared by stirring 0.5Kg of permanganate with 15 litres of water in a bucket; swilling should be carried out several times, because it takes 2 kg of potassium permanganate to neutralize completely 1 kg of the substance being carried.

Where practicable, the best way to decontaminate the area is to pour petrol over the spilled fluid and ignite it.

(C) Important notice

In case of accident, one of the first steps which must be taken is to notify by telegram or telephone ... (insert here the addresses and telephone numbers of the establishments to be notified in each of the countries in whose territory carriage is to take place).

A vehicle which has been contaminated with the substance carried shall not be put back into service until it has been decontaminated under the supervision of a competent person. Any wooden parts of the vehicle which have been attacked by the substance carried shall be removed and burnt».

61386
-61399

Section 4:

Special provisions concerning loading, unloading and handling

61400
-61402

Prohibition of mixed loading on one vehicle

11403

(1)Substances of Class 6.1 contained in packages bearing a label or two labels conforming to model No. 6.1 or 6.1A shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c contained in packages bearing one or two labels conforming to model No.1.

(2) Substances of Class 6.1 contained in packages bearing two labels conforming to model No.6.1 or 6.1A shall not be loaded together on one vehicle with:

(a) Substances of Classes 3, 4.1 or 4.2 contained in packages bearing two labels conforming to model No.3, 4.1 or 4.2;

(b) Substances of Classes 5.1 or 5.2 contained in packages bearing two labels conforming to model No.5;

(c) Substances of Class 8 contained in packages bearing two labels conforming to model No. 8.

61404
-61409

Precautions with respect to articles of consumption.

Substances of Class 6.1 shall be kept apart from foodstuffs, other articles of consumption and animal feeds in vehicles and at places of loading, unloading or transloading. 61410

61411

Places of loading and unloading.

(1) The following operations are prohibited: 61412

(a) Loading or unloading substances of 1° to 3° and any substance classified under (a) of other items in a public place in a built-up area without special permission from the competent authorities;

(b) Loading or unloading the said substances in a public place elsewhere than in a built-up area without prior notice having been given to the competent authorities, unless the said operatins are justified for serious reasons of safety.

(2) If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels.

61413
-61414

Cleaning after unloading.

(1) After unloading, vehicles and containers which have been carrying substances of 44° (b), 60° (c) and 63° (c) in bulk shall be copiously swilled. 61415

(2) A vehicle which has been contaminated with substances of 31° (a) or with a mixture thereof shall not be put back into service until it has been decontaminated under the supervision of a competent person. Any wooden parts of the vehicle which have been attacked by substances of 31° (a) shall be removed and burnt.

(3) If substances in this Class have leaked and been spilled in a vehicle, it may not be re-used until after it has been thoroughly cleaned and, if necessary, decontaminated. All other goods and articles carried in the same vehicle shall be examined for possible contamination.

61416
-61499

Section 5:

Special provisions concerning the operation of vehicles.

Marking and labelling of vehicles.

(1) Whenever substances of 31° (a) are carried, the vehicle shall display on each side a warning notice to the effect that, if any liquid escapes, the greatest caution must be exercised and that the vehicle must not be approached without respirator, gloves and boots of rubber or some suitable plastics material. 61500

(2) Vehicles with fixed or demountable tanks containing or having contained substances of 2° or 3° or substances classified under (a) or (b) of other items shall bear on both sides and at the rear labels conforming to model No.6.1.

Those containing or having contained substances classified under (c) of each item shall bear labels conforming to model No. 6.1A.

Those containing or having contained substances having a flash point of up to and including 55°C shall in addition bear labels conforming to model No. 3.

Those containing or having contained chloroformates of 16° or 17° shall in addition bear labels conforming to model No. 8.

61501
-61508

Halts of limited duration for service requirements.

Halts for service requirements shall so far as possible not be made in residential or urban areas. A halt near such a place may not be prolonged except with the agreement of the competent authorities. 61509

61510
-61514

Protection against the action of the sun.

During the period April to October inclusive, when a vehicle carrying hydrocyanic acid (1°) is stationary the packages shall, if the legislation of the country in which the vehicle is halted so requires, be effectively protected against the action of the sun, e.g. by means of sheets placed not less than 20 cm above the load. 61515

61516
-61599

Section 6:

Transitional provisions, derogations, and provisions peculiar to certain countries.

(Only the general provisions of Part I apply).

61600
-61699

Class 6.2: Repugnant substances and substances liable to cause infection

General.

62000
-62009

Application of Part I of this Annex.

The only provisions of this Annex other those of Sections 1 to 6 below which apply to the carriage of dangerous substances of Class 6.2 are those of marginals 10001, 10010 to 10014, 10111, 10118, 10381(1)(a), 10404, 10405, 10413 to 10415 and 10419. 62010

62011
-62099

Section 1:
Mode of carriage

62100
-62110

Carriage in bulk.

(1) Substances of 1°, 2°, 3° and 5° may be carried in bulk. Substances of 9° may not be carried otherwise than in bulk. 62111

(2) When they are in bulk

(a) Substances of 1° (a) and (c) and 2° shall be carried in specially fitted covered vehicles equipped with ventilating installations. During the months from November to February these substances may also be carried in open vehicles provided that they have been sprayed with suitable disinfectants to remove their bad odour;

(b) The following shall be carried in open vehicles;

Substances of 1° (b), after being sprayed with suitable disinfectants to remove their bad odour;

Substances of 3°;

Substances of 5°, after being sprayed with limewash so that no putrid odour is discernible; and

Substances of 9°.

(3) In addition, when they are carried in open vehicles, the following shall be covered with:

(a) A sheet impregnated with suitable disinfectants and itself covered with a second sheet: substances of 1° (a) and (c) and 2°;

(b) A sheet of tarred or bituminized fibreboard (and sprayed with suitable disinfectants): fresh horns, claws, hoofs or bones (1°(b));

(c) A sheet: substances of 3°, unless they are sprayed with suitable disinfectants to prevent any bad odour; and

(d) A sheet: substances of 9°

62112
-62117

Carriage in containers

The carriage of substances of 9° in small containers is prohibited. 62118

62119
-62199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment.

(No general or special requirements) 62200
-62299

Section 3:
General service provisions.

62300
-62302

Precautions with respect to articles of consumption.

(See marginal 62410) 62303

62304
-62399

Section 4:
Special provisions concerning loading, unloading and handling.

62400
-62402

Prohibition of mixed loading on one vehicle

Substances of 9° and 10° shall not be loaded together on one vehicle with dangerous substances of Class 5.2. 62403

62404
-62409

Precaution with respect to articles of consumption.

In vehicles and at places of loading, unloading and transloading, dangerous substances of Class 6.2 other than substances of 7° or substances of 8° packed in conformity with the provisions of Annex A, marginal 2659 (2)(a) or (b), shall be kept away from foodstuffs, other articles of consumption and animal feeds. 62410

62411
-62414

Cleaning after unloading.

After unloading, vehicles which have been carrying substances of Class 6.2 in bulk shall be copiously swilled and treated with suitable disinfectants. 62415

62416
-62499

Section 5:
Special provisions concerning the operation of vehicles

(No general or special provisions)

62500
-62599

Section 6:
Transitional provisions, derogations and provisions peculiar to certain countries.

(No general or special provisions)

62600
-70999

Class 7: Radioactive substances.

General

Carriage

For details see the relevant schedule in marginal 2703. 71000

71001
-71099

Section 1:
Mode of carriage

Provisions

For details see the relevant schedule in marginal 2703. 71100

71101
-71199

Section 2:
Special requirements to be fulfilled by the means of transport and its equipment

Provisions

For details see the relevant schedule in marginal 2703. 71200

71201
-71299

Section 3:
General service provisions

Provisions

For details see the relevant schedule in marginal 2703. 71300

See also below: 71301
-71320

Supervision of vehicles

The provisions of marginal 10321 shall apply to all substances, in whatever quantity. However, the provisions of marginal 10321 need not be applied where: 71321

(a) The loaded compartment is locked and the packages carried are otherwise protected against any illicit unloading; and

(b) The dose rate does not exceed 0.5 mR/h at any accessible point on the surface of the vehicle.

In addition, these goods shall be subject at all times to supervision to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

71322
-71373

Prohibition of smoking

The provisions of marginal 10374 shall not apply. 71374

71375
-71399

Section 4:

Special provisions concerning loading, unloading and handling

Provisions

For details see the relevant schedule in marginal 2703. 71400

71401
-71499

Section 5:

Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

(1) Marginal 10500 shall not apply. 71500

(2) Every road vehicle carrying radioactive substances shall bear on the outside of each side wall and of the rear wall a label conforming to the model No. 7D shown in Appendix B.4, marginal 240 010. If loading is done by the sender, it shall be his duty to affix these labels to the vehicles.

However, this requirement shall not apply to vehicles carrying the packages referred to in marginal 2703, schedules 1 to 4.

71501
-71506

Parking of a vehicle constaituting a special danger

(In addition to marginal 10507, see Appendix A.6, marginal 3695). 71507

71508
-71599

Section 6:

Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

71600
-80999

Class 8: Corrosive substances

General

(Only the general provisions of Part I apply).

81000
-81099

Section 1:

Mode of carriage

81100
-81110

Carriage in bulk

Substances of 23° or lead sludge containing sulphuric acid of 1° (b), may be carried in bulk as a full load. The body of the vehicle shall be equipped with a suitable and sufficiently stout inner linig. If the vehicle is sheeted the sheet shall be so placed that it cannot touch the load. 81111

81112
-81117

Carriage in containers

Small containers used for the carriage of substances of 23° or lead sludge containing sulphuric acid of 1° (b) in bulk, shall have complete walls and a suitable lining. 81118

while being handled.

81119
-81129

Labelling of tank-containers

Tank-containers containing or having contained substances of this Class shall bear on both sides a label conforming to model No. 8. 81130

Those containing or having contained substances of this Class having a flashpoint of 55°C or lower shall in addition bear a label conforming to model No. 3.

Those containing or havihg contained oleum (fuming sulphuric acid) of 1° (a) or substances of 6°, 7°, 24°, 26° or 44° shall in addition bear labels conforming to model No. 6.1.

Those containing or having contained substances of 62° shall in addition bear labels conforming to model No. 5.

81131
-81199

Section 2:

Special requirements to be fulfilled by the means of transport and its equipment

81200
-81239

Fire-fighting appliances

The provisions of marginal 10240 (1) (b) and (3) shall apply only to the carriage of liquids having a flashpoint of 55°C or lower, or to substances of 2°(a) and 3°(a). 81240

81241
-81299

Section 3:

General service provisions

81300
-81320

Supervision of vehicles

The provisions of marginal 10321 shall apply to the dangerous goods listed below in quantities exceeding those specified: 81321

Substances classified under (a) of all items: 10000 kg.
Bromine of 24°: 1000 kg.

81322
-81352

Portable lighting apparatus

The provisions of marginal 10353 shall not apply. 81353

81354
-81373

Prohibition of smoking

The provisions of marginal 10374 shall not apply. 81374

81375
-81399

Section 4:

Special provisions concerning loading, unloading, and handling

while being handled.

81400
-81402

Prohibition of mixed loading on one vehicle

(1) Substances of Class 8 enclosed in packages bearing one or two labels conforming to model No. 8 shall not be loaded together on one vehicle with substances or articles of Classes 1a, 1b or 1c enclosed in packages bearing one or two labels conforming to model No.1. 81403

(2) Substances of Class 8 enclosed in packages bearing two labels conforming to model No. 8 shall not be loaded together on one vehicle with:

(a) Substances of Class 3, Class 4.1 or Class 4.2 enclosed in packages bearing two labels conforming to model No. 3, 4.1 or 4.2;

(b) Substances of Class 5.1 or Class 5.2 enclosed in packages bearing two labels conforming to model No.5;

(c) Substances of Class 6.1 enclosed in packages bearing two labels conforming to Models No. 6.1 or 6.1A.

81404
-81412

Cleaning before loading

Vehicles which are to carry packages containing substances of 2° (a) or 3°(a) shall be carefully cleaned and in particular be free of all combustible waste (straw, hay, paper, etc.). 81413

Handling and stowage

Packages containing substances of 2°(a), 3°(a), 61° or 62° shall rest on a stout floor and be placed with their openings at the top. The use of readily inflammable materials such as straw for stowing such packages is prohibited. 81414

81415
-81499

Section 5:

Special provisions concerning the operation of vehicles

Marking and labelling of vehicles

Vehicles with fixed or demountable tanks containing or having contained substances of this Class shall bear on both sides and at the rear a label conforming to model No.8. 81500

Those containing or having contained substances of this class with a flashpoint of 55°C or lower shall in addition bear labels conforming to model No. 3.

Those containing or having contained oleum (fuming sulphuric acid) of 1°(a) or substances of 6°, 7°, 24°, 26° or 44° shall in addition bear labels conforming to model No. 6.1.

Those containing or having contained substances of 62° shall bear in addition labels conforming to model No. 5.

81501
-81599

Section 6:

Transitional provisions, derogations, and provisions peculiar to certain countries

(Only the general provisions of Part I apply)

81600
-199999

APPENDICES

APPENDICES B.1 Provisions concerning tanks

PROVISIONS COMMON TO THE B.1 APPENDICES

(1) The scope of application of the various B.1 Appendices is as follows: 200000

(a) Appendix B.1a applies to tanks other than tank-containers;

(b) Appendix B.1b applies to tank-containers;

(c) Appendix B.1c applies to tanks, other than batteries of receptacles and tank-containers, made of reinforced plastics;

(d) Appendix B.1d is concerned with the materials and construction of fixed tanks, of demountable tanks, and of shells of tank-containers, intended for the carriage of deeply-refrigerated liquefied gases of Class 2.

NOTE: For receptacles, see the relevant requirements of Annex A (Packages).

(2) By derogation from the definition given in marginal 10014, the term "tank" when used alone in Appendix B.1a and Appendix B.1c does not cover tank-containers. However, some of the requirements of Appendix B.1a may be made applicable to tank-containers by the provisions of Annex B and Appendix B.1b.

(3) It is recalled that marginal 10121 (1) prohibits the carriage of dangerous sustances in tanks except where such carriage is expressly authorized under each Section 1 of Part II in Appendices B.1a or B.1b and Section 1 of Appendix B.1c.

200001
-210999

Appendix B.1a

PROVISIONS CONCERNING FIXED TANKS (TANK-VEHICLES) DEMOUNTABLE TANKS AND BATTERIES OF RECEPTACLES

NOTE: Part I sets out the requirements applicable to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of substances of any Class. Part II contains special requirements supplementing or modifying the requirements of Part I.

PART I: REQUIREMENTS APPLICABLE TO ALL CLASSES

200001
-210999

SECTION 1:

General; scope (use of tanks); definitions

NOTE: In accordance with the provisions of marginal 10121 (1), the carriage of dangerous substances in tanks (fixed or demountable tanks or batteries of receptacles) is permitted only where this mode of carriage is expressly authorized for such substances in each Section 1 of Part II of this Appendix.

211100
-211101

These requirements shall apply to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles used for the carriage of liquid, gaseous, powdery of granular substances.

(1) In addition to the vehicle proper, or the units of running gear used in its stead, a tank-vehicle comprises one or more shells, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units. 211101

(2) When attached to the carrier vehicle, the demountable tank or battery of receptacles shall meet the requirements prescribed for tank-vehicles.

In the following requirements: 211102

(1) (a) "shell" means the tank proper (including the openings and their closures);

(b) "service equipment of the shell" means the filling, discharge, venting, safety, heating and heat-insulating devices and the measuring instruments;

(2) (a) "calculation pressure" means a notional pressure which is used to calculate the thickness of the walls of the shell. It is equal to the test pressure except in relation to certain dangerous goods for which a special, higher calculation pressure is laid down. External or internal reinforcing devices shall not be taken into account in this calculation;

(b) "Maximum working pressure (gauge pressure)" means the highest of the following three pressures:

(i) the highest effective pressure allowed in the shell during filling ("maximum filling pressure allowed");

(ii) the highest effective pressure allowed in the shell during discharge ("maximum discharge pressure allowed");

(iii) the effective gauge pressure to which the shell is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature.

Except where the special requirements for each Class provide otherwise, the numerical value of this working pressure (gauge pressure) shall not be lower than the vapour pressure (absolute pressure) of the filling substance at 50°C.

For shells equipped with safety valves (with or without bursting disc), the maximum working pressure (gauge pressure) shall however be equal to the prescribed opening pressure of such safety valves.

For shells equipped with venting systems and a safety device to prevent the contents spilling out if the shell over-

turns, the maximum working pressure (gauge pressure) shall be equal to the static pressure of the filling substance).

(c) "test pressure" means the highest effective pressure applied during the pressure test of the shell;

(d) "filling pressure" means the highest pressure actually built up in the shell when it is being filled under pressure;

(e) "discharge pressure" means the highest pressure actually built up in the shell when it is being discharged under pressure;

(3) "Leakage test" or " leakproofness test" means the test which consists in subjecting the shell to an effective internal pressure equal to the maximum working pressure, but not less than 20 kPa (0.2 bar) (gauge pressure), by a procedure by the competent authority.

211103 -211119

Section 2:
Construction

Shells shall be designed and constructed in accordance with the provisions of a technical code recognized by the compentent authority, but the following minimum requirements shall be met: 211120

(1) Shells shall be made of suitable metallic materials which unless other temperature ranges are prescribed in the various Classes, shall be resistant to brittle fracture and to fissurizing corrosion under tensile stress between -20°C and +50°C.

(2) For welded shells only materials of faultless weldability and whose adequate impact strengh at an ambient temperature of -20°C can be guaranteed, particularly in the welds and the zones adjacent thereto, shall be used.

(3) Welds shall be skilfully made and shall afford the fullest safety.

With regard to the execution and checking of weld beads, see also marginal 211127 (7).

Shells whose minimum wall thicknesses have been determined in accordance with marginal 211127 (3) to (6) shall be checked by the methods described in the definition of the weld coefficient 0.8.

(4) The materials of shells, or of their protective linings in contact with the contents, shall not contain substances liable to react dangerously with the contents, to form dangerous compounds, or substantially to weaken the material.

(5) The protective lining shall be so designed that its leakproofness remains unimpaired whatever the deformation liable to occur in normal carriage [211127 (1)].

(6) If contact between the substance carried and the material used for the construction of the shell entails a progressive decrease in the thickness of the walls, this thickness shall be increased at manufacture by an appropriate amount. This additional thickness to allow for corrosion shall not be taken into consideration in calculating the thickness of the shell walls.

(1) Shells, their attachments and their service and structural equipment shall be designed to withstand without loss of contents (other than quantities of gas escaping through any degassing vents): 211121

—static and dynamic stresses in normal carriage;

—prescribed minimum stresses as defined in marginals 211125 and 211127.

(2) In the case of vehicles in which the shell constitutes a stressed self-supporting member, the shell shall be designed to withstand the stresses thus imposed in addition to stresses from other sources.

The pressure on which the wall thickness of the shell is based shall not be less than the calculation pressure, but the stresses referred to in marginal 211121 shall also be taken into account. 211122

Unless specially prescribed otherwise in the various Classes, the following particulars shall be taken into account in the design of shells: 211123

(1) Gravity-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1 bar) (absolute pressure) at 50°C shall be designed for a calculation pressure of twice the static pressure of the substance to be carried but not less than twice the static pressure of water.

(2) Pressure-filled or pressure-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1 bar) (absolute pressure) at 50°C shall be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure.

(3) Shells intended for the carriage of substances having a vapour pressure of more than 110 kPa (1.1 bar) but not more than 175 kPa (1.75 bar) (absolute pressure) at 50°C shall, whatever their filling or discharge system, be designed for a calculation pressure of not less than 0,15 MPa (1.5 bar) gauge pressure or 1,3 times the filling or discharge pressure, whichever is the higher.

(4) Shells intended for the carriage of substances having a vapour pressure of more than 175 kPa (1.75 bar) (absolute pressure) at 50°C shall, whatever their filling or discharge system, be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure but not less than 0.4 MPa (4 bar) gauge pressure.

Tanks intended to contain certain dangerous substances shall be provided with special protection which shall be determined for the various Classes. 211124

At the test pressure, the stress σ (sigma) at the most severely stressed point of the shell shall not exceed the material-dependent limits prescribed below. Allowance shall be made for any weakening due to the welds. In addition, in choosing the material and determining wall thickness, the maximum and minimum filling and working temperatures should be taken into account. 211125

(1) For metals and alloys exhibiting a clearly-defined yield point or characterized by a guaranteed convetional yield stress (Re) (generally 0.2 per cent of residual elongation and, in the case of austenitic steels, 1 per cent of maximum elongation):

(a) where the ratio Re/Rm is not more than 0.66:

(Re = apparent yield stress, or 0.2 per cent proof stress or 1 per cent proof stress in the case of austenitic steels;

Rm = guaranteed minimum tensile strength):

$$\sigma \leqslant 0.75\ Re$$

(b) where the ratio Re/Rm exceeds 0.66:

$$\sigma \leqslant 0.5\ Re$$

(2) For metals and alloys exhibiting no clearly-defined apparent yield stress and characterized by a guaranteed minimum tensile strength Rm:

$$\sigma \leqslant 0.43\ Rm$$

(3) For steel, the elongation at fracture shall be not less than

$$\frac{10000}{\text{determined tensile strength in N/mm}^2}$$

but in any case it shall be not less than 16 per cent for fine-grained steels and not less than 20 per cent for other steels. For aluminium alloys the elongation at fracture shall be not less than 12 per cent.[1/]

Tanks intended for the carriage of liquids having a flash-point of or below 55°C and for the carriage of inflammable gases shall be connected to all parts of the vehicle by equipotential connexion and shall be capable of being electrically earthed. Any metal contact capable of causing electrochemical corrosion shall be avoided. 211126

[1/] In the case of sheet metal the axis of the tensile test-piece shall be at right angles to the direction of rolling. The permanent elongation at fracture (l=5d) shall be measured on a test-piece of circular cross-section in which the gauge length l is equal to five times the diameter d; if test-pieces of rectangular section are used, the gauge length shall be calculated by the formula $l = 5.65 \sqrt{F_o}$, where F_o is the initial cross-sectional area of the text-piece.

Shells and their fastenings shall withstand the stresses specified in paragraph (1), and the wall thicknesses of shells shall be at least as determined in accordance with paragraphs (2) to (6) below. 211127

(1) The shells and their fastenings shall be capable of absorbing, under the maximum permissible load, the forces exerted by:

—in the direction of travel: twice the total mass;
—at right angles to the direction of travel: the total mass;
—vertically upwards: the total mass;
—vertically downwards: twice the total mass.

Under the stresses defined above, the stress at the most severely stressed point of the shell and its fastenings shall not exceed the value σ defined in marginal 211125.

(2) The thickness of the cylindrical wall of the shell and of the ends of cover plates shall be at least equal to that obtained by the following formulae:

$$e = \frac{P_{MPa} \times D}{2 \times \sigma \times \lambda} \qquad e = \frac{P_{bar} \times D}{20 \times \sigma \times \lambda}$$

where P_{MPa} = calculation pressure in MPa;
P_{bar} = calculation pressure in bar;
D = internal diameter of shell in mm;
σ = permissible stress, as defined in marginal 211125 (1), (a) and (b), and (2), in N/mm²; and
λ = a coefficient, not exceeding 1, allowing for any weakening due to welds.

The thickness shall in no case be less than that defined in paragraphs (3) to (5) below.

(3) The walls, ends and cover plates of shells of circular cross-section not more than 1.80 m in diameter,[2] other than those referred to in paragraph (5), shall not be less than 5 mm thick if of mild steel,[3] or of equivalent thickness if of another metal. If the diameter exceeds 1.80 m.,[2] this thickness shall be increased to 6 mm if the shell is of mild steel,[3] or to an equivalent thickness if the shell is of another metal. "Equivalent thickness" means the thickness obtained by the following formula:

$$e_1 = \frac{21.4 \times e_o}{\sqrt[3]{Rm_1 \times A_1}}$$ [4]

(4) Where protection of the shell against damage through lateral impact or overturning is provided, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall not be less than 3 mm in the case of mild stell[3], or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter.[2] For shells with a diameter exceeding 1.80 m[2] the aforesaid minimum thickness shall be increased to 4 mm in the case of mild steel[3] an to an equivalent thickness in the case of other metal. "Equivalent thickness" means the thickness obtained by the following formula:

$$e_1 = \frac{21.4 \times e_o}{\sqrt[3]{Rm_1 \times A_1}}$$ [4]

NOTE: The following measures or equivalent measures may be adopted to protect the shell against damage:

(a) The shell may be provided on both sides, at a height situated between its centreline and its lower half, with protection against lateral impact consisting of a rolled metal girder extending at least 25 mm beyond the extreme outer edge of the shell. This girder shall be of such cross-section that if it is of mild steel,[3] or a stronger material it has a section modulus of at least 5 cm³, the force being directed horizontally and at right angles to the direction of travel. If weaker materials are used, the section modulus shall be increased proportionately to the limits of elongation. Protection against overturning may take the form of strengthening rings, protective canopies, or transverse or longitudinal members so shaped that in the event of overturning no damage is caused to the fittings and accessories mounted on the upper part of the shell. 211127

(b) There is also protection:

1. Where shells are made with double walls, the space between the latter being evacuated of air. The aggregate thickness of the outer metal wall and the shell wall shall correspond to the minimum wall thickness prescribed in paragraph (3), and the minimum thickness of the wal of the shell itself shall not be less than the minimum thickness prescribed in paragraph (4);

2. Where the shells are made with double walls with an intermediate layer of solid materials at least 50 mm thick, the outer wall having a thickness of at least 0,5 mm if it is made of mild steel[3] and at least 2mm if it is made of a plastics material reinforced with glass fibre. Solid foam (with an impact-absorption capacity like that, for example, of polyurethane foam) may be used as the intermediate layer of solid material.

(c) For the rear protection of vehicles carrying fixed or demountable tanks or batteries of receptacles, see marginal 10220.

(5) The thickness of tank shells designed in accordance with marginal 211123 (1) which either are of not more than 5,000 litres capacity or are divided into leak-proof compartments of not more than 5,000 litres unit capacity may be adjusted to a level which, unless prescribed otherwise in the various Classes, shall however not be less than the appropriate value shown in the following table:

---

[2] For shells not of circular cross-section, for example box-shaped or elliptical shells, the indicated diameters shall correspond to those calculated on the basis of a circular cross-section of the same area. For such shapes of cross-section the radius of convexity of the shell wall shall not exceed 2,000 mm at the sides or 3,000 mm at the top and bottom.

[3] "Mild steel" means a steel having a minimum breaking strength between 360 and 440 N/mm².

[4] This formula is derived from the general formula

$$e_1 = e_o \sqrt[3]{\frac{Rm_o \times A_o}{Rm_1 \times A_1}}$$

where Rm_o = 360
A_o = 27 for the mild steel of reference;
Rm_1 = minimum tensile strength of the metal chosen, in N/mm²;
A_1 = minimum elongation of the metal chosen on fracture under tensile stress, in per cent.

Maximum radius of curvature of shell (m)	Capacity of shell or shell compartment	Minimum thickness (mm)
(m)	(m^3)	Mild steel
≤2	≤5.0	3
2-3	≤3.5	3
	>3.5 but ≤5.0	4

Where a metal other than mild steel is used, the thickness shall be determined by the equivalence formula given in paragraph (3). The thickness of the partitions and surge-plates shall in no case be less than that of the shell. 211127

(6) Surge-plates and partitions shall be dished, with a depth of dish of not less than 10 cm, or shall be corrugated, profiled or otherwise reinforced to give equivalent strength. The area of the surge-plate shall be at least 70 per cent of the cross-sectional area of the tank in which the surge-plate is fitted.

(7) The manufacturer's qualification for performing welding operations shall be one recognized by the competent authority. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

In determining the thichkness of the shell walls in accordance with paragraph (2), the following values of the coefficient lambda (λ) should be adopted for the welds:

0.8: where the weld beads are so far as possible inspected visually on both faces and are subjected to a non-destructive spot check with particular attention to connexions;

0.9: where all longitudinal beads throughout their length, all connexions, 25 per cent of circular beads, and welds for the assembly of large-diameter items of equipment are subjected to non-destructive checks. Beads shall be checked visually on both sides as far as possible;

1.0: Where all beads are subjected to non-destructive checks and are so far as possible inspected visually on both sides. A weld test-piece shall be removed.

Where the competent authority has doubts regarding the quality of weld beads, it may require additional checks.

(8) Measures shall be taken to protect shells against the risk of deformation as aresult of a negative internal pressure.

(9) The thermal insulation shall be so designed as not to hinder access to, or the operation of, filling and discharge devices and safety valves.

Stability

The overall width of the ground-level bearing sufrace (distance between the outer points of contact with the ground of the right-hand tyre and the left-hand tyre of the same axle) shall be at least equal to 90 per cent of the height of the centre of gravity of the laden tank-vehicle. In an articulatued vehicle the weight on the axles of the load-carrying unit of the laden semi-trailer shall not exceed 60 per cent of the nominal total laden weight of the complete articulated vehicle. 211128

Section 3: 211129

Items of equipment

The items of equipment, wherever situated, shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage or handling. They shall possess a degree of safety adapted to and comparable to that of the shells themselves, and shall in particular: 211130

– be compatible with the substances carried; and

– meet the requirements of marginal 211121.

As many operating parts as possible shall be served by the smallest possible number of apertures in the shell wall.

The leakproofness of the items of equipment shall be ensured even in the event of overturning of the vehicle.

Gaskets shall be made of a material compatible with the substance carried ans shall be replaced as soon as their effectiveness is impaired, for example as a result of ageing.

Gaskets ensuring the leakproofness of operating parts needing to be manipulated during normal use of the vehicle shall be so designed and arranged that manipulation of the operating part in which they are incorporated does not damage them.

Every bottom-discharge shell, and in the case of compartmented bottom-discharge shells every compartment, shall be equipped with two mutually independent shut-off devices, the first being an internal stop-valve[5/] fixed directly to the tank and the second being a sluice-valve or other equivalent device, mounted in series, at each end of the discharge pipe-socket. In addition, the openings of the shells shall be capable of being closed by means of screw-threaded plugs, blank flanges or other equally effective devices. The internal stop-valve shall be operable from above or from below, if possible, the setting - open or closed - of the internal stop-valve shall be capable of being verified from the ground in both cases. The controls of the internal stop-valve shall be so designed as to prevent any inadvertent opening through impact or unconsidered action. The internal shut-off device must continue to be effective in the event of damage to the external control. 211131

The position and/or direction of closure of the sluice-valves must be clearly apparent.

In order to avoid any loss of contents in the event of damage to the external filling and discharge fittings (pipes, lateral shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to withstand them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any inadvertent opening.

The shell or each of its compartments shall be provided with an opening large enough to permit inspection.

Shells intended for the carriage of substances all the openings for which are above the surface level of the liquid may be equipped, in the lower part of the body, with a cleaning aperture (fist-hole). This aperture must be capable of being sealed by a flange so closed as to be leakproof and whose design must be approved by the competent authority or by a body designated by that authority. 21132

Shells intended for the carriage of liquids having a vapour pressure of not more than 110 kPa (1.1 bar) (absolute) at 50°C shall have a venting system and a safety device to prevent the contents from spilling out if the shell overturns; otherwise they must conform to the requirements of marginals 211134 or 211135. 21133

Shells intended for the carriage of liquids having a vapour pressure of not less than 110 kPa (1.1, bar) and not more than 175 kPa (1.75 bar) (absolute) at 50°C shall have a safety valve set at not less than 0.15 MPa (1.5 bar) gauge pressure and which must be fully open at a pressure not exceeding the test pressure; otherwise they must conform to the requirements of marginal 211135. 21134

[5/] Save as may be otherwise provided in the case of shells intended for the carriage of certain crystallizable or highly viscous substances, of deeply refrigerated liquiefied gases, or of powdery or granular substances.

Shells intended for the carriage of liquids having a vapour pressure of not less than 175 kPa (1.75 bar) and not more than 300 kPa (3 bar) (absolute) at 50°C shall have a safety valve set at not less than 0.3 MPa (3 bar) gauge gauge pressure and which must be fully open at a pressure not exceeding the test pressure; otherwise they must be hermetically closed[6/]. 21135

No movable parts such as covers, closures, etc., which are liable to come into frictional or percussive contact with aluminium shells intended for the carriage of inflammable liquids having a flash-point of or below 55°C or for the carriage of inflammable gases may be made of unprotected corrodible steel. 211136

211137
-211139

Section 4:
Type approval

The competent authority or a body designated by that authority shall issue in respect of each new type of tank a certificate attesting that the prototype tank, including the shell fastenings which it has surveyed, is suitable for the purpose for which it is intended and meets the construction requirements of Section 2, the equipment requirements of Section 3 and the conditions peculiar to the Classes of substances carried. 211140

The test results, the substances and/or the groups of substances for the carriage of which the tank is approved and its type approval number shall be entered in a test report. The substances of a group of substances shall be of similar kind and equially compatible with the characteristics of the shell. The substances or groups of substances permitted shall be specified in the test report, with their chemical names or the corresponding collective heading in the list of substances, and their Class and item number.

This approval shall be valid for tanks manufactured according to this prototype without modification.

211141
-211149

Section 5:
Tests

Shells and their equipment shall either together or separately undergo an initial inspection before being put into service. This inspection shall include a check of conformity to the approved prototype, a check of the design characteristics,[7/] an external and internal examination, a hydraulic pressure test[8/] at the test pressure indicated on the data plate and a check of satisfactory operation of the equipment. 211150

The hydraulic pressure test shall be carried out before the installation of such thermal insulation as may be necessary. If the shells and their equipment are tested separately, they shall be jointly subjected to a leakproofness test after assembly.

Shells and their equipment shall undergo periodic inspections at fixed intervals. The periodic inspections shall include: an external and internal examination and, as a general rule, a hydraulic pressure test[8/]. Sheathing for thermal or other insulation shall be removed only to the extent required for reliable appraisal of the characteristics of the shell. 211151

In the case of shells intended for the carriage of powdery or granular substances, and with the agreement of the expert approved by the competent authority, the periodic hydraulic pressure tests may be omitted and replaced by leakproofness tests in accordance with marginal 211102(3).

The maximum intervals for inspections shall be six years.

In addition, a leakproofness test of the shell with its equipment and a check of the satisfactory operation of all the equipment shall be carried out at least every three years. 211152

When the safety of the shell or of its equipment may have been impaired as a result of repairs, alterations or accident, an exceptional check shall be carried out. 211153

The tests, inspections and checks in accordance with marginals 211150 to 211153 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations. 211154

211155
-211159

Section 6:
Marking

Every shell shall be fitted with a corrosion-resistant metal plate permanently attached to the shell in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method. These particulars may be engraved directly on the walls of the shell itself, if the walls are so reinforced that the strength of the shell is not impaired: 211160

- approval number;
- manufacturer's name or mark;
- manufacturer's serial number;
- year of manufacture;
- test pressure in MPa or bar (gauge pressure);
- capacity in litres-in the case of multiple-element shells, the capacity of each element;
- design temperature (only if above +50°C or below -20°C);
- date (month and year) of initial test and most recent periodic test in accordance with marginals 211150 and 211151; and
- stamp of the expert who carried out the tests.

In addition, the maximum working pressure allowed shall be inscribed on pressure-filled or pressure-discharge shells.

The following particulars shall be inscribed on the tank-vehicle itself or on a plate. These particulars shall not be required in the case of a vehicle carrying demountable tanks: 211161

- name of operator;
- unladen weight; and
- permissible maximum weight.

In addition, tank-vehicles shall bear the prescribed danger labels.

211162
-211169

Section 7:
Operation

The thickness of the walls of the shell shall not, throughout its use, fall below the minimum figure prescribed in marginal 211127(2). 211170

[6/] "Hermetically closed shells" means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible disc or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

[7/] The check of the design characteristics shall also include, for shells requiring a test pressure of 1 MPa (10 bar) or higher, a check of sample weld test-pieces and the tests prescribed in Appendix b.1d.

[8/] In special cases and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

Shells shall not be loaded with any dangerous substances other than those for whose carriage they have been approved. Foodstuffs may not be carried in these shells unless the necessary measures have been taken to prevent any danger to public health. 211171

(1) The following degrees of filling shall not be exceeded in shells intended for the carriage of liquids at ambient temeratures: 211172

(a) for inflammable substances without additional risks (e.g. toxic or corrosive), in shells with a venting system and with or without safety valves where preceded by a bursting disc:

$$\text{degree of filling} = \frac{100}{1 + \alpha(50 - t_F)} \text{ or } \frac{100}{1 + 35a} \text{ \% of}$$

capacity;

(b)for toxic or corrosive substances, whether inflammable or not, in shells with a venting system with or without safety valves even where preceded by a bursting disc:

$$\text{degree of filling} = \frac{98}{1 + \alpha(50 - t_F)} \text{ or } \frac{98}{1 + 35a} \text{ \% of}$$

capacity;

(c)for inflammable, harmful or slightly corrosive substances in hermetically closed shells[6/].

$$\text{degree of filling} = \frac{97}{1 + \alpha(50 - t_F)} \text{ or } \frac{97}{1 + 35a} \text{ \% of}$$

capacity;

(d) for hightly toxic, toxic, highly corrosive or corrosive substances in hermetically closed shells:[6/]

$$\text{degree of filling} = \frac{95}{1 + \alpha(50 - t_F)} \text{ or } \frac{95}{1 + 35a} \text{ \% of}$$

capacity;

(2) In these formulae, a represents the mean coefficient of cubic expansion of the liquid between 15° and 50°C, i.e. for a maximum variation in temperature of 35°C.

a is calculated by the formula: $\alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$

where d_{15} and d_{50} are the relative densities of the liquid at 15°C and 50°C reprectively and t_F is the mean temperature of the liquid at the time of filling.

(3) The provisions of paragraph (1) above shall not apply to shells whose contents are, by means of a heating device, maintained at a temperature above 50°C during carriage. In such a case the degree of filling at the outset shall be such, and the temperature so regulated, that the shell is not full to more than 95 per cent of its capacity at any time during carriage, and that the filling temperature is not exceeded.

(4) Where hot substances are loaded, the temperature of the outer surface of the shell or of the thermal insulation shall not exceed 70°C during carriage.

Where shells intended for the carriage of liquids[9/] are not divided by partitions or surge-plates into sections of not more than 7500 litres' capacity, they shall be filled to not less than 80 per cent of their capacity unless they are practically empty. 211173

Shells shall be closed in such a way that the contents cannot run out uncontrolled. The openings of bottom-discharge shells shall be closed by means of screw-threaded plugs, blank flanges or other equally effective devices. The leakproofness of the shell closures, particularly in the upper part of the dip-tube, shall be verified by the sender after the shell has been filled. 211174

Where several closure systems are fitted in series, that nearest to the substance being carried shall be closed first. 211175

No dangerous residue shall adhere to the outside of shells during carriage, whether they are full or empty. 211176

To be accepted for carriage, empty shells, uncleaned, must be closed in the same manner and leakproof in the same degree as though they were full. 211177

The connecting pipes between independent but interconnected shells of a transport unit shall be empty during carriage. 211178

Flexible filling and discharge pipes which are not permanently connected to the shell shall be empty during carriage.

Section 8: 211179

Transitional measures

Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles built before 1 October 1978 and not conforming to the requirements of this Appendix may, if they were built in conformity with the requirements of ADR, be used during a period of six years from 1 October 1978. Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of gases of Class 2 may however be used for 12 years from the same date if the periodic-test requirement is complied with. 211180

On the expiry of this period the aforesaid units may be kept in service if the equimpent of the shell meets the present requirements. The thickness of the shell wall, except in the case of shells intended for the carriage of gases of Class 2, 7° and 8°, shall be appropriate to a calculation pressure of not less than 0.4 MPa (4 bar) (gauge pressure) in the case of mild steel and of not less than 0.2 MPa (2 bar) (gauge pressure) in the case of aluminium and aluminium alloys. For other than circular cross-sections of tanks, the diameter to be used as a basis for calculation shall be that of a circle whose area is equal to that of the real cross-section of the tank. 211181

The periodic tests for fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles kept in service under these transitional provisions shall be conducted in accordance with the provisions of Section 5 and with the pertinent special provisions for the various Classes. Unless the earlier provisions prescribed a higher test pressure, a test pressure of 0.2 MPa (a bar) (gauge pressure) shall suffice for aluminium shells and aluminium-alloy shells. 211182

Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles which meet these transitional provisions may be used during a period of 15 years from 1 October 1978 for the carriage of the dangerous goods for which they have been appproved. This transitional period shall not apply to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles intended for the carriage of substances of Class 2, or to fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles whose wall thickness and items of equipment meet the requirements of this Appendix. 211183

Fixed tanks (tank-vehicles), demountable tanks and batteries of receptacles constructed before 1 May 1985 in accordance with the requirements of ADR in force between 1 October 1978 and 30 April 1985 but not conforming to the provisions applicable from 1 May 1985 may continue to be used after that date. 211184

211185
-211199

[9/] Under this provision, substances whose kinematic viscosity at 20°C is below 25 cm^2/s shall be deemed to be liquids.

PART II:
SPECIAL REQUIREMENTS SUPPLEMENTING OR MODIFYING THE REQUIREMENTS OF PART I

Class 2: Gases, compressed, liquefied or dissolved under pressure

211200
-211209

Section 1:
General; scope (use of tanks); definitions

Use

211210 Gases of Class 2 other than those listed below may be carried in fixed tanks, in demountable tanks, or in batteries of receptacles: fluorine and silicon tetrafluoride of 1° (at); nitric oxide of 1° (ct); mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume of 2° (bt); mixtures of hydrogen with not more than 10 per cent diborane by volyme; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume of 2° (ct), boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride of 3° (at); methylsilane of 3° (b); arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane of 3° (bt); cyanogen, cyanogen chloride and ethylene oxide of 3° (ct); mixtures of methylsilanes of 4° (bt); ethylene oxide containing not more than 50 per cent methyl formate by mass 4° (ct); silane of 5° (b); substances of 5° (bt) and (ct); dissolved acetylene of 9° (c); gases of 12° and 13°.

211211
-211219

Section 2:
Construction

211220 Shells intended for the carriage of substances of 1° to 6° and 9° shall be made of steel. By derogation from marginal 211125 (3), a minimum elongation at fracture of 14 per cent may be accepted in the case of weldless shells.

211221 The requirements of Appendix B.1d shall apply to the materials and construction of welded shells.

Shells intended for the carriage of chlorine or phosgene of 3° (at) shall be designed for a pressure of at least 2.2 MPa (22 bar) (gauge pressure).

211222
-211229

Section 3:
Items of equipment

211230 The discharge pipes of shells shall be capable of being closed not only by the devices prescribed in marginal 211131 but in addition by means of a blank flange or some other equally reliable device.

211231

Shells intended for the carriage of liquefied gases may be provided with, in addition to the openings prescribed in marginal 211131, openings for the fitting of gauges, including pressure gauges, and thermometers and with bleed holes, as required for their operation and safety.

211232 Safety devices shall meet the following requirements:

(1) Filling and discharge openings of shells intended for the carriage of liquefied inflammable and/or toxic gases shall be equipped with an instant-closing internal safety device which closes automatically in the event of an inadvertent movement of the tank. It must also be possible to close the device by remote control.

(2) All openings, other than those accommodating safety valves and than closed bleed holes, of shells intended for the carriage of liquified inflammable and/or toxic gases shall, if their nominal diameter is more than 1.5 mm, be equipped with an internal shut-off device.

(3) By derogation from the provisions of paragraphs (1) and (2), shells intended for the carriage of deeply-refrigerated inflammable and/or toxic liquefied gases may be equipped with external devices in place of internal devices if the external devices afford protection at least equivalent to that afforded by the wall of the shell.

(4) If the shells are equipped with gauges, the latter shall not be made of a transparent material in direct contact with the substance carried. If there are thermometers, they shall not project directly into the gas or liquid through the shell wall.

(5) Shells intended for the carriage of chlorine or sulphur dioxide of 3° (at) or methyl mercaptan or hydrogen sulphide of 3° (bt) shall not have any opening below the surface level of the liquid. In addition, cleaning apertures (first-holes) as referred to in marginal 211132 shall not be permitted.

(6) Filling and discharge openings situated in the upper part of shells shall be equipped not only with what is prescribed in paragraph (1), but in addition with a second, external, closing device. This device shall be capable of being closed by a blank flange or some other equally reliable device.

211233 Safety valves shall meet the following requirements:

(1) Shells intended for the carriage of gases of 1° to 6° and 9° may be provided with not more than two safety valves whose aggregate clear cross-sectional area of passage at the seating or seatings shall be not less than 20 cm^2 per 30 m^3 or part thereof of the receptacle's capacity. These valves shall be capable of opening automatically at a pressure of between 0.9 and 1.0 times the test pressure of the shell to which they are fitted. They shall be of such a type as to resist dynamic stresses, including liquid surge. The use of dead-weight or counter-weight valves is prohibited.

Shells intended for the carriage of gases of 1° to 9° harmful to the respiratory organs or entailing a poison risk[10] shall not have safety valves unless the safety valves are preceded by a frangible disc. In the latter case the arrangement of the frangible disc and the safety valve shall be required to be satisfactory to the competent authority.

Where tank-vehicles are intended for carriage by sea, the provisions of this paragraph shall not prohibit the fitting of safety valves conforming to the regulations governing that mode of transport.

(2) Shells intended for the carriage of gases of 7° and 8° shall be equipped with two independed safety valves, each so designed as to allow the gases formed by evaporation during normal operation to escape from the shell in such a way that the pressure does not at any time exceed by more than 10 per cent the working pressure indicated on the shell. One of the two safety valves may be replaced by a frangible disc which shall be such as to burst at the test pressure. In the event of loss of the vacuum in a double-walled shell, or of destruction of 20 per cent of the insulation of a single-walled shell, the safety valve and the frangible disc shall permit an outflow such that the pressure in the shell cannot exceed the test pressure.

(3) The safety valves of shells intended for the carriage of gases of 7° and 8° shall be capable of opening at the working pressure indicated on the shell. They shall be so designed as to function faultlessly even at their lowest working temperature. The reliability of their operation at that temperature shall be established and checked either by testing each valve or by testing a specimen valve of each design-type.

Thermal insulation

211234 (1) If shells intended for the carriage of liquefied gases of 3° and 4° are equipped with thermal insulation, such insulation shall consist of either:

– a sun shield covering not less than the upper third but not more than the upper half of the shell surface and separated from the shell by an air space at least 4 cm across; or

– a complete cladding, of adequate thickness, of insulating materials.

---

10. Gases identified by the letter «t» in the list of substances are deemed to be gases harmful to the respiratory organs or entailing a poison risk.

(2) Shells intended for the carriage of gases of 7° and 8° shall be thermally insulated. Thermal insulation shall be ensured by means of continuous sheathing. If the space between the shell and the sheathing is exhausted of air (vacuum insulation), the protective sheathing shall be so designed as to withstand without deformation an external pressure of at least 0.1 MPa (1 bar) (gauge pressure). By derogation from marginal 211102 (2), external and internal reinforcing devices may be taken into account in the calculations. If the sheathing is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the shell or of its items of equipment. The device shall prevent the infiltration of moisture into the heat-insulating sheath.

(3) Shells intended for the carriage of liquefied gases having a boiling point below -182°C at atmospheric pressure shall not include any combustible material either in the thermal insulation or in the means of attachment to the frame.

The means of attachment of shells intended for the carriage of argon, nitrogen, helium or neon of 7° (a) or hydrogen 7° (b) may, with the consent of the competent authority, contain plastics substances between the inner the inner and the outer sheath.

For batteries of receptacles (see marginal 2212 (1) (c)) [11] the following conditions shall be complied with: 211235

(1) If one of the elements of a multiple-element shell is equipped with a safety valve and shut-off devices are provided between the elements, every element shall be so equipped.

(2) The filling and discharge devices may be affixed to a manifold.

(3) Each element of a multiple-element shell intended for the carriage of compressed gases of 1° and 2° which are harmful to the respiratory organs or entail a poison risk[10], or are inflammable, shall be capable of being isolated by a valve (cock).

(4) The elements of a multiple-element shell intended for the carriage of liquefied gases of 3° to 6° shall be so designed that they can be filled separately and can be kept isolated by a valve capable of being sealed.

(5) The following requirements shall apply to demountable tanks:

(a) they shall not be interconnected by a manifold; and

(b) if the demountable tanks can be rolled, the valves shall be provided with protective caps.

By derogation from the provisions of marginal 211131, shells intended for the carriage of deeply-refrigerated liquefied gases need not have an inspection aperture. 211236

Section 4: Type approval 211237-211239

(No special requirements) 211240-211249

Section 5: Tests

The materials of every welded shell shall be tested by the method described in Appendix B.1 d. 211250

The test-pressure levels shall be as follows: 211251

(1) For shells intended for the carriage of gases of 1° and 2°: the levels indicated in marginal 2219 (1) and (3).

(2) For shells intended for the carriage of gases of 3° and 4°:

(a) if the shells are not more than 1.5 m in diameter, the levels indicated in marginal 2220 (2);

(b) if the shells are more than 1.5 m in diameter, the levels[12] indicated below:

---

10. Gases identified by the letter «t» in the list of substances are deemed to be gases harmful to the respiratory organs or entailing a poison risk.

11. The provisions of this Appendix are not applicable to frames of cylinders.

12. 1. The prescribed test pressures are:

(a) if the shell is equipped with thermal insulation, at least equal to the vapour pressure, reduced by 100 kPa (1 bar), of the liquid at 60°C, and not less than 1 MPa (10 bar);

(b) if the shell is not equipped with thermal insulation, at least equal to the vapour pressure, reduced by 100 kPa (1 bar), of the liquid at 65°C, and not less than 1 MPa (10 bar).

2. In view of the high toxicity of phosgene of 3° (at), the minimum test pressure for this gas is fixed at 1.5 MPa (15 bar) if the shell is equipped with thermal insulation and at 1.7 MPa (17 bar) if it is not so equipped.

3. The maximum values in kg/litre prescribed for the degree of filling are calculated as follows: maximum weight of contents per litre of capacity = 0.95 × specific gravity of the liquid phase at 50°C.

Appendix B.1a

Description of substance	Item number	Minimum test pressure for shells with thermal insulation MPa	Minimum test pressure for shells without thermal insulation MPa	Maximum Mass of contents per litre of capacity kg
Bromochlorodifluoromethane (R 12 B1)	3° (a)	1.0	1.0	1.61
Chlorodifluoromethane (R 22)	3° (a)	2.4	2.6	1.03
Chloropentafluoroethane (R 115)	3° (a)	2.0	2.3	1.08
1-Chloro-2,2,2-trifluoroethane (R133a)	3° (a)	1.0	1.0	1.18
Dichlorodifluoromethane (R 12)	3° (a)	1.5	1.6	1.15
Dichlorofluoromethane (R 21)	3° (a)	1.0	1.0	1.23
1,2-Dichloro-1,1,2,2-tetrafluoroethane (R 114)	3° (a)	1.0	1.0	1.30
Octafluorocyclobutane (RC 318)	3° (a)	1.0	1.0	1.34
Ammonia	3° (at)	2.6	2.9	0.53
Chlorine	3° (at)	1.7	1.9	1.25
Hexafluoropropylene (R 216)	3° (at)	1.7	1.9	1.11
Hydrogen bromide	3° (at)	5.0	5.5	1.20
Methyl bromide	3° (at)	1.0	1.0	1.51
Nitrogen dioxide No_2	3° (at)	1.0	1.0	1.30
Phosgene	3° (at)	1.5	1.7	1.23
Sulphur dioxide	3° (at)	1.0	1.2	1.23
Butane	3° (b)	1.0	1.0	0.51
1-Butene	3° (b)	1.0	1.0	0.53
1-Chloro-1,1-difluoroethane (R 142b)	3° (b)	1.0	1.0	0.99
Cis-2-butene	3° (b)	1.0	1.0	0.55
Cyclopropane	3° (b)	1.6	1.8	0.53
1,1-Difluoroethane (R 152a)	3° (b)	1.4	1.6	0.79
Dimethyl ether	3° (b)	1.4	1.6	0.58
Isobutane	3° (b)	1.0	1.0	0.49
Isobutene	3° (b)	1.0	1.0	0.52
Propane	3° (b)	2.1	2.3	0.42
Propylene	3° (b)	2.5	2.7	0.43
Trans-2-butene	3° (b)	1.0	1.0	0.54
1,1,1-Trifluoroethane	3° (b)	2.8	3.2	0.79
Dimethylamine	3° (bt)	1.0	1.0	0.59
Ethylamine	3° (bt)	1.0	1.0	0.61
Ethyl chloride	3° (bt)	1.0	1.0	0.80
Hydrogen sulphide	3° (bt)	4.5	5.0	0.67
Methylamine	3° (bt)	1.0	1.1	0.58
Methyl chloride	3° (bt)	1.3	1.5	0.81
Methyl mercaptan	3° (bt)	1.0	1.0	0.78
Trimethylamine	3° (bt)	1.0	1.0	0.56
1,2-Butadiene	3° (c)	1.0	1.0	0.59
1,3-Butadiene	3° (c)	1.0	1.0	0.55
Vinyl chloride	3° (c)	1.0	1.1	0.81
Methyl vinyl ether	3° (ct)	1.0	1.0	0.67
Trifluorochloroethylene (R 1113)	3° (ct)	1.5	1.7	1.13
Vinyl bromide	3° (ct)	1.0	1.0	1.37
Mixture F 1	4° (a)	1.0	1.1	1.23
Mixture F 2	4° (a)	1.5	1.6	1.15
Mixture F 3	4° (a)	2.4	2.7	1.03
Mixture of gases R 500	4° (a)	1.8	2.0	1.01
Mixture of gases R 502	4° (a)	2.5	2.8	1.05
Mixtures of 19 to 21 per cent by mass dichlorodifluoromethane (R12) and 79 to 81 per cent by mass bromochlorodifluoromethane (R 12 B1)	4° (a)	1.0	1.1	1.50
Mixtures of methyl bromide and chloropicrin	4° (at)	1.0	1.0	1.51
Mixture A (trade name: butane)	4° (b)	1.0	1.0	0.50
Mixture A 0 (trade name: butane)	4° (b)	1.2	1.4	0.47
Mixture A 1	4° (b)	1.6	1.8	0.46
Mixture B	4° (b)	2.0	2.3	0.43
Mixture C (trade name: propane)	4° (b)	2.5	2.7	0.42

Appendix B.1a

Description of substance	Item number	Minimum test pressure for shells with thermal insulation MPa	Minimum test pressure for shells without thermal insulation MPa	Maximum Mass of contents per litre of capacity kg
Mixtures of hydrocarbons containing methane	4° (b)	→	22.5	0.187
			30.0	0.244
Mixtures of methyl chloride and methylene chloride	4° (bt)	1.3	1.5	0.81
Mixtures of methyl chloride and chloropicrin	4° (bt)	1.3	1.5	0.81
Mixtures of methyl bromide and ethylene bromide	4° (bt)	1.0	1.0	1.51
Methylacetylene/propadiene and hydrocarbon mixtures				
Mixture P_1	4° (c)	2.5	2.8	0.49
Mixture P_2	4° (c)	2.2	2.3	0.47
Mixtures of 1.3-butadiene and hydrocarbons of 3° (b)	4° (c)	1.0	1.0	0.50
Ethylene oxide containing not more than 10 per cent carbon dioxide by mass	4° (ct)	2.4	2.6	0.73
Ethylene oxide with nitrogen up to a total pressure of 1 MPa (10 bar) at 50°C	4° (ct)	1.5	1.5	0.78
Dichlorodifluoromethane containing 12 per cent ethylene oxide by mass	4° (ct)	1.5	1.6	1.09

(3) For shells intended for the carriage of gases of 5° and 6:

(a) if the shells are not sheathed in thermal insulation: the levels indicated in marginal 2220 (3) and (4);

(b) if the shells are sheathed in thermal insulation as defined in marginal 211234 (1): the levels indicated below:

Description of substance	Item number	Minimum test pressure MPa	Maximum mass of contents per litre of capacity kg
Bromotrifluoromethane (R 13 B1)	5° (a)	12.0	1.50
Carbon dioxide	5° (a)	19.0	0.73
		22.5	0.78
Chlorotrifluoromethane (R 13)	5° (a)	12.0	0.96
		22.5	1.12
Hexafluoroethane (R 116)	5° (a)	16.0	1.28
		20.0	1.34
Nitrous oxide (N_2O)	5° (a)	22.5	0.78
Sulphur hexafluoride	5° (a)	12.0	1.34
Trifluoromethane (R 23)	5° (a)	19.0	0.92
		25.0	0.99
Xenon	5° (a)	12.0	1.30
Hydrogen chloride	5° (at)	12.0	0.69
Ethane	5° (b)	12.0	0.32
Ethylene	5° (b)	12.0	0.25
		22.5	0.36
1,1-Difluoroethylene	5° (c)	12.0	0.66
		22.5	0.78
Vinyl fluoride	5° (c)	12.0	0.58
		22.5	0.65
Mixture of gases R 503	6° (a)	3.1	0.11
		4.2	0.21
		10.0	0.76
Carbon dioxide containing not more than 35 per cent ethylene oxide by mass	6° (c)	19.0	0.73
		22.5	0.78
Ethylene oxide containing more than 10 per cent but not more than 50 per cent carbon dioxide by mass	6° (ct)	19.0	0.66
		25.0	0.75

Where shells sheathed in thermal insulation are used which have been subjected to a test pressure lower than that shown in the table, the maxium mass of the contents per litre of capacity shall be such that the pressure reached in the shell by the substance in question at 55°C does not exceed the test pressure stamped on the shell. In such a case the maximum load allowed shall be prescribed by the expert approved by the competent authority.

(4) For shells intended for the carriage of ammonia dissolved under pressure of 9° (at):

Description of substance	Item number	Minimum test pressure MPa	Maximum mass of contents per litre of capacity kg
Ammonia dissolved under pressure in water			
– with more than 35 per cent but not more than 40 per cent ammonia by mass	9° (at)	1.0	0.80
– with more than 40 per cent but not more than 50 per cent ammonia by mass	9° (at)	1.0	0.77

(5) For shells intended for the carriage of gases of 7° and 8°: not less than 1.3 times the maximum permitted working pressure, as indicated on the shell, but not less than 0.3 MPa (3 bar) (gauge pressure); for shells with vacuum insulation the test pressure shall be not less than 1.3 times the maximum premitted working pressure increased by 0.1 MPa (1 bar).

The first hydraulic pressure test shall be carried out before the thermal insulation is placed in position. 211252

The capacity of each shell intended for the carriage of gases of 3° to 6° and 9° shall be determined, under the supervision of an expert approved by the competent authority, by weighing or volumetric measurement of the quantity of water which fills the shell; any error in the measurement of shell capacity shall be of less than one per cent. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum filling masses allowed in accordance with marginals 2220 (4) and 211251 (3) shall be prescribed by an approved expect. 211253

Checking of the welds shall be carried out in accordance with the lambda - coefficient 1.0 requirements of marginal 211127 (7). 211254

By derogation from the requirements of marginal 211151, the periodic tests shall take place: 211255

(1) every three years.

in the case of shells intended for the carriage of boron trifluoride of 1° (at), town gas of 2° (bt), hydrogen bromide, chlorine, nitrogen dioxide, sulphur dioxide or phosgene of 3° (at), hydrogen sulphide of 3° (bt), or hydrogen chloride of 5° (at);

(2) every six years

in the case of shells intended for the carriage of other compressed and liquefied gases or of ammonia dissolved under pressure (9° (at)); and

(3) afer six years' service and thereafter every twelve years

in the case of shells intended for the carriage of gases of 7° or 8°. A leakproofness check shall be performed by an approved expert six years after each periodic test.

In the case of shells heat-insulated by vacuum, the hydraulic-pressure test and the check of the internal condition may, with the consent of the approved expert, be replaced by a leakproofness test and measurement of the vacuum. 211256

If apertures have been made, on the occasion of periodic inspections, in shells intended for the carriage of gases of 7° or 8°, the method by which they are hermetically closed before the shells are replaced in service shall be approved by the approved expect and shall ensure the intergrity of the shell. 211257

Leakproofness tests of shells intended for the carriage of gases of 1° to 6° and 9° shall be performed at a pressure of not less than 0.4 MPa (4 bar) and not more than 0.8 MPa (8 bar) gauge pressure. 211258

211259

Section 6: Marking.

The following additional particulars shall be marked by stamping or by any other similar method on the plate prescribed in marginal 211160, or directly on the walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired: 211260

(1) on shells intended for the carriage of only one substance:

– the name of the gas in full.

This indication shall be supplemented in the case of shells intended for the carriage of compressed gases of 1° and 2° by an indication of the maximum filling pressure at 15°C allowed for the shell, and in the case of shells intended for the carriage of liquefied gases of 3° to 8° or of ammonia dissolved under pressure of 9° (at) by an indication of the permissible maximum load in kg and of the filling temperature if below -20°C.

(2) on multi-purpose shells:

– the names, in full, of the gases for whose carriage the shell is approved.

These particulars shall be supplemented by an indication of the permissible maximum load in kg for each gas:

(3) on shells intended for the carriage of gases of 7° or 8°:

– the working pressure; and

(4) on shells equipped with thermal insulation:

– the inscription "thermally insulated" or «thermally insulated by vacuum".

The frame of a multiple-element shell shall near the filling point a plate specifying: 211261

– the test pressure of elements;

– the maximum filling pressure at 15°C allowed for elements intended for compressed gases;

– the number of elements;

– the aggregate capacity of the elements in litres;

– the name of the gas in full;

and, in the case of liquefied gases:

– the permissible maximum load per element, in kg.

In addition to the particulars prescribed in marginal 211161, the following shall be inscribed either on the tank-vehicle itself or on a plate: 211262

(a) – either: "lowest permissible filling temperature −20°C",

– or: "lowest permissible filling temperature .....":

(b) where the shell is intended for the carriage of one substance only:

– the name of the gas in full;

– for liquefied gases of 3° to 8° and for ammonia dissolved under pressure in water of 9° (at), the permissible maximum load in kg;

(c) where the shell is a multi-purpose shell:

– the name in full of all the gases to whose carriage the shell is assigned, with an indication of the permissible maximum load in kg. for each gas;

(d) where the shell is equipped with thermal insulation:

– the inscription "thermally insulated" or "thermally insulated by vacuum", in an official language of the forwarding country and also in English, French or German, unless international road transport tariffs, in any, or agreements concluded between the countries concerned in the transport operation provide otherwise.

These particulars shall not be required in the case of a vehicle carrying demountable tanks. 211263

211264
211269

Section 7: Operation

A shell assigned at different times to the carriage of different liquefied gases of 3° to 8° (multi-purpose shell) may not carry substances other than those listed in one. and one only, of the following groups: 211270

Group 1: halogenated hydrocarbons of 3° (a) and 4° (a); 1,3-butadiene of 3°(c) and mixtures of 1,3-butadiene and hydrocarbons, of 4° (c);

Group 2: hydrocarbons of 3° (b), and 4° (b):

Group 3: ammonia of 3° (at); dimetnyl ether of 3° (b); dimethylamine, ethylamine, methylamine and trimethylamine of 3° (bt); and vinyl chloride of 3° (c):

Group 4: methhyl bromide of 3° (at); ethyl chloride and methyl chloride of 3° (bt)

Group 5: mixtures of ehtylene oxide with carbon dioxide and of ethylene oxide with nitrogen of 4° (et):

Group 6: nitrogen, carbon dioxide, rare gases. nitrous oxide N_2O, and oxygen 7° (a); air, mixtures of nitrogen with rare gases, and mixtures of oxygen with nitrogen. also when they contain rare gases of 8° (a);

Group 7: ethane, ethylene, and methane of 7° (b): and mixtures of methane with ethane, also when they contain propane or butane of 8° (b).

Shells wich hve been filled with a substance of group 1 or group 2 shall be emptied of liquefied gas before being loaded with another substance belonging to the same group. Shells which have been filled with a substance of groups 3 to 7 shall be completely emptied of liquefied gas and then flown down before being loaded with another substance belonging to the same group. 211271

The multiple use of shells for the carriage of liquefied gases of the same group shall be allowed if all the requirements prescribed for the gases to be carried in one and the same shell are observed. Such multiple use shall be subject to approval by an approved expert. 211272

The multiple use of shells for the carriage of gases of different groups shal be allowed if permitted by the approved expert. 211273

When shells are reassigned to gases of a different group. the shells shall be completely emptied of liquefied gases. then blown down and, lastly, degassed. The degassing of shells shall be verified and certified by the approved expert.

When loaded tanks or empty but uncleaned tanks are handed over for carrige, only th particulars specified in marginal 211262 applicable to the gas loaded or just discharged shall be visible; all particulars concerning other gases shall be covered up. 211274

All the elements of a multiple-element shell shall contain only one and the same gas. In the case of a multiple-element shell inteded for the carriage of liquefied gases. the elements shall be filled separately and be kept isolated by a sealed valve. 211275

The maximum filling pressure for compressed gases of 1° and 2° other than boron fluoride shall not exceed the values prescribed in marginal 2119 (2). 211276

For boron fluoride of 1° (at) the maximum filling mass per litre of capacity shall not exceed 0.86 kg.

The maximum filling mass per litre of capacity according to marginals 2220, (2), (3) and (4), and 211251. (2), (3) and (4), shall be abided by.

The degree of filling of shells inteded for the carriage of gases of 7° (b) and 8° (b) shall remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the valve-opening pressure, the volume of the liquid would reach 95 per cent of the shell's capacity at that teperature. Shells intended for the carriage of gases of 7° (a) and 8° (a) may be filled to 98 per cent at the loading temperature and the loading pressure. 211277

On shells intended for the carriage of nitrous oxide and oxygen of 7° (a), air or mixtures containing oxygen of 8° (a), substances containing grease or oil shall not be used to ensure leakproofness of the joints or for the maintenance of the closures. 211278

The requirement in marginal 211175 shall not apply to gases of 7° and 8°. 211279

211280
-211299

Class 3: Imflammable liquids

211300
-211309

Section 1: General; scope (use of tanks)? definitions

Use

The following substances of Class 3 may be carried in fixed or demountable tanks: 211310

(a) substances listed by name in 12°;

(b) substances classified under (a) of 11°. 14° to 23°. 25° and 26° and comparable substances to be classified under (a) of those items, with the exception of isopropoyl chloroformate of 25o (a);

(c) substances classified under (b) of 11°. 14° to 20°. 22° and 24° to 26° and comparable substances to be classified under (b) of those items:

(d) substances of 1° to 6° and 31° to 34o and comparable substances to be classified under these items. with the exception of nitromethane of 31° (c).

211311
211319

Section 2: Construction

Shels intended for the carriage of substances of 12° shall be designed for a calculation pressure[13] of not less than 1.5 MPa (15 bar) gauge pressure. 211320

Shells intended for the carriage of the substances referred to in marginal 211 310 (b) shall be designed for a calculation pressure[13] of not less than 1.0 MPa (10 bar) gauge pressure. 211321

Shells intended for the carriage of the substances referred to in marginal 211 310 (c) shall be designed for a calculation pressure[13] of not less than 0.4 MPa (4 bar) gauge pressure. 211322

Shells intended for the carriage of the substances referred to in marginal 211 310 (d) shall be designed in accordance with the requirements of the general part of this Appendix. 211323

Section 3: Items of equipment

All opening of shells intended for the carriag of the substances referred to in marginal 211310 (a) and (b) shall be above the surface level of the liquid. No pipers or pipe connections shall pass through the walls of the shell below the surface level of the liquid. Shells shall be capable of being 211330

13 See marginal 211127 (2)

hermetically closed[6] and the closures shall be capable of being protected with lockable caps.

211331 Shells intended for the carriage of the substances referred to in marginal 311310 (c) and (d) may also be of the botom-discharge type. Shells intended for the carriage of the substances referred to in marginal 211310 (c) shall be capable of being hermeticaly closed[6].

211332 If shells intended for the carriag of the substances referred to in marginal 311310 (a) and (b) or 11° or 14° to 20° of marginal 211310 (c) are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. If shells intendef for the carriage of the substances referred to in marginal 311310 (d) are equipped with safety valves or a venting system, these shall satisfy the requirements of marginals 211133 to 211135. Shells intended for the carriage of the substances referred to in marginal 211310 (d) having a flash-point not exceeding 55 °C and equipped with a venting system which cannot be closed shall have a flame-trap in the venting system.

211333
-211339

Section 4: Type approval

211340
(No special requirements) -211349

Section 5: Tests

211350 Shells intended for the carriage of the substances referred to in marginal 211310 (a), (b) or (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar).

211351 Shells intended for the carriage of the substances referred to in marginal 211310 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 211123.

211352
-211359

Section 6: Marking

211360
(No special requirements) -211369

Section 7: Operation

211370 The degree of filling of shells intended for the carriage of the substances referred to in marginal 211310 (a), (b) or (c) shall conform to marginal 211172 (1) (d). Shells shall be hermetically[6/] closed during carriage. The closures of shells intended for the carriage of the substances referred to in marginal 211310 (a) and (b) shall be protected by lockable caps.

211371 Fixed tanks (tank-vehicles) and demountable tanks approved for the carriage of substances of 6°, 11°, 12° and 14° to 20° shall not be used for the carriage of foodstuffs, articles of consumption or animal feedstuffs.

211372 An aluminium-alloy shell shall not be used for the carriage of acetaldehyde of 1° (a) unless the shell is reserved solely for such carriage and the acetaldehyde is free from acid.

211373 From October to March, mixtures of hydrocarbons having a vapour pressure above 110 kPa (1.1 bar) but not exceeding 150 kPa (1.5 bar) (absolute pressure) at 50 °C, such as certain light distillates for cracking, may be carried in shells of the type described in marginal 211133.

211374
-211399

Class 4.1: Inflammable solids

Class 4.2: Substances liable to spontaneous combustion

Class 4.3: Substances which give off inflammable gases on contact with water

211400
-211409

Section 1: General; scope (use of tanks); definitions

Use

211410 Substances of 2°, 8° et 11° of Class 4.1 and 8° of Class 4.2 and sodium, potassium, alloys of sodium and potassium (1° (a)), substances of 2° (e) and 4° of Class 4.3 may be carried in fixed or demountable tanks.

NOTE: For the carriage in bulk of sulphur of 2° (a), napthalene of 11° (a) and (b), expandable polystyrenes of 12° of Class 4.1, substances of 5°, dust from blast-furnace filters (6° (a)) and substances of 10° of Class 4.2, and magnesium granules, coated, of 1° (d), calcium carbide (2° (a)) and calcium silicide in lumps (2° (d)) of Class 4.3, see marginals 41111, 42111 and 43111.

211411
-211419

Section 2: Construction

211420 Shells intended for the carriage of white or yellow phosphorus of marginal 2431, 1° or substances of 2° (e) and 4° of marginal 2471 shall be designed for a calculation pressure of not less than 1 MPa (10 bar) gauge pressure.

211421 Shells intended for the carriage of substances of marginal 2431, 3°, shall be designed for a calculation pressure of not less than 2.1 MPa (21 bar) gauge pressure.

211422
-211429

Section 3: Items of equipment

211430 Shells intended for the carriage of sulphur of 2° (b) or naphthalene of 11° (c) of marginal 2401 shall be equipped with thermal insulation made of materials which are not readily inflammable. They may be equipped with valves opening automatically inwards or outwards under the effect of a difference of pressure of 20 kPa (0.2 bar) to 30 kPa (0.0.3 bar). The discharge devices shall be capable of being protected by a lockable metal cap.

211431 Shells intended for the carriage of white or yellow phosphorus of marginal 2431, 1°, shall meet the following requirements:

(1) The heating device shall not penetrate into, but shall be exterior to, the body of the shell. However, a pipe used for extracting the phosphorus may be equipped with a heating jacket. The device heating the jacket shall be so regulated as to prevent the temperature of the phosphorus from exceeding the filling temperature of the shell. Other piping shall enter the shell in its upper part; openings shall be situated above the highest permissible level of the phosphorus and be capable of being completely enclosed under lockable caps. In addition, the cleaning apertures (fist-holes) referred to in marginal 211132 shall not be permitted.

(2) The shell shall be equipped with a gauging system for verifying the level of the phosphorus and, if water is used as the protective agent, with a fixed gauge mark showing the highest permissible level of the water

211432 The openings and orifices (valves, sleeves, manholes, etc.) of shells intended for the carriage of substances of marginal 2471, 1° (a), shall be protected by leakproof lockable caps, and such shells shall be equipped with thermal insulation made of materials which are not readily inflammable.

211433 Shells intended for the carriage of substances of marginal 2431, 3°, or marginal 2471, 2° (e), shall not have any openings or connections below the level of the liquid, even if such openings or connections are capable of being closed. In addition, the cleaning openings (fist-holes) provided for in marginal 211132 shall not be permitted. Openings in the upper part of the shell, including their fit-

6/ "Hermetically closed shells" means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible disc or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

tings, shall be capable of being protected by a cap.

211434
-211439

Section 4: Type approval

211440
(No special requirements) -211449

Section 5: Tests

Shells intended for the carriage of sulphur in the molten state of marginal 2401, 2° (b), naphthalene in the molten state of marginal 2401, 11° (c), white or yellow phosphorus of marginal 2431, 1°, sodium, potassium or alloys of sodium or potassium of marginal 2471, 1° (a), substances of marginal 2471, 2° (e), substances of marginal 3471, 4°, shall be subjected to the initial and periodic tests at a gauge pressure of at least 0.4 MPa (4 bar). 211450

Shells intended for the carriage of substances of marginal 2431, 3°, shall be subjected to the initial and periodic tests with a liquid not reacting with the substance to be carried, at a test pressure of 1 MPa (10 bar) gauge pressure. 211451

The materials of every shell intended for the carriage of substances of marginal 2431, 3°, shall be tested by the method described in Appendix B.1d.

Shells intended for the carriage of sulphur (including flowers of sulphur) of 2° (a), phosphorus sesquisulphide and phosphorus pentasulphide of 8°, crude or pure naphthalene of 11° (a) and (b) of marginal 2401, or of freshly-quenched charcoal of marginal 2431, 8°, shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 211123. 211452

211453
-211459

Section 6: Marking

Shells intended for the carriage of substances of marginal 2431, 3°, shall bear in addition to the particulars prescribed in marginal 211161 the words: "Do not open during carriage. Liable to spontaneous combustion". 211460

Shells intended for the carriage of substances of marginal 2471, 2° (e), shall bear in addition to the particulars prescribed in marginal 211161 the words: "Do not open during carriage. Gives off inflammable gases on contact with water".

These particulars shall be in an official language of the country of approval, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

211461
-211469

Section 7: Operation

Shells intended for the carriage of sulphur of 2° (b) or naphthalene 11 (c) of marginal 2401 shall be filled to not more than 98 per cent of their capacity. 211470

White or yellow phosphorus of marginal 2431, 1°, shall, if water is used as the protective agent, be covered with a depth of not less than 12 cm of water at the time of filling; the degree of filling at a temperature of 60°C shall not exceed 98 per cent. If nitrogen is used as the protective agent, the degree of filling at a temperature of 60°C shall not exceed 96 per cent. 211471

The remaining space shall be filled with nitrogen in such a way that even after cooling, the pressure at no time falls below atmospheric pressure. The shell shall be hermetically closed so that no leakage of gas occurs.

For the carriage of substances of marginal 2471, 1° (a), caps shall be locked in conformity with marginal 211432. 211472

For trichlorosilane (silicochloroform) of marginal 2471, 4° (a), or for methyldichlorosilane or ethyldichlorosilane of 4° (b), the degree of filling shall not exceed 1.4 or 0.95 or 0.93 kg per litre of capacity respectively, if filling is by mass or 85 per cent if filling is by volume. 211473

Shells which have contained phosphorus of marginal 2431, 1°, shall when handed over for carriage either: 211474

– be filled with nitrogen; the sender shall certify in the transport document that the shell, after closure, is gas-tight; or

– be filled with water to not less than 96 per cent and not more than 98 per cent of their capacity; between 1 October and 31 March this water shall contain one or more anti-freeze agents free from corrosive action, not liable to react with phosphorus, and in such concentration as to make it impossible for the water to freeze during carriage.

Tanks which have contained phosphorus of marginal 2431, 1°, must be considered, as far as the application of the provisions of marginal 42500 (1) is concerned, as being "empty tanks, uncleaned".

The degree of filling for shells containing substances of marginal 2431, 3°, or marginal 2471, 2° (e), shall not exceed 90 per cent; a space of 5 per cent shall remain empty for safety when the liquid is at an average temperature of 50°C. During carriage, the substances shall be under a layer of inert gas, the gauge pressure of which shall not exceed 50 kPa (0.5 bar). The shells shall be hermetically closed[6] and the protective caps conforming to marginal 211433 shall be locked. Empty shells, uncleaned, shall when handed over for carriage be filled with an inert gas at a gauge pressure of up to 50 kPa (0.5 bar). 211475

211476
-211499

Class 5.1: Oxidizing substances

Class 5.2: Organic peroxides

211500
-211509

Section 1: General; scope (use of tanks); definitions

Use

The following substances of Class 5.1 may be carried in fixed or demountable tanks: substances of 1° to 3°, solutions of 4° (also powdery sodium chlorate in the moist or the dry state) and hot aqueous solutions of ammonium nitrate of 6° (a) in a concentration of more than 80 per cent but not more than 93 per cent provided that: 211510

(a) the pH value, measured in a 10 per cent aqueous solution of the substance carried, is between 5 and 7, and

(b) solutions do not contain any combustible substance in a quantity greater than 0.2 per cent or any chlorine compound in such quantity that the chlorine content exceeds 0.02 per cent.

Substances of 1°, 10°, 14°, 15° and 18° of Class 5.2 may be carried in fixed or demountable tanks.

NOTE: For the carriage in bulk of substances of 4° to 6° and 7° (a) and (b) of Class 5.1 see marginal 51111.

211511
-211519

Section 2: Construction

Shells intended for the carriage in the liquid state of substances referred to in marginal 211150 shall be designed for a pressure of at least 0.4 MPa (4 bar) (gauge pressure). 211520

Shells, and their items of equipment, intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of marginal 2501, 1°, or of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be made of aluminium not less than 99.5 per cent pure or of suitable steel not liable to cause the hydrogen peroxide or the organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be made of aluminium not less than 99.5 per cent pure or of suitable steel not liable to cause the hydrogen peroxide or the organic peroxides to decompose. 211521

Shells intended for the carriage of concentrated and hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall be made of austenitic steel. 211522

211523
-211529

Section 3: Items of equipment

Shells intended for the carriage of hydrogen peroxide and of aqueous solutions of hydrogen peroxide containing more than 70 per cent hydrogen peroxide, of marginal 2501, 1°, shall have their openings above the surface level of the liquid. In addition, cleaning apertures (fist-holes) as referred to in marginal 211132 shall not be permitted. In the case of solutions containing more than 60 per cent but not more than 70 per cent hydrogen peroxide, openings below the surface level of the liquid shall be permissible. In this case the shell-discharge system shall be equipped with two mutually independent shut-off device mounted in series, the first taking the form of a quick-closing internal stop-value of an approved type and the second that of a sluice-valve, at each end of the discharge pipe-socket. A blank flange, or another device providing the same measure of security, shall also be fitted at the outlet of each external sluice-valve. The internal stop-valve shall be such that, if the pipe is wrenched off, the stop-valve will remain integral with the shell and in the closed position. 211530

The connexions to the external pipe-sockets of shells shall be made of materials not liable to cause decomposition of hydrogen peroxide. 211531

Shells intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of 1°, or of concentrated and hot aqueous solutions of ammonium nitrate of 6° (a), of marginal 2501 shall be fitted in their upper part with a shut-off device preventing any build-up of excess pressure inside the receptacle, any leakage of liquid, and any entry of foreign matter into the receptacle. The shut-off devices of shells intended for the carriage of concentrated and hot aqueous solutions of ammonium nitrate shall be so designed as to preclude obstruction of the devices by solidified ammonium nitrate during carriage. 211532

Where shells intended for the carriage of concentrated and hot solutions of ammonium nitrate of marginal 2501, 6° (a), are sheathed in thermally-insulating material, the material shall be of an inorganic nature and entirely free from combustible matter. 211533

Shells intended for the carriage of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be equipped with a venting device fitted with a flame-trap and followed in series by a safety valve opening at a gauge pressure of 0.18 to 0.22 MPa (1.8 to 2.2 bar). 211534

Shells intended for the carriage of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be equipped with a sun shield complying with the requirements of marginal 211234 (1). The sun shield and any uncovered part of the shell shall be painted white and the paint shall be cleaned before each transport journey and renewed in case of yellowing or deterioration. The sun shields shall be free from combustible matter. 211535

211536
-211539

Section 4: Type approval

211540

(No special requirements)

-211549

Section 5: Tests

Shells intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of 1°, or of concentrated and hot solutions of ammonium nitrate of 6° (a), of marginal 2501, or of liquid organic peroxides of marginal 2551, 1°, 10°, 14°, 15° and 18°, shall be tested at a pressure of 0.4 MPa (4 bar). 211550

211551
-211559

Section 6: Marking

211560

(No special requirements)

-211569

Section 7: Operation

The inside of the shell, and all parts liable to come into contact with substances referred to in marginal 211510, shall be kept clean. No lubricant capable of combining dangerously with the substance carried shall be used for pumps, valves or other devices. 211570

Shells intended for the carriage of liquids of marginal 2501, 1° to 3°, shall be filled to not more than 95 per cent of their capacity at a reference temperature of 15°C. 211571

Shells intended for the carriage of hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall be filled to not more than 97 per cent of their capacity, and the maximum temperature after filling shall not exceed 140°C.

Tanks used for the carriage of hot aqueous solutions of ammonium nitrate of marginal 2501, 6° (a), shall not be used for the carriage of other substances without being first carefully cleansed of any residues. 211572

211573
-211599

Class 6.1: Toxic substances 211600
-211609

Section 1: General; scope (use of tanks); definitions

Use

The following substances of Class 6.1 may be carried in fixed or demountable tanks: 211610

(a) highly toxic substances listed by name in 2° and 3;

(b) highly toxic substances classified under (a) of 11° to 24°, 31°, 41°, 51°, 55° and 71° to 88°, carried in the liquid state, and comparable substances or solutions to be classified under (a) of those items;

(c) toxic or harmful substances classified under (b) or (c) of 11°, 24°, 51° to 55°, 57° to 68° and 71° to 88°, carried in the liquid state, and comparable substances or solutions to be classified under (b) or (c) of those items;

(d) toxic or harmful powdery or granular substances classified under (b) or (c) of 12°, 14°, 17°, 19°, 21°, 23°, 24°, 51° to 55°, 57° to 68° and 71° to 88°, and comparable powdery or granular substances to be classified under (b) or (c) of those items.

NOTE: For the carriage in bulk of bustances of 44° (b), 60° (c) and 63° (c) see marginal 61111.

211611
-211619

Section 2: Construction

Shells intended for the carriage of substances listed by name under 2° and 3° shall be designed for a calculation pressure[13] of not less than 1.5 MPa (15 bar) gauge pressure. 211620

Shells intended for the carriage of the substances referred to in marginal 211610 (b) shall be designed for a calculation pressure[13] of not less than 1.0 MPa (10 bar) gauge pressure. 211621

Shells intended for the carriage of the substances referred to in marginal 211610 (c) shall be designed for a calculation pressure[13] of not less than 0.4 MPa (4 bar) gauge pressure. 211622

Shells intended for the carriage of the powdery of granular substances referred to in marginal 211610 (d) shall be designed in accordance with the requirements of the general part of this Appendix. 211623

211624
-211629

Section 3: Items of equipment

All openings of shells intended for the carriage of the substances referred to in marginal 211610 (a) and (b) shall be above the surface level of the liquid. No pipe or pipe connections shall pass through the walls of the shell 211630

13 See marginal 211127 (2)

below the surface level of the liquid. Shells shall be capable of being hermetically closed[6/] and the closures shall be capable of being protected with lockable caps. The cleaning openings provided for in marginal 211132 shall not however be permitted for shells intended for the carriage of solutions of hydrocyanic acid of 2°.

Shells intended for the carriage of the substances referred to in marginal 211610 (c) and (d) may also be of the bottom-discharge type. The shells shall be capable of being hermetically closed[6/]. 211631

If shells are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. 211632

211633
-211639

Section 4: Type approval

211640
-211649

(No special requirements)

Section 5: Tests

Shells intended for the carriage of the substances referred to in marginal 211610 (a), (b) and (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). For shells intended intended for the carriage of substances of 31° (a), the periodic tests shall be carried out at intervals of not more than three years and shall include the hydraulic pressure test. 211650

Shells intended for the carriage of the substances referred to in marginal 211610 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 211123. 211651

211652
-211659

Section 6: Marking

211660

(No special requirements)

-211669

Section 7: Operation

The degree of filling of shells intended for the carriage of the substances referred to in marginal 211610 (a), (b) and (c) shall be in accordance with marginal 211172 (1) (d). 211670

Shells intended for the carriage of substances of 3° shall not be filled to more than 1 kg per litre of capacity. 211671

Shells shall be hermetically closed[6/] during carriage. The closures of shells intended for the carriage of the substances referred to in marginal 211610 (a) and (b) shall be protected with lockable caps. 211672

Tank vehicles and demountable tanks approved for the carriage of the substances referred to in marginal 211610 shall not be used for the carriage of foodstuffs, articles of consumption or animal feedstuffs. 211673

211674
-211699

Class 7: Radioactive substances

211700
-211709

Section 1: General; scope (use of tanks); definitions

Use

In accordance with the applicable schedule of marginal 2703. 211710

NOTE: Liquid or solid low-specific-activity substances, LSA (I), of marginal 2703, schedule 5, other than uranium hexafluoride and substances liable to spontaneous ignition, may be carried in fixed or demountable tanks.

211711
-211719

6/ "Hermetically closed shells" means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible disc or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

Section 2: Construction

Shells intended for the carriage of the substances referred to in marginal 2703, Schedule 5, paragraph 11, shall be designed for a pressure of at least 0.4 MPa (4 bar) (gauge pressure). 211720

Where the radioactive substances are in solution or suspension in substances of other Classes and the calculation pressures prescribed for the shells of tanks intended for the carriage of the latter substances are greater, the latter pressures shall be applied. 211721

Section 3: Items of equipment

Shells intended for the carriage of liquid radioactive substances[9/] shall have their openings above the surface level of the liquid. No piping or pipe connection shall pass through the walls of the shell below the surface level of the liquid. 211730

211731
-211739

Section 4: Type approval

Tanks approved for the carriage of radioactive substances shall not be approved for the carriage of foodstuffs, articles of consumption, animal feeding stuffs, cosmetics or medicaments, or of substances used in the manufacture of these products. 211740

211741
-211749

Section 5: tests

Shells intended for the carriage of the substances referred to in marginal 2703, Schedule 5, paragraph 11, shall be tested initially and periodically at a pressure of 0.4 Mpa (4 bar) (gauge pressure). 211750

By derogation from the requirements of marginal 211151, the periodic internal inspection may be replaced by a check of the wall thickness by ultrasound, performed every three years. 211751

211752
-211759

Section 6: Marking

211760

(No special requirements)

-211769

Section 7: Operation

The degree of filling at the reference temperature of 15°C shall not exceed 93 per cent of the total capacity of the shell. 211770

Tanks which have been used for the carriage of radioactive substances shall not be used for the carriage of foodstuffs, articles of consumption, animal feeding stuffs, cosmetics or medicaments, or of substances used in the manufacture of these products. 211771

211772
-211799

Class 8: Corrosive substances

211800
-211809

Section 1: General; scope (use of tanks); definitions

Use

The following substances of Class 8 may be carried in fixed or demountable tanks: 211810

(a) substances listed by name in 6°, 7° and 24°, and substances comparable with those of 7°;

(b) highly corrosive substances classified under (a) of 1°, 2°, 3°, 10°, 11°, 21°, 26°, 27°, 32°, 33°, 36°, 37°, 64°, 65° and 66°, carried in the liquid state, and comparable substances or solutions to be classified under (a) of those items;

(c) corrosive or slightly corrosive substances classified under (b) or (c) of 1° to 5°, 8° to 11°, 21°, 26°, 27°, 31° to 39°, 42° to 45°, 51° to 54° and 61° to 66°, carried in the liquid state, and comparable substances or solutions to be classified under (b) or (c) of those items;

(d) powdery or granular corrosive or slightly corrosive substances classified under (b) or (c) of 22°, 23°, 26°, 27°, 31°, 35°, 39°, 41°, 45°, 52° and 65°, and comparable powdery or granular substances to be classified under (b) or (c) of those items.

NOTE: For the carriage in bulk of lead sludge containing sulphuric acid of 1° (b) and of substances of 23°, see marginal 81 111.

211811
-211819

Section 2: Construction

Shells intended for the carriage of substances listed in 6° and 24° shall be designed for a calculation pressure[13/] of not less than 2.1 MPa (21 bar) gauge pressure. Shells intended for the carriage of bromine of 24° shall be provided with a lead lining not less than 5 mm thick or an equivalent lining. 211820

Shells intended for the carriage of substances of 7° (a) shall be designed for a calculation pressure[13/] of not less than 1.0 MPa (10 bar) and shells for the carriage of substances of 7° (b) and (c) for a calculation pressure[13/] of not less than 0.4 MPa (4 bar).

The requirements of Appendix B.1d shall apply to the materials and construction of welded shells intended for the carriage of hydrogen fluoride and aqueous solutions of hydrofluoric acid of 6°.

Shells intended for the carriage of the substances referred to in marginal 211810 (b) shall be designed for a calculation pressure[13/] of not less than 1.0 MPa (10 bar) gauge pressure. 211821

Where the use of aluminium is necessary for shells intended for the carriage of nitric acid of 2° (a), such shells shall be made of aluminium not less than 99.5 per cent pure, in which case, by derogation from the provisions of the paragraph above, the wall thickness need not exceed 15 mm.

Shells intended for the carriage of the substances referred to in marginal 211810 (c) shall be designed for a calculation pressure[13/] of not less than 0.4 MPa (4 bar) gauge pressure. 211822

Shells intended for the carriage of monochloroacetic acid of 31° (b) shall be equipped with an enamel or equivalent lining if the material of the shell is attacked by that acid.

Shells and their items of equipment intended for the carriage of aqueous solutions of hydrogen peroxide shall be made of aluminium not less than 99.5 per cent pure or of a suitable steel not causing hydrogen peroxide to decompose.

Notwithstanding the provisions of the first paragraph, the wall thickness need not be greater than 15 mm when the shells are made of pure aluminium.

Shells intended for the carriage of the powdery or granular substances referred to in marginal 211810 (d) shall be designed in accordance with the requirements of the general part of this Appendix. 211823

211824
-211829

Section 3: Items of equipment

All openings of shells intended for the carriage of substances of 6°, 7° and 24° shall be above the surface level of the liquid. No pipes or pipe connections shall pass through the walls of the shell below the surface level of the liquid. Shells shall be capable of being hermetically closed[6/] and the closures shall be capable of being protected by lockable caps. In addition, the cleaning openings referred to in marginal 211132 shall not be permitted. 211830

Shells intended for the carriage of the substances referred to in marginal 211810 (b), (c) and (d) may also be of the bottom-discharge type. The bottom-discharge fittings of shells intended for the carriage of the substances referred to in marginal 211810 (b) and (c) shall conform to the requirements of marginal 211131. 211831

If shells intended for the carriage of the substances referred to in marginal 211810 (b) are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. 211832

Shells intended for the carriage of sulphur trioxide of 1° (a) shall be thermally insulated and fitted with a heating device on the outside. 211833

Shells and their service equipment intended for carriage of hypochlorite solutions of 61° and of aqueous solutions of hydrogen peroxide of 62° shall be so designed as to prevent the entry of foreign matter, leakage of liquid or any building up of dangerous excess pressure inside the shell. 211834

211835
-211839

Section 4: Type approval.

211840
(No special requirements) -211849

Section 5: Tests.

Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solutions of hydrofluoric acid of 6° shall be subjected to the initial and periodic tests at a gauge pressure of at least 1.0 MPa (10 bar) and those intended for the carriage of substances of 7° shall be subjected to initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). 211850

Shells intended for the carriage of substances of 6° and 7° shall be inspected every 3 years for resistance to corrosion, by means of suitable instruments (e.g. by ultrasound).

The materials of every welded shell intended for the carriage of hydrogen fluoride and aqueous solutions of hydrofluoric acid of 6° shall be tested by the method described in Appendix B.1d

Shells intended for the carriage of bromine of 24° or of the substances referred to in marginal 211810 (b) and (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). The hydraulic pressure test for shells intended for the carriage of sulphur trioxide of 1° (a) shall be repeated every three years. Shells made of pure aluminium and intended for the carriage of nitric acid of 2° (a) and of aqueous solutions of hydrogen peroxide of 62° need be subjected to the initial and periodic tests at a gauge pressure of only 0.25 MPa (2.5 bar). 211851

The condition of the lining of shells intended for the carriage of bromine of 24° shall be inspected every year by an expert approved by the competent authority, who shall inspect the inside of the shell.

Shells intended for the carriage of the substances referred to in marginal 211810 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 211123. 211852

211853
-211859

Section 6: Marking.

Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solutions of hydrofluoric acid of 6°, or bromine of 24°, shall bear in addition to the particulars referred to in marginal 211160 an indication of the permissible maximum net load in kg and the date (month, year) of the most recent internal inspection of the shell. 211860

211861
-211869

Section 7: Operation.

Shells intended for the carriage of sulphur trioxide of 1° (a) shall not be filled to more than 88 per cent of their capacity; those intended for the carriage of bromine of 24° shall be filled to not less than 88 per cent and not more 211870

13 See marginal 211127 (2)

than 92 per cent of their capacity or to 2.86 kg per litre of capacity.

Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solutions of hydrofluoric acid of 6° shall not be filled to more than 0.84 kg per litre of capacity.

Shells intended for the carriage of substances of 6°, 7° and 24° shall be hermetically closed[1/] during carriage and the closures shall be protected with lockable caps. 211871

211872
-211999

Appendix B.1b

PROVISIONS CONCERNING TANK-CONTAINERS

NOTE: Part I sets out the requirements applicable to tank-containers intended for the carriage of substances of all Classes. Part II contains particular requirements supplementing or modifying the requirements of Part I.

PART I: REQUIREMENTS APPLCABLE TO ALL CLASSES

212000
-212099

Section 1: General; scope (use of tank-containers); definitions.

NOTE: In accordance with the provisions of marginal 10121 (1), the carriage of dangerous substances in tank-containers is permitted only where expressly authorized for such substances in each of the Sections 1 of Part II of this Appendix.

These requirements shall apply to tank-containers, of a capacity of more than 0.45 cubic metre which are used for the carriage of liquid, gaseous, powdery or granular substances, and to their fittings and accessories. 212100

A tank-container shall comprise a shell and items of equipment, including equipment to facilitate movement without significant change of attitude. 212101

In the following requirements: 212102

(1) (a) "Shell" means the tank proper (including the openings and their closures);

(b) "Service equipment" of the shell means filling and emptying, venting, safety, heating and heat-insulating devices and the measuring instruments; and

(c) "Structural equipment" means the reinforcing, fastening, protective or stabilizing members external to the shell.

(2) (a) "Calculated pressure" means a theoretical pressure at least equal to the test pressure which according to the degree of danger exhibited by the substance being carried may exceed the working pressure more or less substantially. It is used solely to determine the thickness of the walls of the shell, to the exclusion of any external or internal reinforcing device;

(b) "Maximum working pressure (gauge pressure)" means the highest of the following three pressures:

(i) the highest effective pressure allowed in the shell during filling ("maximum filling pressure allowed");

(ii) the highest effective pressure allowed in the shell during discharge ("maximum discharge pressure allowed"); and

(iii) the effective gauge pressure to which the shell is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature.

Except where the special requirements for each Class provide otherwise, the numerical value of this working pressure (gauge pressure) shall not be lower than the vapour pressure (absolute pressure) of the filling substance at 50°C.

For shells equipped with safety valves (with or without bursting disc), the maximum working pressure (gauge pressure) shall however be equal to the prescribed opening pressure of such safety valves.

For shells equipped with venting systems and a safety device to prevent the contents spilling out if the shell overturns, the maximum working pressure (gauge pressure) shall be equal to the static pressure of the filling substance.

(c) "Test pressure" means the highest effective pressure which arises in the shell during the pressure test;

(d) "Filling pressure" means the highest effective pressure which arises in the shell during the pressure test;

(d) "Filling pressure" means the maximum pressure actually built up in the shell when it is being filled by pressure;

(e) "Discharge pressure" means the maximum pressure actually built up in the shell when it is being discharged by pressure;

(3) "Leakage test" means the test which consists of subjecting the shell to an effective internal pressure equal to the maximum working pressure, but not less than 20 kPa (0.2 bar) (gauge pressure), by a procedure approved by the competent authority.

212103
-212119

Section 2: Construction.

Shells shall be desingned and constructed in accordance with the provisions of a technical code recognized by the competent authority, but the following minimum requirements shall be met: 212120

(1) Shells shall be made of ductile metallic materials. For welded shells only a material whose weldability has been fully demonstrated shall be used. Welds shall be skilfully made and afford complete safety. The materials of shells and of their protective linings which are in contact with the contents carried shall not contain substances liable to react dangerously with the latter to form dangerous compounds, or substantially to weaken the material.

(1) Shells, their attachments and their service and structural equipment shall be designed to withstand at least the static and dynamic stresses in normal carriage without loss of contents[1/]. 212121

The pressureon which the dimensioning of the tank-container shell is based shall not be less than the calculated pressure, but the stresses referred to in marginal 212121 shall also be taken into account. 212122

Unless specially prescribed otherwise in the various Classes, the following particulars shall be taken into account in the design of shells: 212123

(1) Gravity-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1. bar) (absolute pressure) at 50°C shall be designed for a calculation pressure of twice the static pressure of the substance to be carried but not less than twice the static pressure of water.

(2) Pressure-filled or pressure-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1. bar) (absolute pressure) at 50°C shall be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure.

(3) Shells intended for the carriage of substances having a vapour pressure of more than 110 Kpa (1.1. bar) but not more than 175 kPa (1.75 bar) (absolute pressure) at 50°C shall, whatever their filling or discharge system, be designed for a calculation pressure of not less than 0.15 MPa (1.5 bar) gauge pressure or 1.3 times the filling or discharge pressure, whichever is the higher.

(4) Shells intended for the carriage of substances having a vapour pressure of more than 175 kPa (1.75 bar) (absolute pressure) at 50°C shall, whatever their filling or discharge system, be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure but not

---

1/ If there are degassing vents, this shall not apply to quantities of gas escaping through them.

less than 0.4 MPa (4 bar) gauge pressure.

212124 Tank-containers intended to contain certain dangerous substances shall be provided with additional protection, which may take the form of additional thickness of the shell (such additional thickness being determined in the light of the dangers inherent in the substances concerned; see the relevant classes) or of a protective device.

212125 At the test pressure, the stress σ (sigma) at the most severely stressed point of the shell shall conform the material-dependent limits prescribed below. In addition, in choosing the material and determining wall thickness, the maximum and minimum filling and working temperatures should be taken into account, with particular reference to the risk of brittle fracture.

(1) For metals and alloys exhibiting a clearly-defined yield point or characterized by a guaranteed conventional yield stress Re (generally 0.2 per cent of residual elongation),

(a) where the ratio Re/Rm is not more than 0.66 (Re=apparent yield stress or 0.2 per cent proof stress; Rm= guaranteed minimum tensile strenght):

$$\sigma \leqslant 0.75\ Re$$

(b) where the ratio Re/Rm exceeds 0.66:

$$\sigma \leqslant 0.5\ Rm$$

(2) For metals and alloys exhibiting no apparent yield stress and characterized by a guaranteed minimum tensile strenght Rm:

$$\sigma \leqslant 0.43\ Re$$

(3) The elongation at fracture,[2/] in per cent, shall be not less than

$$\frac{10.000}{(Rm\ (in\ N/mm^2)}$$

but shall be not less than 20 per cent in the case of steel and not less than 12 per cent in the case of aliminium alloys.

212126 Tank-containers intended for the carriage of inflammable liquids having a flashpoint of not more than 50°C and for the carriage of inflammable gases shall be capable of being electrically earthed.

212127 Tank-containers shall be capable of absorbing the forces specified in paragraph (1) and the wall thickness of the shells shall be as prescribed in paragraphs (2) - (4) below.

(1) Tank-containers and their fastenings shall under the maximum permissible load be capable of absorbing the forces exerted by:

– in the direction of travel: twice the total mass;

– horizontally at right angles to the direction of travel: the total mass; (where the direction of travel is not clearly determined, the maximum permissible load shall be twice the total mass);

– vertically upwards: the total mass; and

– vertically downwards: twice the total mass.

Under each of these forces the safety factors to be observed shall be the following:

– for metals having a clearly-defined yield point: a safety factor of 1.5 in relation to the apparent yield stress; or for metals with no clearly-defined yeld point: a safety factor of 1.5 in relation to the guaranteed 0.2 per cent proof stress.

(2) The thickness of the cylindrical wall of the shell and of the ends and cover plates shall be calculated by the following formulae:

$$e = \frac{P_{MPa}\ D}{2\ \sigma}\ (in\ mm) \qquad e = \frac{P_{bar} \times D}{20 \times \sigma}\ (in\ mm)$$

where P_{MPa} = calculated pressure or test pressure, whichever is the higher, in MPa;

P_{bar} = calculated pressure or test pressure, whichever is the higher, in bar;

D = internal diameter of shell in mm; and

σ = permissible stress, as defined in marginal 212 125 paragraphs (1) (a), (1) (b), and (2), in N/mm^2.

The thickness shall in no case be less than that prescribed in paragraphs (3) and (4) below.

(3) The barrels, ends and cover plates of shells not more than 1.80 m in diameter, shall be not less than 5 mm thick if of mild steel[3/] (as specified in marginal 212 125) or of equivalent thickness if of another metal. Where the diameter exceeds 1.80 m this thickness shall be increased to 6 mm if the tank is of mild steel[3/] (as specified in marginal 212 125) or to an equivalent thickness if the tank is of another metal. Whatever the metal used, the thickness of the shell wall shall in no case be less than 3 mm.

(4) Where additional protection of the shell against damage is provided, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall be not less than 3 mm in the case of mild steel,[3/] or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter. For shells with a diameter exceeding 1.80 m the aforesaid minimum thickness shall be increased to 4 mm in the case of mild steel[3/] and to an equivalent thickness in the case of another metal.

212128 Tank-containers shall be carried only on vehicles whose fastenings are capable, under the maximum permissible load on the tank-containers, of absorbing the forces specified in marginal 212127 (1) above.

212129

Section 3: Items of equipment

212130 The items of equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage or handling. If the connexion between the frame and the shell allows relative movement as between these sub-assemblies, the items of equipment shall be so fastened as to permit such movement without risk of damage to working parts.

The items of equipment shall exhibit a suitable degree of safety comparable to that of the shell.

In addition, particular conditions applicable to bottom-discharge tank-containers are prescribed in marginal 212131 below.

[2/] The specimens used to determine the elongation at fracture shall be taken transversely to the direction of rolling and be so secured that:

$$L_o = 5\ d$$

where L_o = lenght of the specimn before the test; and
d = diameter.

[3/] "Mild steel" means a steel having a breaking strengh between 360 and 440 N/mm^2.

Every bottom-discharge tank-container, and in the case of compartmented bottom-discharge tank-containers every compartment, shall be equipped with two mutually independent shut-off devices, the first being an internal stop-valve[4/] fixed directly to the shell and the second being a sluice-valve or other equivalent device[5/], mounted in series, one at each end of the discharge pipe. In addition, the openings of the shells shall be capable of being closed by means of screw-threaded plugs, blank flanges or other equally effective devices. The internal stop-valve shall be operable from above or from below. If possible, the setting – open or closed – of the internal stop-valve shall be capable of being verified from the ground in both cases. Internal stop-valve control devices shall be so designed as to prevent any unintended opening through impact or an inadvertent act. 212131

The internal shut-off device shall continue to be effective in the event of damage to the external control device. In order to avoid any loss of contents in the event of damage to the external discharge fittings (pipes, lateral shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to resist them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any unintended opening.

A tank-container or each of its compartments shall, save where it is intended for the carriage of deeply refrigerated gases, be provided with an opening large enough to enable the tank-container or compartment to be inspected.

Tank-containers intended for the carriage of substances for which all the openings are above the surface level of the liquid may be equipped, in the lower part of the body, with a cleaning aperture (fist-hole). This aperture shall be capable of being sealed by a flange so closed as to be leakproof, the design of which shall be approved by the competent authority or by a body designated by that authority. 212132

A tank-container intended for the carriage of liquids having a vapour pressure of not more than 110 kPa (1.1 bar) (absolute) at 50°C shall have a venting system and a safety device to prevent the contents from spilling out of the shell if the tank-container overturns, or shall conform to the requirements of marginal 212134 or 212135 below. 212133

A tank-container intended for the carriage of liquids having a vapour pressure of not less than 110 kPa (1.1 bar) and not more than 175 kPa (1.75 bar) (absolute) at 50°C shall have a safety valve set at not less than 150 kPa (1.5 bar) (gauge pressure) and such that it is fully open at a pressure not exceeding the test pressure; or shall conform to the requirements of marginal 212135. 212134

A tank-container intended for the carriage of liquids having a vapour pressure of not less than 175 kPa (1.75 bar) and not more than 300 kPa (3 bar) (absolute) at 50°C shall be equipped with a safety valve set at a gauge pressure not less than 300 kPa (3 bar) and such that it is fully open at a pressure not exceeding the test pressure; or shall be hermetically sealed[6/]. 212135

Moving parts such as covers, closures, etc., which are liable to come into frictional or percussive contact with aluminium tank-containers intended for the carriage of inflammable liquids having a flashpoint of not more than 55°C or for the carriage of inflammable gases shall not be made of unprotected corrodible steel. 212136

212137
-212139

Section 4: Type approval

The competent authority or a body designated by that authority shall issue in respect of each new type of tank-container a certificate attesting that the prototype tank-container, including fastenings, which it has surveyed is suitable for the purpose for which it is intended and meets the construction requirements of Section 2 and the equipment requirements of Section 3. If the tank-containers are serially manufactured without modification, this approval shall be valid for the entire series. The test results, the substances and/or groups of substances for the carriage of which the tank-container is approved and its type aproval number shall be entered in a test report. The substances of a group of substances shall be of a similar kind and equally compatible with the characteristics of the shell. The substances of groups of substances permitted shall be specified in the test report, with their chemical names or the corresponding collective heading in the list of substances, and their Class and item number. The approval number shall consist of the distinguishing sign[7/] of the State in whose territory the approval was granted, and a registration number. 212140

212141
-212149

Section 5: Tests

Shells and their equipment shall either together or separately undergo an initial inspection before being put into service. This inspection shall include a check of conformity to the approved prototype, a check of the design characteristics[8/], an external and internal examination, a hydraulic pressure test[9/] at the test pressure indicated on the data plate and a check of satisfactory operation of the equipment. 212150

The hydraulic pressure test shall be carried out before the installation of such thermal insulation as may be necessary. If the shells and their equipment are tested separately, they shall be jointly subjected to a leakproofness test after assembly.

Shells and their equipment shall undergo periodic inspections at fixed intervals. The periodic inspections shall include: an external and internal examination and, as a general rule, a hydraulic pressure test[9/]. Sheathing for thermal or other insulation shall be removed only to the extent required for reliable appraisal of the shell's characteristics. 212151

In the case of shells intended for the carriage of powdery or granular substances, and with the agreement of the expert approved by the competent authority, the periodic hydraulic pressure tests may be omitted and replaced by leakproofness tests in accordance with marginal 212102(3).

The maximum intervals for inspections shall be five maximum years.

4/ Save as may be otherwise provided in the case of shells intended for the carriage of certain crystallizable or highly viscous substances.

5/ In the case of tank-containers of less than 1 m^3 capacity, the sluice-valve or other equivalent device may be replaced by a blank flange.

6/ «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible discs or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

7/ Distinguishing sign for use in international traffic prscribed by the Convention on Road Traffic (Vienna, 1968).

8/ The check of the design characteristics shall also include, for shells requiring a test pressure of 1 MPa (10 bar) or higher, a check of sample weld test-pieces and the tests prescribed in Appendix b.1d.

9/ In special cases and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

In addition, a leakproofness test of the shell with its equipment and a check of the satisfactory operation of all the equipment shall be carried out at least every two and a half years. 212152

When the safety of the shell of of its equipment may have been impaired as a result of repairs, alterations or accident, an exceptional check shall be carried out. 212153

The tests, inspections and checks in accordance with marginals 212150 to 212153 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations. 212154

212155
-212159

Section 6: Marking

Each tank-container shall be fitted with a corrosion-resistant metal plate permanently attached to the shell in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method. These particulars may be engraved directly on the walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired: 212160

- approval number;
- manufacturer's name or mark;
- manufacturer's serial number;
- year of manufacture;
- test pressure in MPa or bar (gauge pressure);
- capacity in litres - in the case of multiple-element tank-containers: capacity of each element;
- design temperature (only if above 50°C or below -20°C);
- date (month and year) of initial test and most recent periodic test in accordance with marginals 212150 and 212151; and
- stamp of the expert who carried out the tests.

On pressure-filled or pressure-discharge tank-containers the maximum working pressure allowed shall be inscribed in addition.

The following particulars shall be inscribed either on the tank-vehicle itself or on a board: 212161

- the names of the owner and of the operator;
- the capacity of the shell;
- the unladen (tare) mass;
- the maximum permissible laden weight; and
- the name of substance being carried[10/].

In addition, tank-containers shall bear the prescribed danger labels.

212162
-212169

Section 7: Operation

During carriage, tank-containers shall be fixed on the carrying vehicle in such a way as to be adequately protected by the fittings of the carrying vehicle or of the tank-container itself against lateral and longitudinal impact and against overturning[11/]. If the shells and the service equipment are so constructed as to withstand impact or overturning they need not be protected in this way. 212170

Tank-containers shall not be loaded with any dangerous substances other than those for whose carriage they have been approved. 212171

(1) The folloxing degrees of filling shall not be exceeded in tank-containers intended for the carriage of liquids at ambient temperatures: 212172

(a) for inflammable substances without additional risks (e.g. toxic or corrosive), in tank-containers with a venting system and with or without safety valves even where preceded by a bursting disc:

$$\text{degree of filling} = \frac{100}{1 + \alpha(50 - t_F)} \quad \text{or} \quad \frac{100}{1 + 35a} \quad \% \text{ of}$$

capacity;

(b) for toxic or corrosive substances, whether inflammable or not, in tank-containers with a venting system with or without safety valves even where preceded by a bursting disc:

$$\text{degree of filling} = \frac{98}{1 + \alpha(50 - t_F)} \quad \text{or} \quad \frac{98}{1 + 35a} \quad \% \text{ of}$$

capacity;

(c) for inflammable, harmful or slightly corrosive substances in hermetically closed shells[6/].

$$\text{degree of filling} = \frac{97}{1 + \alpha(50 - t_F)} \quad \text{or} \quad \frac{97}{1 + 35a} \quad \% \text{ of}$$

capacity;

(d) for highly toxic, toxic, highly corrosive or corrosive highly substances in hermetically closed shells:[6]

$$\text{degree of filling} = \frac{95}{1 + \alpha(50 - t_F)} \quad \text{or} \quad \frac{95}{1 + 35a} \quad \% \text{ of}$$

capacity;

(2) In these formulae, α is the mean coefficient of cubical expansion of the liquid between 15° and 50°C, i.e. for a maximum variation in temperature of 35°C.

a is calculated by the formula: $\alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$

where $d_{15/}$ and $d_{50/}$ are the relative density of the liquid at 15°C and 50°C reprectively. t_F is the mean temperature of the liquid during filling.

(3) The provisions of marginal 212172 (1) above shall not apply to tank-containers whose contents are maintained by means of a heating device at a temperature above 50°C during carriage. In such a case the degree of filling at the outset shall be such and the temperature shall be so regulated that the tank-container is not full to more than 95 per cent of its capacity at any time during carriage.

If the shells of tank-containers intended for the carriage of liquids[12/] are not divided by partitions or surge plates into sections of not more than 5m³ capacity, the said shells shall be filled to not less than 80 per cent of their capacity unless they are practically empty. 212173

Tank-containers shall be closed so that the contents cannot run out uncontrolled. The openings of bottom-discharge shells shall be closed by means of screw-threaded plugs, blank flanges or other equally effective devices. 212174

[10/] A collective description or an index number may be given instead of the name.

[11/] Examples of protection of shells:

1. Protection against lateral impact may for example consist of longitudinal bars protecting the shell on both sides at the level of the median line.

2. Protection against overturning may for example consist of reinforcing rings or bars fixed transversally in relation to the frame.

3. Protection against rear impact may for example consist of a bumper or frame.

[6/] «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible discs or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

[12/] Under this provision, substances whose kinematic viscosity at 20°C is below 25 cm^2/s shall be deemed to be liquids.

Where several closure systems are fitted in a series, that nearest to the substance being carried shall be closed first. 212175

No residue of the dangerous substance being carried shall adhere to the outside of a tank-container during carriage. 212176

To be accepted for carriage, empty tank-containers, uncleaned, shall be closed in the same manner and leakproof in the same degree as though they were full. 212177

212178
-212179

Section 8: Transitional measures

Tank-containers constructed before 1 May 1985 in accordance with the requirements of ADR in force between 1 October 1978 and 30 April 1985 but not conforming to the provisions applicable from 1 May 1985 may continue to be used after that date. 212180

212181
-212189

Section 9: Use of tank-containers approved for maritime transport

Tank-containers which do not fully meet the requirements of this appendix but which have been approved in accordance with the requirements concerning maritime transport[13/] shall be accepted for carriage preceding or following maritime transport. In addition to the particulars already prescribed, the transport document shall bear the words: «Carriage in accordance with marginal 212190». Only substances authorized under marginal 10121(1) may be carried in tank-containers. 212190

212191
-212199

PART II: SPECIAL REQUIREMENTS SUPPLEMENTING OR MODIFYING THE REQUIREMENTS OF PART I

Class 2: Gases, compressed, liquefied or dissolved under pressure

212200
-212209

Section 1: General, scope (use of tanks-containers), definitions

Use

Gases of Class 2 other than those listed below may be carried in tank-containers: fluorine and silicon tetrafluoride of 1° (at); nitric oxide of 1° (ct); mixtures of hydrogen with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent hydrogen selenide or phosphine or silane or germane by volume or with not more than 15 per cent arsine by volume of 2° (bt); mixtures of hydrogen with not more than 10 per cent diborane by volume; mixtures of nitrogen or rare gases (containing not more than 10 per cent xenon by volume) with not more than 10 per cent diborane by volume of 2° (ct), boron chloride, chlorine trifluoride, nitrosyl chloride, sulphuryl fluoride and tungsten hexafluoride of 3° (at); methylsilane of 3° (b); arsine, dichlorosilane, dimethylsilane, hydrogen selenide and trimethylsilane of 3° (bt); cyanogen, cyanogen chloride and ethylene oxide of 3° (ct); mixtures of methylsilanes of 4° (bt); ethylene oxide containing not more than 50 per cent methyl formate by mass of 4° (ct); silane of 5° (b); substances of 5° (bt) and (ct); dissolved acetylene of 9° (c); and the gases of 12° and 13°. 212210

212212
-212219

[13/] These requirements are published in the IMDG Code.

Section 2: Construction

The shells of tank-containers intended for the carriage of substances of 1° to 6° and 9° shall not be made of aluminium or aluminium alloy. 212220

The requirements of Appendix B.1d shall apply to the materials and construction of welded shells. 212221

212222
212229

Section 3: Items of equipment

In addition to being equipped with the devices prescribed in marginal 213131, the discharge pipes of tank-container shells shall be capable of being closed by blank flanges or some other equally reliable device. 212230

The shells of tank-containers intended for the carriage of liquefied gases may be equipped, in addition to the filling, discharge and gas - pressure - equalizing orifices, with openings in which gauges, thermometers and manometers can be fitted. 212231

Safety valves shall meet the conditions prescribed in paragraphs (1), (2) and (3) below. 212232

(1) The shells of tank-containers intended for the carriage of gases of 1° to 6° and 9° may be fitted with not more than two safety valves. The safety valves shall be capable of opening automatically under a pressure of from 0.9 to 1.0 times the test pressure of the shell to which they are fitted. They shall in addition be constructed in such a way that in the event of total fire engulfment the pressure inside the shell does not exceed the test pressure. They shall be of such a type as to resist dynamic stresses, including liquid surge. The use of deadweight or counterweight valves is prohibited.

The shells of tank-containers intended for the carriage of gases of 1° to 9° harmful to the respiratory organs or entailing a poison risk[14/] shall not have safety valves unless the safety valves are preceded by a bursting disc. In the latter case the arrangement of the bursting disc and the safety valve shall be to the satisfaction of the competent authority.

(2) The shells of tank-containers intended for the carriage of gases of 7° (a) and 8° (a) which are not in constant communication with the outside air, and of those intended for the carriage of gases of 7° (b) and 8° (b) shall be fitted with two independent safety valves each so designed as to permit evacuation of the gases from the shell in such a way that the pressure does not at any time exceed the working pressure indicated on the tank-container by more than 10 per cent.

In addition, the shells of such tank-containers may be fitted with bursting discs in series with and preceding the safety valves. In such a case the arrangement of the bursting disc and the safety valve shall be to the satisfaction of the competent authority.

(3) The safety valves of the shells of tank-containers intended for the carriage of gases of 7° and 8° shall be capable of opening at the working pressure indicated on the tank-container. They shall be so desingned as to function faultlessly even at the lowest working temperature. The reliability of their operation at that temperature shall be established and checked either by testing each valve or by testing a specimen valve of each type.

An internal flow-restricting valve or equivalent device shall be fitted to every orifice more than 1.5 mm in diameter provided in the shell for the passage of gases or liquids, other than orifices carrying safety valves. 212233

[14/] Gases identified by the letter "t" in the list of substances are deemed to be gases harmful to the respiratory organs or entailing a poison risk.

Thermal insulation. 212234

(1) If the shells of tank-containers intended for the carriage of liquefied gases of 3° to 4° are equipped with thermal insulation, such insulation shall be subject to the special provisions under (2) below either:

– Consist of a sun shield covering not less than the upper third but not more than the upper half of the tank-container's surface and separated from the shell by an air space at least 4 cm across; or

– Consist of a complete cladding, of adequate thickness, of insulating materials.

The thermal insulation shall be so designed as not to hinder access to the filling and discharge devices.

(2) The shells of tank-containers intended for the carriage of 1,3 - butadiene of 3° (c), or of methyl vinyl ether, trifluorochloro - ethylene or vinyl bromide of 3° (ct), shall be protected by a sun-shield as defined above.

(3) The shells of tank-containers intended for the carriage of gases of 7° and 8° shall be thermally insulated. The thermal insulation shall be protected against impact by means of continuous sheathing. If the space between the shell and the metal sheathing is under vacuum (vacuum insulation), the protective sheathing shall be so designed as to withstand without deformation an external pressure of at least 0.1 MPa (1 bar) (gauge pressure). If the sheathing is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the shell or of its items of equipment. The device shall prevent the infiltration of moisture into the heat-insulating sheath.

(4) The shells of tank-containers intended for the carriage of oxygen of 7° (a), or of air or mixtures of oxygen with nitrogen of 8° (a), shall not include any combustible material either in the thermal insulation or in the means of attachment to the frame.

In the case of multiple - element tank-containers, the following conditions shall be met: 212235

(1) If one of the elements of a multiple - element tank-container is fitted with a safety valve and shut-off devices are provided between the elements, every element shall be so fitted.

(2) The filling and discharge devices may be fitted to a manifold.

(3) Each element of a multiple - element tank-container intended for the carriage of compressed gases of 1° and 2° harmful to the respiratory organs or entailing a poison risk[15/] shall be capable of being isolated by a valve.

(4) The elements of a multiple - element tank-container intended for the carriage of liquefied gases of 3° to 5° harmful to the respiratory organs or entailing a poison risk[15/] shall be so designed that they can be filled separately and be kept isolated by a valve capable of being sealed.

212236 -212239

Section 4: Type approval

212240 -212249

(No special requirements).

Section 5: Tests

The materials of every welded shell shall be tested by the method described in Appendix B.1d. 212250

The test pressure shall be as follows: 212251

(1) Tank-containers intended for the carriage of gases of 1° and 2°, in conformity with marginal 2219 (1);

(2) Tank-containers intended for the carriage of gases of 3° and 4°, in conformity with marginal 2220 (2) if the shells are not more than 1.5 m in diameter, and in conformity with marginal 211 251 (2) (b) if the shells are more than 1.5 m in diameter;

(3) Tank-containers intended for the carriage of gases of 5° and 6°, in conformity with marginal 2220 (3) and (4), and in conformity with marginal 211 251 (3) (b) in the case of mylliple - element tank - containers whose elements are interconnected and form a battery, are not isolated from one another, and are encased in a thermal insulation;

(4) Tank-containers intended for the carriage of ammonia dissolved under pressure of 9° (at), in conformity with marginal 211251 (4);

(5) (a) Tank-containers fitted with safety valves and intended for the carriage of gases of 7° and 8°: 1.5 times the working pressure indicated on the shells, but not less than 0.3 MPa (3 bar) (gauge pressure); for tank - containers with vacuum insulation the test pressure shall be 1.5 times the working pressure increased by 0.1 MPa (1 bar).

(b) In the case of tank-containers without safety valves and intended for the carriage of gases of 7° (a) and 8° (a), the first test shall be performed at 0.2 MPa (2 bar) (gauge pressure) and the periodic tests at 0.1 MPa (1 bar) (gauge pressure).

The first hydraulic pressure test shall be carried out before thermal insulation is applied. 212252

The capacity of the shell of each tank-container intended for the carriage of gases of 3°, 4° and 9° shall be determined, under the supervision of an expert approved by the competent authority, by weighing or volumetric measurement of the quantity of water required in order to fill the shell. The measurement of shell capacity shall be accurate to within 1 per cent. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum permissible masses of filling according to marginals 2220 (4) and 211251 (3) shall be prescribed by an approved expert. 212253

All welds in the shell shall be non-destructively tested radiographically or ultrasonically. 212254

Notwithstanding the requirements of marginals 212150 and 212151, the periodic tests shall take place: 212255

(1) Every two and a half years in the case of tank-containers intended for the carriage of boron trifluoride of 1° (at), town gas of 2° (bt), chlorine, hydrogen bromide, nitrogen dioxide, phosgene or sulphur dioxide of 3° (at), hydrogen sulphide of 3° (bt), or hydrogen chloride of 5° (at);

(2) After six years' service in the case of tank-containers, without safety valves, intended for carriage of gases of 7° (a) and 8° (a);

(3) After eight years' service and thereafter every 12 years in the case of tank-containers fitted with safety valves and intended for the carriage of gases of 7° (a) and 8° (a) and of tank-containers intended for the carriage of gases of 7° (b) and 8° (b). A leakproofness check may be performed, at the request of the competent authority, between any two successive tests.

At the periodic tests for tank-containers equipped with vacuum insulation and intended for the carriage of gases of 7° and 8°, the hydraulic test may be replaced by a leakage test performed either with the gases which the tank-containers are intended to contain or with an inert gas. 212256

If, at the time of periodic inspections, manholes are made in the shells of tank-containers intended for the 212257

[15/] The following are deemed to be liquefied gases harmful to the respiratory organs or entailing a poison risk: hydrogen bromide (anhydrous hydrobromic acid), hydrogen fluoride (anhydrous hydrofluoric acid), hydrogen sulphide (sulphuretted hydrogen), ammonia, chlorine, sulphur dioxide (anhydrous sulphurous acid), nitrogen dioxide (nitrogen peroxide; nitrogen tetroxide), T gas, methyl vinyl ether, chloromethane (methyl chloride), bromomethane (methyl bromide), phosgene (carbonyl chloride), vinyl bromide, methylamine (monomethylamine), dimethylamine, trimethylamine, ethylamine (monoethylamine), ethylene oxide, methanethiol (methyl mercaptan) mixtures of carbon dioxide with ethylene oxide and liquefied hydrogen chloride (anhydrous hydrochloric acid).

carriage of gases of 11° to 13°, the method by which they are hermetically closed before the tank-containers are returned to service shall be one approved by the approved expert and shall ensure the intergrity of the shell.

The leakproofness test of shells intended for the carriage of gases of 1° to 6° and 9° shall be carried out at a pressure of not less than 0.4 MPa (4 bar) and not more than 0.8 MPa (8 bar) gauge pressure. 212258

212259

Section 6: Marking

In addition, the following particulars shall be marked by stamping or by any other equivalent method on the plate described in marginal 212160,or directly on the walls of the shell itself if the walls are so reinforced that the strength of the shell is not impaired: 212260

(1) On tank-containers intended for the carriage of only substance:

– the name of the gas in full.

This shall be accompanied, in the case of tank-containers intended for the carriage of compressed gases of 1° and 2° by the tank-containers's maximum permitted loading pressure and, in the case of tank - containers intended for the carriage of liquefied gases of 3° to 8° and of ammonia dissolved under pressure of 9° (at), by the permissible maximum load in kg.

(2) On multi-purpose tank-containers:

– the names, in full, of the gases for whose carriage the tank - container is approved followed by particulars of the permissible maximum load, in kg, for each of them.

(3) On tank-containers equipped with safety valves and intended for the carriage of gases of 7° (a) and 8° (a), and on tank - containers intended for the carriage of gases of 7° (b) and 8° (b):

– the working pressure.

(4) On tank-containers equipped with thermal insulation the expression «thermally insulated» shall be inscribed in one of the official languages of ADR.

The frame of a multiple - element tank-container shall be fitted near the filling point with a plate specifying: 212261

– the test pressure of elements;

– the working pressure of elements intended for compressed gases;

– the number of elements;

– the aggregate capacity of the elements, in litres;

– the name of the gas in full;

and, in the case of liquefied gases:

– the permissible maximum load per element, in kg.

212262
-212269

Section 7: Operation

A tank-container assigned at different times to the carriage of different liquefied gases of 3° to 8° (multi - purpose tank - containers) may not carry substances other than those listed in one, and one only, of the following groups: 212270

Group 1: halogenated hydrocarbons of 3° (a) and 4° (a);

Group 2: hydrocarbons of 3° (b) and 4° (b), 1,3-byladiene of 3° (c) and mixtures of 1,3-butadiene and hydrocarbons of 4° (c);

Group 3: ammonia of 3° (at); dimethyl ether of 3° (b); dimethylamine, ethylamine, methylamine and trimethylamine of 3° (bt); and vinyl chloride of 3° (c);

Group 4: methyl bromide of 3° (at); ethyl chloride and methyl chloride of 3° (bt)

Group 5: mixtures of ethylene oxide with carbon dioxide and of ethylene oxide with nitrogen of 4° (ct);

Group 6: gases of 7° (a),and mixtures of gases of 8° (a);

Group 7: ethane, ethylene, and methane of 7° (b); and mixtures of ethane with methane, also when they contain propane or butane of 8° (b).

Tank-containers which have been filled with a substance of group 1 or group 2 shall be emptied of liquefied gas before being loaded with another substance belonging to the same group. Tank-containers which have been filled with a substance of one of the groups 3 to 7 shall be completely emptied of liquefied gas and blown down before being loaded with another substance belonging to the same group. 212271

The multiple use of tank-containers for the carriage of liquefied gases of the same group shall be allowed if all the requirements prescribed for the gases to be carried in one and the same tank-container are observed. Such multiple use shall be subject to approval by an approval expert. 212272

The multiple use of tank-containers for the carriage of gases of different groups shall be allowed if permitted by the approved experts. 212273

When loaded tank-containers or empty but uncleaned tank-containers are handed over for carriage, only the particulars applicable under marginal 212161 to the gas loaded or just discharged shall be visible; all particulars concerning other gases shall be covered up. 212274

All the elements of a multiple-element tank-container shall contain only one and the same gas. In the case of a multiple-element tank-container intented for the carriage of liquefied gases harmful to the respiratory organs or entailing a poison risk[14/, 15/] the elements shall be filled separately and be kept isolated by a sealed valve. 212275

The maximum permissible degrees of filling in kg/litre prescribed in marginals 2219 (2), 2220 (2), (3) and (4) and 211251 (2), (3) and (4) shall be adhered to. 212276

The degree of filling of the shells of tank-containers fitted with safety valves and intended for the carriage of gases of 7° and 8° shall be such that at the «alert» temperature, at which the vapour pressure is equal to the valve-opening pressure, the volume of the liquid does not exceed the permissible degree of filling of the shell at that temperature, i.e. 95 per cent in the case of inflammable gases and 98 per cent in the case of other gases. 212277

On the shells of tank-containers intended for the carriage of oxygen of 7° (a), or of air or mixtures of oxygen with nitrogen of 8° (a), substances containg grease or oil shall not be used to ensure leakproofness of the joints or for the maintenance of the closures. 212278

212279
-212299

Class 3: Inflammable liquids

212300

Section 1: General; scope (use of tank-containers); definitions -212309

Use

The following substances of Class 3 may be carried in tank-containers: 212310

(a) substances listed by name in 12°;

(b) substances classified under (a) of 11°, 14° to 23°, 25° and 26° and comparable substances to be classified under (a) of those items, with the exception of isopropyl chloroformate of 25° (a);

(c) substances classified under (b) of 11°, 14° to 20°, 22° and 24° to 26° and comparable substances to be classified under (b) of those items;

(d) substances of 1° to 6° and 31° to 34° and comparable substances to be classified under those items, with the exception of nitromethane of 31° (c).

212311
Section 2: Construction -212319

Shells intended for the carriage of substances of 12° shall be designed for a calculation pressure[16/] of not less than 1.5 MPa (15 bar) gauge pressure. 212320

Shells intended for the carriage of the substances referred to in marginal 212310 (b) shall be designed for a 212321

calculation pressure[16/] of not less than 1.0 MPa (10 bar) gauge pressure

Shells intended for the carriage of the substances referred to in marginal 212310 (c) shall be designed for a calculation pressure[16/] of not less than 0.4 MPa (4 bar) gauge pressure. 212322

Shells intended for the carriage of the substances referred to in marginal 212310 (d) shall be designed in accordance with the requirements of the general part of this Appendix. 212323

212324
-212329

Section 3: Items of equipment

All openings of shells intended for the carriage of the substances referred to in marginal 212310 (a) and (b) shall be above the surface level of the liquid. No pipes or pipe connections shall pass through the walls of the shell below the surface level of the liquid. Shells shall be capable of being hermetically closed[6/] and the closures shall be capable of being protected with lockable caps. 212330

Shells intended for the carriage of the substances referred to in marginal 212310 (c) and (d) may also be of the bottom-discharge type. Shells intended for the carriage of the substances referred to in marginal 212310 (c) shall be capable of being hermetically closed[6/]. 212331

If shells intended for the carriage of the substances referred to in marginal 212310 (a) and (b) or 11° or 14° to 20° of marginal 212310 (c) are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. If shells intended for the carriage of the substances referred to in marginal 212310 (d) are equipped with safety valves or a venting system, these shall satisfy the requirements of marginals 212133 to 212135. Shells intended for the carriage of the substances referred to in marginal 212310 (d) having a flash-point not exceeding 55°C and equipped with a venting system which cannot be closed shall have a flame-trap in the venting system. 212332

212333
-212339

Section 4: Type approval

212340
(No special requirements). -212349

Section 5: Tests

Shells intended for the carriage of the substances referred to in marginal 212310 (a), (b) or (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). 212350

Shells intended for the carriage of the substances referred to in marginal 212310 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 212123. 212351

212352
Section 6: Marking -212359

212360
(No special requirements) -212369

Section 7: Operation

The degree of filling of shells intended for the carriage of the substances referred to in marginal 212310 (a) (b) or (c) shall conform to marginal 212172 (1) (d). Shells shall be hermetically[6/] closed during carriage. The closures of shells intended for the carriage of the substances referred to in marginal 212310 (a) and (b) shall be protected by lockable caps. 212370

Tank-containers approved for the carriage of substances of 6°, 11°, 12° and 14° to 20° shall not be used for the carriage of foodstuffs articles of consumption or animal feedstuffs. 212371

An aluminium-alloy shell shall not be used for the carriage of acetaldehyde of 1° (a) unless the shell is reserved solely for such carriage and the acetaldehyde is free from acid. 212372

From October to March, mixtures of hydrocarbons having a vapour pressure above 110 kPa (1.1 bar) but not exceeding 150 kPa (1.5 bar) (absolute pressure) at 50°C, such as certain light distillates for cracking, may be carried in shells of the type described in marginal 212133. 212373

212374
Class 4.1: Inflammable solids. -212399

Class 4.2: Substances liable to spontaneous combustion

Class 4.3: Substances which give off inflammable gases on contact with water.

212400
Section 1: General; scope (use of tank-containers); -212409
definitions

Use

Sustances of 2°, 8° and 11° of Class 4.1 and 1°, 3° and 8° of Class 4.2, and sodium, potassium, alloys of sodium and potassium, of 1° (a), substances of 2° (e) and 4° Class 4.3 may be carried in tank-containers. 212410

NOTE: For the carriage in bulk of sulphur of 2° (a), naphthalene of 11° (a) and (b), expandable polystyrenes of 12° of Class 4.1, substances of 5°, dust from blast-furnace filters of 6° (a) and substances of 10° of Class 4.2, and magnesium granules, coated of 1° (d), calcium carbide of 2° (a) and calcium silicide in lumps of 2° (d) of Class 4.3, see marginals 411, 42111 and 43111.

212411
-212419

Section 2: Construction

Shells intended for the carriage of white or yellow phosphorus of marginal 2431, 1° or substances of 2° (e) and 4° of marginal 2471 shall be designed for a calculation pressure of not less than 1.0 MPa (10 bar) gauge pressure. 212420

Shells intended for the carriage of substances of marginal 2431, 3°, shall be designed for a calculation pressure of not less than 2.1 Mpa (21 bar) gauge pressure. 212421

212422
-212429

Section 3: Items of equipment

The shells of tank-containers intended for the carriage of sulphur of marginal 2401, 2° (b), and of naphthalene of marginal 2401, 11° (c), shall be equipped with thermal insulation so made of materials which are not readily inflammable that the temperature on the outer surface cannot rise above 50°C during carriage. They may be equipped with valves opening automatically inwards or outwards under the effect of a difference of pressure of 20 kPa (0.2 bar) to 30 kPa (0.3 bar). The discharge devices shall be capable of being protected by a lockable metal cap. 212430

The shells of tank-containers intended for the carriage of white of yellow phosphorus of marginal 2431, 1°, shall meet the following requirements: 212431

(1) The heating device shall not penetrate into the body of the shell but be fitted outside it. Other piping shall enter the shell in its upper part; openings shall be above the highest permissible level of the phosphorus and be capable of being completely enclosed under lockable caps.

(2) The shell shall be equipped with a gauging system for verigying the level of the phosphorus and, if water is used as the protective agent, with a fixed gauge mark showing the highest permissible level of the water.

The openings and orifices (valves, ducts, manholes, etc.) in the shells of tank-containers intended for the carriage of substances of marginal 2471, 1° (a), shall be equipped with leakproof lockable caps, and such shells shall be equipped with thermal insulation so made of materials which are not readily inflammable that the temperature on the outer surface cannot rise above 50°C during carriage. 212432

Shells intended for the carriage of substances of marginal 2431, 3°, or marginal 2471, 2° (e), shall not 212433

16/ See marginal 212 127 (2)

have any openings or connections below the level of the liquid, even if such openings or connections are capable of being closed. In addition, the cleaning openings (fist-holes) provided for in marginal 212132 shall not be permitted. Openings in the upper part of the shell, including their fittings, shall be capable of being protected by a cap.

212434
-212439

Section 4: Type approval

212440

(No special requirements) -212449

Section 5: Tests

Shells intended for the carriage of: 212450

– sulphur in the molten state of marginal 2401, 2° (b)

– naphthalene in the molten state of marginal 2401, 11° (c)

– white or yellow phosphorus of marginal 2431, 1°

– sodium, potassium or alloys of sodium or potassium of marginal 2471, 1° (a)

– substances of marginal 2471, 2° (e)

– substances of marginal 2471, 4°

shall be subjected to the initial and periodic tests at a gauge pressure of at least 0.4 MPa (4 bar)

Shells intended for the carriage of substances of marginal 2431, 3°, shall be subjected to the initial and periodic tests with a liquid not reacting with the substance to be carried, at a test pressure of 1.0 MPa (10 bar) gauge pressure. 212451

The materials of every shell intended for the carriage of substances of marginal 2431, 3°, shall be tested by the method described in Appendix B.1d.

Shells intended for the carriage of sulphur (including flowers of sulphur) of 2°(a), phosphorus sesquisulphide and phosphorus pentasulphide of 8°, crude or pure naphthalene of 11° (a) and (b) of marginal 2401, or of freshly-quenched charcoal of marginal 2431, 8°, shall be subjected to the initial and periodic tests at their calculation pressure as difined in marginal 212123. 212452

212453
-212459

Section 6: Marking

Shells intended for the carriage of substances of marginal 2431, 3°, shall bear in addition to the particulars prescribed in marginal 212161 the words: "Do not open during carriage. Liable to spontaneous combustion". 212460

Shells intended for the carriage of substances of marginal 2471, 2° (e), shall bear in addition to the particulars prescribed in marginal 212161 the words: "Do not open during carriage. Gives off inflammable gases on contact with water".

These particulars shall be in an official language of the country of approval, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

212461
-212469

Section 7: Operation

The shells of tank-containers intended for the carriage of sulphur of marginal 2401, 2°, shall be filled to not more than 98 per cent of their capacity. 212470

White or yellow phosphorus of marginal 2431, 1°, shall, if water is used as the protective agent, be covered with a depth of not less than 12 cm of water at the time of filling; the degree of filling at a temperature of 60°C shall not exceed 98 per cent. If nitrogen is used as the protective agent, the degree of filling at a temperature of 60°C shall not exceed 96 per cent. The remaining space shall be filled with nitrogen in such a way that, even after cooling, the pressure at no time falls below atmospheric pressure. The shell shall be hermetically closed so that no leakage of gas occurs. 212471

For the carriage of substances of marginal 2471, 1° (a), caps shall be locked in conformity with marginal 212432 and the temperature of the outside surface of the shell shall not exceed 50°C. 212472

For trichlorosilane (silicochloroform) of marginal 2471, 4° (a), or for methyldichlorosilane or ethyldichlorosilane of 4° (b), the degree of filling shall not exceed 1.14 or 0.95 or 0.93 kg per litre of capacity respectively, if filling is by mass, or 85 per cent if filling is by volume. 212473

The shells of tank-containers which have contained phosphorus of marginal 2431, 1°, shall when handed over for carriage either: 212474

– be filled with nitrogen; the sender must certify in the transport document that the tank, after closure, is gas-tight; or

– be filled with water to not less than 96 per cent and not more than 98 per cent of their capacity; between 1 October and 31 March this water shall contain one or more anti-freeze agents free from corrosive action, not liable to react with phosphorus, and sufficiently concentrated to prevent the water freezing during carriage.

Tank-containers which have contained phosphorus of marginal 2431, 1°, must be considered, as far as the application of the provisions of marginal 42500 (1) is concerned, as being "empty tank-containers, uncleaned".

The degree of filling for shells containing substances of marginal 2431, 3°, or marginal 2471, 2° (e), shall not exceed 90 per cent; a space of 5 per cent shall remain empty for safety when the liquid is at an average temperature of 50°C. During carriage, the substances shall be under a layer of inert gas, the gauge pressure of which shall not exceed 50 Kpa (0.5 bar). The shells shall be hermetically closed[6/] and the protective caps conforming to marginal 212433 shall be locked. Empty shells, uncleaned, shall when handed over for carriage be filled with an inert gas at a gauge pressure of up to 50 kPa (0.5 bar). 212475

212476
-212499

Class 5.1: Oxidizing substances

Class 5.2: Organic peroxides

212500
212509

Section 1: General; scope (use of tank-containers); definitions

Use

Substances of 1° to 3° and solutions of 4° (also moist sodium chlorate) of Class 5.1 and substances of 10°, 14° and 15° of Class 5.2 may be carried in tank-containers. 212510

NOTE: For the carriage in bulk of substances of Class 5.1, 4° to 6° and 7° (a) and (b), see marginal 51 111.

212511
-212519

Section 2: Construction

The shells of tank-containers, and their items of equipment, intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide of marginal 2501, 1°, or for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15° shall be made of aluminium not less than 99.5 per cent pure or of suitable alloy steel not liable to cause the hydrogen peroxide or the organic peroxides to decompose. 212520

212521
-212529

6/ «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible discs or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

Section 3: Items of equipment

The shells of tank-containers intended for the carriage of aqueous solutions of hydrogen peroxide containing more than 70 per cent hydrogen peroxide and of hydrogen peroxide of marginal 2501, 1°, shall have their openings above the surface level of the liquid. In the case of solutions containing more than 60 per cent but not more than 70 per cent hydrogen peroxide, openings below the surface level of the liquid shall be permissible. In this case the shell-discharge system shall include two mutually independent shut-off devices, the first being a quick-closing internal stop-valve of an approved type and the second a sluice-valve, mounted in series, one at each end of the discharge pipe. A blank flange or some other equally reliable device shall also be fitted at the outlet of each external sluice-valve. The internal stop-valve shall be such that it remains rigidly locked to the shell and in the closed position if the pipe is wrenched off. In addition, the cleaning openings (fist-holes) referred to in marginal 212132 shall not be permitted. 212530

The connexion to the external pipe-outlets of tank-containers shall be coated with a suitable plastics material. 212531

The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be equipped with a venting device fitted with a flame-trap and followed in series by a safety valve opening automatically at a pressure of 0.18 MPa (1.8 bar) to 0.22 MPa (2.2 bar) (gauge pressure). The materials of which closures liable to come into contanct with the liquid or its vapour are made shall not have a catalytic effect (spring-loaded safety valve made of aluminium-silicon alloy (silumin) or of V2A stainless steel or of a material of equivalent quality). 212532

The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be equipped with thermal insulation in accordance with the requirements of marginal 212234 (1). The covering and the uncovered part of the shell shall be painted white. 212533

212534
-212539

Section 4: Type approval

212540
(No special requirements) -212549

Section 5: Tests

The shells of tank-containers intended for the carriage of hydrogen peroxide or of aqueous solutions of hydrogen peroxide, of marginal 2501, 1°, or of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be tested at a pressure of 0.4 MPa (4 bar). 212550

212551
-212559

Section 6: Marking

212560
(No special requirements) -212569

Section 7: Operation

The inside of the shell of the tank-container, and all metal parts liable to come into contact with hydrogen peroxides of marginal 2501, 1°, shall be kept clean. No lubricant capable of combining dangerously with the substance carried shall be used for pumps, valves or other devices. 212570

The shells of tank-containers intended for the carriage of liquids of marginal 2501, 1° to 3°, shall be filled to not more than 95 per cent of their capacity at a reference temperature of 15°C. The shells of tank-containers intended for the carriage of liquid organic peroxides of marginal 2551, 10°, 14° and 15°, shall be filled to not more than 80 per cent of their capacity. Shells shall be free from impurities at the time of filling. 212571

212572
-212599

Class 6.1: Toxic substances

212600
-212609

Section 1: General; scope (use of tank-containers); definitions

Use

The following substances of Class 6.1 may be carried in tank-containers: 212610

(a) highly toxic substances listed by name in 2° and 3;

(b) highly toxic substances classified under (a) of 11° to 24°, 31°, 41°, 51°, 55° and 71° to 88°, carried in the liquid state, and comparable substances or solutions to be classified under (a) of those items;

(c) toxic or harmful substances classified under (b) or (c) of 11° to 24°, 51° to 55°, 57° to 68° and 71° to 88°, carried in the liquid state, and comparable substances or solutions to be classified under (b) or (c) of those items;

(d) toxic or harmful powdery or granular substances classified under (b) or (c) of 12°, 14°, 17°, 19°, 21°, 23°, 24°, 51° to 55°, 57° to 68° and 71° to 88°, and 51° comparable powdery or granular substances to be classified under (b) or (c) of those items.

NOTE: For the carriage in bulk of substances of 44° (b), 60° (c) and 63° (c) see marginal 61111.

212611
-212619

Section 2: Construction

Shells intended for the carriage of substances listed by name under 2° and 3° shall be designed for a calculation pressure[16/] of not less than 1.5 MPa (15 bar) gauge pressure. 212620

Shells intended for the carriage of the substances referred to in marginal 212610 (b) shall be designed for a calculation pressure[16/] of not less than 1.0 MPa (10 bar) gauge pressure. 212621

Shells intended for the carriage of the substances referred to in marginal 212610 (c) shall be designed for a calculation pressure[16/] of not less than 0.4 MPa (4 bar) gauge pressure. 212622

Shells intended for the carriage of the powdery or granular substances referred to in marginal 212610 (d) shall be designed in accordance with the requirements of the general part of this Appendix. 21623

212624
-212629

Section 3: Items of equipment

All openings of shells intended for the carriage of the substances referred to in marginal 212610 (a) and (b) shall be above the surface level of the liquid. No pipe or pipe connections shall pass through the walls of the shell below the surface level of the liquid. Shells shall be capable of being hermetically closed[6/] and the closures shall be capable of being protected with lockable caps. The cleaning openings provided for in marginal 212132 shall not however be permitted for shells intended for the carriage of solutions of hydrocyanic acid of 2°. 212630

Shells intended for the carriage of the substances referred to in marginal 212610 (c) and (d) may also be of the bottom-discharge type. The shells shall be capable of being hermetically closed[6]. 212631

If shells are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. 212632

212633
-212639

Section 4: Type approval

212640
(No special requirements) -212649

16/ See marginal 212 127 (2)

Section 5: Tests

Shells intended for the carriage of the substances referred to in marginal 212610 (a), (b) and (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). 212650

Shells intended for the carriage of the substances referred to in marginal 212610 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 212123. 212651

212652
-212659

Section 6: Marking

212660
-212669

(No special requirements)

Section 7: Operation

The degree of filling of shells intended for the carriage of the substances referred to in marginal 212610 (a), (b) and (c) shall be in accordance with marginal 212172 (1) (d). 212670

Shells intended for the carriage of substances of 3° shall not be filled to more than 1 kg per litre of capacity. 212671

Shells shall be hermetically closed[6/] during carriage. The closures of shells intended for the carriage of the substances referred to in marginal 212610 (a) and (b) shall be protected with lockable caps. 212672

Tank-containers approved for the carriage of the substances referred to in marginal 212610 shall not be used for the carriage of foodstuffs, articles of consumption or animal feedstuffs. 212673

212674
-212699

Class 7: Radioactive substances

211700
-212709

Section 1: General; scope (use of tank-containers); definitions

Use

In accordance with the applicable schedule of marginal 2703. 212710

NOTE: Only liquid or solid low-specific-activity substances, LSA (l), of marginal 2703, schedule 5, including, notwithstanding the provision in marginal 212100, natural or depleted uranium hexafluoride[17/] may be carried in tank-containers.

212711
-212719

Section 2: Construction

Tank-containers intended for the transport of the substances reffered to in Schedule 5, with the exception of uranium hexafluoride, shall be designed for a calculation pressure of at least 04. MPa (4 bar). In the case of tank-containers intended for the transport of uranium hexafluoride, the calculation pressure shall be fixed at 1 MPa (1 bar). When the radioactive substance is in solution or suspension in hazardous substances of other Classes and when the calculation pressures required for the tank-containers intended for the transport of the latter substances are greater, these pressures shall be applied. 212720

212721
-219729

Section 3: Equipment

212730

The openings of tank-containers intended for the transport of liquid radioactive substances[12/] shall be above the level of the liquid and no piping or pipe connection shall pass through the walls of the shell below the surface level of the liquid.

212731
-212739

Section 4: Type approval

Tank-containers approved for the transport of radioactive substances shall not be approved for the transport of any other substance. 212740

212741
-212749

Section 5: Tests

212750

The tank-containers shall undergo, at least once every five years, a hydraulic pressure test at a pressure of 0.4 MPa (1 bar). Notwithstanding marginal 212150, the periodic internal inspection may be replaced by an ultrasonic test of the wall thickness conducted every two and a half years.

212751
-212759

Section 6: Marking

212760
-212769

(No special requirements)

Section 7: Operation

The degree of filling at the reference temperature of 15°C shall not exceed 93 per cent of the total shell capacity. Tank-containers which have been used for the transport of radioactive substances shall not be used for the transport of other substances 212770

212771
-212799

Class 8: Corrosive substances

212800
-212809

Section 1: General; scope (use of tank-containers); definitions

Use

The following substances of Class 8 may be carried in tank-containers: 212810

(a) substances listed by name in 6°, 7° and 24°, and substances comparable with those of 7°;

(b) highly corrosive substances classified under (a) of 1°, 2°, 3°, 10°, 11°, 21°, 26°, 27°, 32°, 33°, 36°, 37°, 64°, 65° and 66°, carried in the liquid state, and comparable subslances or solutions to be classified under (a) of those items;

(c) corrosive or slightly corrosive substances classified under (b) or (c) of 1° to 5°, 8° to 11°, 21°, 26°, 27°, 31° to 39°, 42° to 45°, 51° to 54° and 61° to 66°, carried in the liquid state, and comparable substances or solutions to be classified under (b) or (c) of those items;

(d) powdery or granular corrosive or slightly corrosive substances classified unser (b) or (c) of 22°, 23°, 26°, 27°, 31°, 35°, 39°, 41°, 45°, 52° and 65°, and comparable powdery or granular substances to be classified under (b) or (c) of those items.

NOTE: For the carriage in bulk of substances of 23° and lead sludge containing sulphuric acid of 1° (b), see marginal 81111.

212811
-212819

Section 2: Construction

Shells intended for the carriage of substances listed in 6° and 24° shall be designed for a calculation pressure[16/] of not less than 2.1 MPa (21 bar) gauge pressure. Shells intended for the carriage of bromine of 24° shall be provided with a lead lining not less than 5 mm thick or an equivalent lining. 212820

Shells intended for the carriage of substances of 7° (a) shall be designed for a calculation pressure[16] of not less than 1.0 MPa (10 bar) and shells for the carriage of substances of 7° (b) and (c) for a calculation pressure[16/] of not less than 0.4 MPa (4 bar).

[6/] «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible discs or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

[12/] Under this provision, substances whose kinematic viscosity at 20°C is below 25 cm^2/s shall be deemed to be liquids.

[17/] For enriched uranium hexafluoride, see marginal 2703, Schedule 11.

[16/] See marginal 212 127 (2)

The requirements of Appendix B.1d shall apply to the materials and construction of welded shells intended for the carriage of hydrogen fluoride and aqueous solutions of hydrofluoric acid of 6°.

212821 Shells intended for the carriage of the substances referred to in marginal 212810 (b) shall be designed for a calculation pressure[16/] of not less than 1.0 MPa (10 bar) gauge pressure.

Where the use of aluminium is necessary for shells intended for the carriage of nitric acid of 2° (a), such shells shall be made of aliminium not less than 99.5 per cent pure, in which case, by derogation from the provisions of the paragraph above, the wall thickness need not exceed 15 mm.

212822 Shells intended for the carriage of the substances referred to in marginal 212810 (c) shall be designed for a calculation pressure[16/] of not less than 0.4 MPa (4 bar) gauge pressure.

Shells intended for the carriage of monochloroacetic acid of 31° (b) shall be equipped with an enamel or equivalent lining if the material of the shell is attacked by that acid.

Shells and their items of equipment intended for the carriage of aqueous solutions of hydrogen peroxide shall be made of aliminium not less than 99.5 per cent pure or of a suitable steel not causing hydrogen peroxide to decompose.

Notwithstanding the provisions of the first paragraph, the wall thickness need not be greater than 15 mm when the shells are made of pure aliminium.

212823 Shells intended for the carriage of the powdery or granular substances referred to in marginal 212810 (d) shall be designed in accordance with the requirements of the general part of this Appendix.

212824
-212829

Section 3: Items of equipment

212830 All openings of shells intended for the carriage of substances of 6°, 7°, and 24° shall be above the surface level of the liquid. No pipes or pipe connections shall pass through the walls of the shell below the surface level of the liquid. Tank-containers shall be capable of being hermetically closed[6] and the closures shall be capable of being protected by lockable caps. In addition, the cleaning openings referred to in marginal 212132 shall not be permitted.

212831 Shells intended for the carriage of the substances referred to in marginal 212810 (b), (c), and (d) may also be of the bottom-discharge type. The bottom-discharge fittings of shells intended for the carriage of the substances referred to in marginal 212810 (b) and (c) shall conform to the requirements of marginal 212131.

212832 If shells intended for the carriage of the substances referred to in marginal 212810 (b) are fitted with safety valves, a bursting disc shall be placed before the valve. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority.

212833 Shells intended for the carriage of sulphur trioxide of 1° (a) shall be thermally insulated and fitted with a heating device on the outside.

212834 Shells and their service equipment intended for carriage of hypochlorite solutions of 61° and of aqueous solutions of hydrogen peroxide of 62° shall be so designed as to prevent the entry of foreign matter, leakge of liquid or any building up of dangerous excess pressure inside the shell.

212835
-212839

Section 4: Type approval

212840
(No special requirements) -212849

Section 5: Tests

212850 Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solutions of hydrofluoric acid of 6° shall be subjected to the initial and periodic tests at a gauge pressure of at least 1.0 MPa (10 bar) and those intended for the carriage of substances of 7° shall be subjected to initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar).

Shells intended for the carriage of substances of 6° and 7° shall be inspected every two and a half years for resistance to corrosion, by means of suitable instruments (e.g. by ultrasound).

The materials of every welded shell intended for the carriage of hydrogen fluoride and aqueous solutions of hydrofluoric acid of 6° shall be tested by the method described in Appendix B.1d.

212851 Shells intended for the carriage of bromine of 24° or of the substances referred to in marginal 212810 (b) and (c) shall be subjected to the initial and periodic tests at a gauge pressure of not less than 0.4 MPa (4 bar). The hydraulic pressure test for shells intended for the carriage of sulphur trioxide of 1° (a) shall be repeated every two and a half years. Shells made of pure aluminium and intended for the carriage of nitric acid of 2° (a) and of aqueous solutions of hydrogen peroxide of 62° need be subjected to the initial and periodic tests at a gauge pressure of only 0.25 MPa (2.5 bar).

The condition of the lining of shells intended for the carriage of bromine of 24° shall be inspected every year by an expert approved by the competent authority, who shall inspect the inside of the shell.

212852 Shells intended for the carriage of the substances referred to in marginal 212810 (d) shall be subjected to the initial and periodic tests at their calculation pressure as defined in marginal 212123.

212853
-212859

Section 6: Marking

212860 Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solutions of hydrofluoric acid of 6°, or bromine of 24°, shall bear in addition to the particulars referred to in marginal 212160 an indication of the permissible maximum net load in kg and the date (month, year), of the most recent internal inspection of the shell.

212861
-212869

Section 7: Operation

212870 Shells intended for the carriage of sulphur trioxide of 1° (a) shall not be filled to more than 88 per cent of their capacity; those intended for the carriage of bromine of 24° shall be filled to not less than 88 per cent and not more than 92 per cent of their capacity or to 2.86 kg per litre of capacity.

Shells intended for the carriage of anhydrous hydrofluoric acid or aqueous solution of hydrofluoric acid of 6° shall not be filled to more than 0.84 kg per litre of capacity.

212871 Shells intended for the carriage of substances of 6°, 7° and 24° shall be hermetically closed [6/] during carriage and the closures shall be protected with lockable caps.

212872
-212999

Appendix B.1c

PROVISIONS CONCERNING FIXED TANKS AND DEMOUNTABLE TANKS MADE OF REINFORCED PLASTICS

Notes: 1. This Appendix applies to fixed tanks and demountable tanks; it does not apply to batteries of receptacles, to tank-containers, or to receptacles.

6/ «Hermetically closed shells» means shells whose openings are hermetically closed and which are not equipped with safety valves, frangible discs or other similar safety devices. Shells having safety valves preceded by a frangible disc shall be deemed to be hermetically closed.

16/ See marginal 212 127 (2)

2. For receptacles, see the requirements concerning them in Annex A (packages).

213000
-213009

Section 1: General provisions concerning the use and construction of fixed and demountable tanks

NOTE: In accordance with the provisions or marginal 10 121 (2) the carriage of dangerous substances in fixed or demountable tanks made of reinforced plastics complying with the requirements of this Appendix is permitted only where the use of such tanks for those substances is expressly authorized under marginal 213 010.

Use

The following substances may be carried in reinforced - plastics tanks conforming to the provisions of this Appendix: 213010

(a) Crude petroleum and other crude oils; volatile products from the distillation of crude petroleum and of other crude oils of 3° (b) of Class 3;

(b) Semi-heavy products from the distillation of petroleum and of other crude oils of 31° (c) of Class 3;

(c) Heating oils and diesel oils of 32° (c) of Class 3;

(d) Solutions of 4° (a) of Class 5.1;

(e) Substances of 1° (b) and (c), 2° (b) and (c), solutions of hydrochloric acid of 5° (b) and substances of 42°, 61° and 62° of Class 8.

213011
-213099

Construction

The tanks shall comply with the following requirements of Appendix B.1a: 213100

(1) General provisions applicable to tanks used for carriage of substances of all classes:

Marginals 211 120 (4), (5) and (6); 211 121; 211 122; 211 124; 211 126; 211 127 (6); 211 128; 211 130; 211 132; 211 140; 211 150 to 211 154; 211 160 and 211 161; 211 171; 211 172 (1) and (2); 211 173 to 211 178.

(2) Provisions applicable to tanks used for carriage of substances of Class 3:

Shells which are fitted with a vanting device not capable of being closed and which are intended for the carriage of inflammable liquids having a flash - point not exceeding 55° C shall have a flame - trap in the venting device.

The leakproofness test and the internal inspection shall be performed every three years.

(3) Provisions applicable to tanks used for carriage of substances of Class 8: marginal 211 834.

The walls of the tank must present to material defect causing a reduction in safety. 213101

The walls of the tank must have a lasting resistance to the mechanical, thermal and chemical stresses to which they are subjected. 213102

Tank openings

(1) Where the tank has one or more discharge openings below the level of the liquid, any pipe or valve fitted to such opening or openings shall be protected either by being recessed into the tank shell or by any other means approved by the competent authority and providing equivalent protection. 212103

(2) The use of screwed plugs is strictly prohibited. Valves shall be of a model approved by the competent authority.

(3) Filling apertures shall be closed by a hermetic device. If the device projects outwards from the tank shell it shall be protected by a cap capable of withstanding wrenching stresses occurring through accidental overturning of the tank.

213104
-213 119

Section 2: Materials used for the walls of the tank

The walls of tanks may be made of the following materials: 213120

(1) Synthetic resin

- non -saturated polyester resins;
- epoxide resins;
- other resins with similar characteristics, provided that the safety of the wall is demonstrated.

(2) Fibre reinforcements

Glass fibres (glass of types E and C) [1] with an appropriate coating, for example with a silane base or similar products. The glass fibres may be used in the form of cut or uncut rovings including prestressed continuous rovings or filaments, mats, surface mats or woven fabric.

(3) Additives

(a) Additives necessary for the treatment of resins, for example, catalysts, accelerators, monomers, hardeners, thixotropic substances, in accordance with instructions by the manufacurer of the resin.

(b) Extenders, pigments, colorants and other products enabling the required properties to be obtained, for example, the increase of fire - resistant properties, provided that they cause no reduction in the safety of use of the walls of the tank.

213121
-213 129

Section 3: Structure of the walls of the tank

The external surface layer of the walls of the tank must be resistant to atmospheric effects and also to brief contact with the substance to be carried. 213130

The walls of the tank and the sealed joints must satisfy the mechanical resistance requirements listed in section 4. 213131

The internal surface layer of the walls must be resistant to the lasting effects of the substance to be carried. This layer must be made of reinforced resin having a minimum thickness of 1 mm. The fibres used must not reduce the chemical resistance of the layer. The inner part of the layer must be rich in resins and must have a minimum thickness of 0.2 m.m. 213132

The requirements detailed in marginals 213 140 (6) and 213 142 (2) of section 4 must be satisfied.

The finished walls must satisfy the requirements detailed in marginal 213 140 (3) of section 4. 213133

The minimum thickness of the wall shall be 213134

- 3.5 mm if the capacity of the tank does not exceed 3 m^3
- 5.0 mm if the capacity of the tank is more than 3 m^3.

213135
-213 139

Section 4: Test methods and qualities required

Tests and qualities required for materials for the prototype tank 213140

(1) Taking of specimens

The specimens required for the test must wherever possible be taken from the walls of the tank. For this purpose cut - out parts resulting from the making of apertures, etc. may be used.

(2) Percentage of glass fibre.

The test must be conducted in accordance with the methods prescribed in ISO Recommendation R1172 1970.

The glass content of the specimen must be higher than 25 per cent and lower than 75 per cent by mass.

(3) Degree of polymerization.

(a) Wall in polyester resins

The residual styrene content may not be higher than 2 per cent, calculated on the total quantity of resins. The test shall be conducted in accordance with a suitable method. [2]

---

[1] Class of types E and C is defined in Table 1.

[2] The method prescribed in standard DIN 16945 of June 1969, paragraph 6.4.3 is regarded as suitable.

(b) Wall in epoxide resins

The acetone extract may not be higher than 2 per cent calculated on the total quantity of resins. The test shall be conducted in accordance with a suitable method. [3/]

(4) Bending and tensile strength.

The mechanical properties must be determined:

- for the shell, in the axial and circumferential directions;
- for the ends and walls of compartments, in any direction.

If the principal directions of the reinforcement do not coincide with the axial and circumferential directions (for example in the case of biaxial winding), the strength must be determined in the principal directions of the reinforcement and calculated for the axial and circumferential directions by applying the following formulae:

Tensile

$\sigma T,c = 2\ \sigma T,H \sin^2 \alpha$

$\sigma T,a = 2\ \sigma T,H \cos^2 \alpha$

Bending

$\sigma F,c = 2\ \sigma F,H \sin^2 \alpha$

$\sigma F,a = 2\ \sigma F,H \cos^2 \alpha$

T = tensile
c = circumferential
a = axial
H = helicoidal
F = bending
α = preferential winding angle

The tensile strength must be tested in accordance with the methods prescribed in document ISO/TC 61/WG 2/TC "Tests of glass reinforced plastics" No 4 of February 1971.

The bending strength must be tested in accordance with the methods prescribed in Recommendation ISO/TC 61 No 1540 of April 1970.

Requirements

New tanks meet the following safety factors against rupture:

Safety factor for static loading: 7.5

Safety factor for dynamic loading: 7.5

The acceleration values to be applied in computing the dynamic load are as follows:

2 g in direction of travel;

1 g at right angles to direction of travel;

1 g vertically upwards; and

2 g vertically downwards.

As the characteristics of a reinforced plastics laminate may vary according to its structure, minimum values are not prescribed for bending and tensile strength but for loads:

$A = e\,\sigma T$ where σT is the tensile strength at break;

$B = e^2\,\sigma F$ where σF is the bending strength at break;

where e is the thickness of the wall

The minimum values for forces A and B are:

For bending:

Capacity of tank $\leqslant 3\ m^3$

- circumferential direction B = 600 daN
- axial direction B = 300 daN

Capacity of tank $> 3\ m^3$

- circumferential direction B = 600 daN
- axial direction B = 300 daN

For tensile:

- circumferential direction B = 100 daN/mm
- axial direction B = 70 daN/mm

Module E on bending in measured at -40°C and at +60°C. The two values may not differ by more than 30 per cent from the value obtained at 20° C. Behaviour of wall material during a tensile test lasting more than 1000 hours.

The test tension is $\frac{\sigma T}{7.5}$

During the test the factor $K = \frac{\varepsilon_{1000}}{\varepsilon_0}$ may not be higher than 1.6.

ε_0 = elongation of loaded specimen at begining of test

ε_{1000} = elongation of loaded specimen at end of test

(5) Impact behaviour

(a) Nature of test

Impact behaviour is determined on a sample of lamimate corresponding to the structural material used for the construction of the tank. The test is carried out by dropping a 5 kg steel mass onto the surface of the laminate corresponding to the external surface of the tank;

(b) Apparatus

The apparatus consists of a 5 kg steel mass, a guidance device for this mass and a specimen - bearing chassis. A general diagram of the apparatus is given in figure 1. The mass is in the form of a steel cylinder provided with two guide channels, the lower extremity being spherically shaped, 90 mm diameter

The guidance device is fitted vertically to a wall.

The specimen - bearer is composed of two angle - bars of 100 × 100 × 25 mm and 300 mm long, welded to a 400 × 400 mm metal support. The gap between the two bars is 175 mm. The specimen - bearer, fixed to the ground, is provided with a 50 mm cavity to allow flexion of the specimen.

(c) Preparation of specimens.

From the sample, three specimens are taken, each measuring 200 × 200 mm × thickness of the sample.

(d) Operating method

The specimen is placed symmetrically on the specimen-bearer; if possible it rests on the support following two basic straight lines of the surface, in such a way that the mass strikes the centre of the face of the specimen corresponding to the external surface of the tank.

The mass is allowed to fall from a determined height, care being taken to ensure that it does not rebound and strike the specimen a second time.

The test must be conducterd at ambient temperature.

The height to which the mass is raised in the guidance device is noted.

The other two specimens are tested in the same way.

(e) Requirement

The drop height for a 5 kg mass shall be 1 metre; the specimen must not allow leakage of more than 1 litre per 24 hours when subjected to a column of water of 1 m.

(6) Resistance to chemical agents.

Flat reinforced plastics test plates, prepared in the laboratory, are subjected to attack by the dangerous substance at a temperature of 50°C for 30 days in accordance with the following procedure:

(a) Description of the test apparatus (shown in figure 2).

The test apparatus comprises a glass cylinder, diameter 140 × 150 mm, 150 mm high with two nozzles positioned at 135° one fitted with an NS 29 joint to take an intermediate pipe for a reflux condenser (1), the other nozzle fitted with an NS 14.5 joint to take a thermometer (2), an intermediate pipe for a reflux condenser and a reflux condenser not shown in the diagram. The glassa part of the apparatus shall be in glass resistant to changes of temperature.

The specimens taken from the test plates form the base and the top of the glass cylinder. They are sealed to the sides of the cylinder by a PTFE collar. The cylinder with the two specimens is clamped between two pressure plates

[3/] The method prescribed in standard DIN 16945 of June 1969, paragraph 6.4.2 is regarded as suitable.

in corrosion - resistant steel with six threaded bolts tightened by means of wing nuts. An asbestos washer must be placed between the pressure plates and the specimens. These washers are not shown in figure 2. Heating is effected from outside by means of an automatically controlled sleeve heater. The temperature is measured in the chamber containing the liquid.

(b) Operation of the test apparatus.

The test apparatus allows only flat plates of uniform thickness to be tested. The test plates should, if possible, be 4 mm thick. Should these plates be covered with a gel coating, they must be tested in condition as for practical use. Six hexagonal specimens, each side measuring 100 mm, are cut from the test plate.

For each test, three specimens are prepared per apparatus. One of these simples is used as a reference and the other two are used for checking in the liquid zone, and vapour zone of the device respectively.

(c) Test procedure.

The specimens to be tested are placed on the apparatus with the surface which may be gel- coated facing inwards. 1200 ml of test liquid is poured into the glass cylinder. The apparatus is then heated to the test temperature. A constant temperature is maintained during the test. After the test the apparatus is cooled to the ambient temperature and the test liquid removed. The specimens tested are immediately washed with distilled water. Liquids which are not soluble in water are removed with a solvent which does not attack the specimens. Mechanical cleaning of the plates cannot be permormed because of the danger of damaging the surface of the specimens.

(d) Evualtion

A visual examination is made:

– if the visual examination reveals excessive attack (cracks, bubbles, pores, peeling off, swelling, or roughness), the test is conclusive negatively;

– if the visual examination reveals no abnormality, bending tests are made by the methods specified in marginal 213 140 (4) on the two specimens subjected to chemical attack and on the reference specimen. In this case the bending strength shall not be more than 20 per cent lower than the value ascertained for the test plate not subjected to any stress.

Test and quality required for the prototype unit. 213141

The prototype tank shall be subjected to a hydraulic pressure test conducted by an expert approved by the competent authorities of a Contracting Party.

If the prototype tank is divided into compartments either by bulkheads or by baffle plates, the test shall be conducted on a unit made for this purpose with the same external ends as the entire tank and which represents the part of the tank subjected, under normal conditions of use, to the greatest stresses.

This test should not be conducted if there has already been a successful test on another prototype unit of the same section or a section with larger dimensions, geometrically similar to that of the prototype unit in question, even if that unit has a different internal surface layer.

This test must demonstrate that the prototype unit has, under normal conditions of use, a factor of not less than 7.5 so far as rupture is concerned.

It must be proved, e.g. by calculation, that safety factors against fracture given in marginal213140 (4) are complied with for each section of the tank.

Rupture occurs when the test liquid escapes from the tank in the form of jets. Consequently, before this rupture, the presence of delaminations and losses of liquid through these delaminations in the form of droplets is permitted. The prototype unit shall be submitted to a hydraulic pressure.

$$H = 7.5 \times d \times h$$

where H is the height of the column of water

h is the height of the tank

d is the density of the substance to be carried.

If a rupture occurs with a water - column height H_1 less than H, there must still be

$$H_1 \geqslant 7.5 \times d \times (h\text{-}h_1)$$

where h_1 is the height of the highest point where the first jet of liquid appears.

Should the flow of liquid at point h_1 be too great, it is essential to make a temporary repair and temporary local strengthening to enable the test to continue to height H.

Conformity check on tanks produced in series. 213142

(1) The inspection of conformity on tanks produced in series shall be carried out by conducting one or more of the tests listed in marginal 213140.

However, the measurement of the degree of polymerization is replaced by Barcol hardness measurement.

(2) Barcol hardness.

The test must be conducted in accordance with suitable procedures [4/]. Barcol hardness measured on the internal surface of the finished tank shall not be less than 75 per cent of the value obtained in the laboratory on pure hardened resin.

(3) The percentage of glass fibre must be within the limits prescribed in marginal 213140 (2) and, in addition, must not deviate by more than 10 per cent of the figure for the prototype tank.

Tests and qualities required for all tanks before being put into service. 213143

Leakproofness test

The leakproofness test shall be conducted in accordance with the provisions of marginals 211150, 211151 and 211152 and the expert's stamp shall be applied to the tank.

213144
-213149

Section 5: Special provisions for tanks used for the carriage of substances with a flash - point of 55 ° C of lower

The tank must be constructed so as to ensure the elimination of static electricity from the various component parts so as to avoid the accumulation of dangerous electric charges. 213150

All metal parts of the tank and the transport unit and also wall layers conducting electricity must be interconnected.

The resistance between each conducting part and the chassis must not be higher than 10^6 ohms.

Elimination of hazards due to charges generated by friction.

The surface resistance and the discharge resistance to earth of the entire surface of the tank shall conform with the requirements of marginal 213154. 213153

The surface resistance and discharge resistance to earth measured in accordance with marginal 213155 must satisfy the following requirements. 213154

(1) Walls not equipped with electrically conducting elements:

(a) Surfaces upon which one can walk:

The discharge resistance to earth shall not be higher than 10^8 ohms.

(b) Other surfaces:

The surface resistance shall not be higher than 10^9 ohms.

(2) Walls equipped with electrically conducting elements:

(a) Surfaces on which one can walk:

The discharge resistance to earth shall not be higher than 10^8 ohms.

[4/] The procedures prescribed in standard ASTM-D 2583-67 are regarded as suitable.

(b) Other surfaces:

Conductance shall be considered as sufficient if the maximum thickness of non-conducting layers on conducting elements, for example conducting sheets, metal netting or other appropriate material, connected to the earthing connexion, does not exceed 2 mm, and that in the case of a metal netting, the surface area of the mesh does not exceed 64 cm^2.

(3) Any measurement of surface resistance or discharge resistance to earth required to be carried out on the tank itself shall be replaced at intervals of not more than one year to ensure that the specified resistances are not exceeded.

Test methods 213155

1. Surface resistance (R100) - (insulating resistance) in ohms, electrodes of conducting paint in accordance with figure 3 of Recommendation IEC 167 of 1964, measured in the standard 23/50 atmosphere according to Recommendation ISO R 291, paragraph 3.1 of 1963.

Recommendation IEC 167 of 1964, measured in the standard 23/50 atmosphere according to Recommendation ISO R921, paragraph 3.1, of 1963.

2. The discharge resistance to earth in ohms is the ratio between the direct voltage measured between an electrode described below in contact with the surface of the tank of the vehicle and the earthed chassis of the vehicle, and the total current.

The conditioning of the specimens is the same as in paragraph 1. The electrode is a disc with a surface area of 20 cm^2 and a diameter of 50 mm. Its close contact with the surface of the tank must be ensured, for example by using damp paper or a damp sponge or any other suitable substance. The earthed chassis of the vehicle is used as the other electrode. A direct voltage in the range of 100 volts-500 volts shall be applied. The measurement shall be carried out after the test voltage has been applied for one minute. The electrode may be placed on any point of the internal or external surface of the tank.

If measuring is impossible on the tank, it may also be carried out, under the same conditions, in the laboratory, on a specimen of the material.

Elimination of hazards due to charges generated during filling.

Metallic components bonded to earth shall be provided and so disposed that at any stage of the filling or emptying process there is an area of not less than 0.04 sq. metres of earthed metal in contact with the product per cubic metre of product contained in the tank at that instant, and that no part of the product shall be more than 2.0 metres from the nearest earthed metal component. Such metallic components may take the form of: 213156

(a) A metal foot valve, pipe outlet, or plate provided the total area of metal in contact with the liquid is not less than that specified, or

(b) A metallic grill with wire thickness not less than 1 mm diameter and hole area not greater than 4 sq. centimetres, provided that the total area of the grill in contact with the liquid is not less than that specified.

Marginal 213156 shall not apply to reinforced-plastics tanks equipped with any other system for eliminating the hazard from charges generated during filling, provided it has been demonstrated by a practical comparative test in accordance with marginal 213158 that the relaxation time of the charge generated within the tank during filling is equivalent to that obtained for a metal tank of comparable dimensions. 213157

Comparative test 213158

(1) A comparative test of the electrostatic charge relaxation time in accordance with the conditions of test described in paragraph (2) shall be carried out on a prototype reinforced-plastics tank and steel tank in the following manner (see figure 3).

(a) The reinforced-plastics tank shall be mounted in the same manner as it would be in use, for example, on a steel support simulating a vehicle's chassis, and shall be filled to not less than 75 per cent capacity with automotive diesel fuel, a proportion of which is passed through a suitable microfilter in such a manner that the charge density of the total flow is approximately 100 $\mu C/m^3$.

(b) The field strength in the tank vapour space shall be measured by a suitable continuous reading field meter mounted with its axis vertical and placed at least 20 cm from the vertical fill pipe.

(c) A similar test shall be carried out on a steel tank whose width, length, breadth, and volume are within 15 per cent of those of the reinforced-plastics tank, or on a reinforced-plastics tank of similar dimensions, coated internally with metal foil connected to earth.

(2) The following conditions of test shall be met:

(a) The test shall be carried out in a covered area in conditions of relative humidity less than 80 per cent.

(b) The automotive diesel fuel used in the test shall have a rest conductivity at the temperature of measurement between 3 and 5 pS/m. This shall be measured in a cell in which

$\frac{VT}{d^2}$ is less than or equal to 2.5×10^6

where V = applied voltage

d = spacing between electrodes in metres

T = duration of measurement in seconds.

The rest conductivity measured on samples of the product taken from the test tank after filling shall not differ in successive tests on plastics and metal tanks by more than 0.5 pS/m.

(c) Filling shall be at a constant rate within the range 1 to 2 m^3/min and shall be the same for the reinforced-plastics tank and for the steel tank. At the end of filling, the flow should be stopped in a time which is short compared with the relaxation time for the charge in the steel tank.

(d) The charge density shall be measured by a suitable continuous reading meter (for example, a field mill type) immersed in the product and placed as close as possible to the filling pipe.

(e) The supply pipes and the vertical filling pipe shall be of 10 cm internal diameter and shall terminate in a "T" type filling pipe outlet.

(f) A suitable microfilter[5/] with an adjustable by-pass enabling the proportion of flow passing through it to be regulated, shall be fitted not more than 5 m from the filling pipe outlet.

(g) The liquid level shall not reach the bottom of the filling pipe or the field meter.

Comparison of relaxation times

(3) The initial value of the field strength shall be that recorded at the earliest point of time after the cessation of flow of the fuel when a smooth decay curve has been established. The relaxation time in both tests shall be expressed as the time taken for the field strength to decay from the initial value to 0.37 of the initial value.

(4) The relaxation time of the reinforced-plastics tank shall not exceed that of the steel tank.

Table 1 213159 -213999

COMPOSITION OF GLASS

Glass E: Composition by mass:		
Silica	($Si O_2$)	52 to 55 per cent
Alumina	(Al_2O_3)	14 to 15.5 per cent
Lime	(Ca O)	16.5 to 18 per cent
Magnesia	(Mg O)	4 to 5.5 per cent

[5/] A Rellumit 5 has been found to be suitable.

Boric Oxide	(B_2O_3)	6.5 to 21 per cent
Fluorine	(F)	0.2 to 0.6 per cent
Ferric Oxide	(Fe_2O_3)	< 1 per cent
Titanium Oxide	(TiO_2)	
Alkaline Oxides	($Na_2O + K_2O$)	< 1 per cent

Glass C: Composition by mass:

Silica	(SiO_2)	63.5 to 65 per cent
Alumina	(Al_2O_3)	4 to 4.5 per cent
Lime	(CaO)	14 to 14.5 per cent
Magnesia	(MgO)	2.5 to 3 per cent
Boric Oxide	(B_2O_3)	5 to 6.5 per cent
Iron	(Fe_2O_3)	0.3 per cent
Sodium Oxide	(Na_2O)	7 to 9 per cent
Potassium Oxide	(K_2O)	0.7 to 1 per cent

Figure 3

SCHEMATIC LAYOUT OF RIG FOR COMPARATIVE TEST

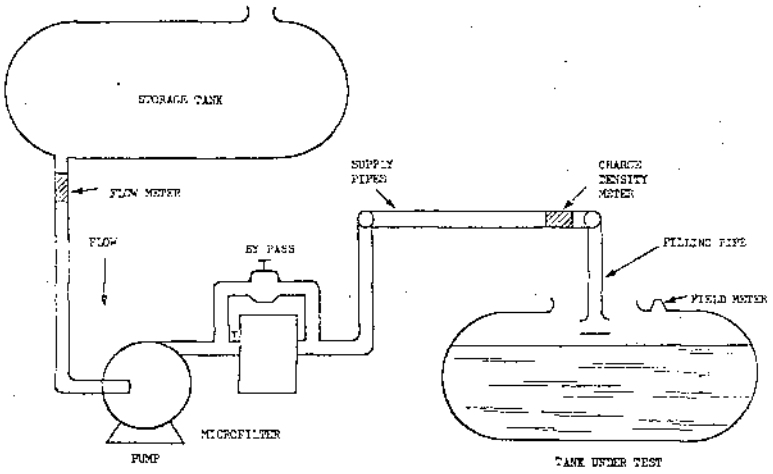


Figure 1

Device for measuring impact resistance by means of a spherically-ended falling weight

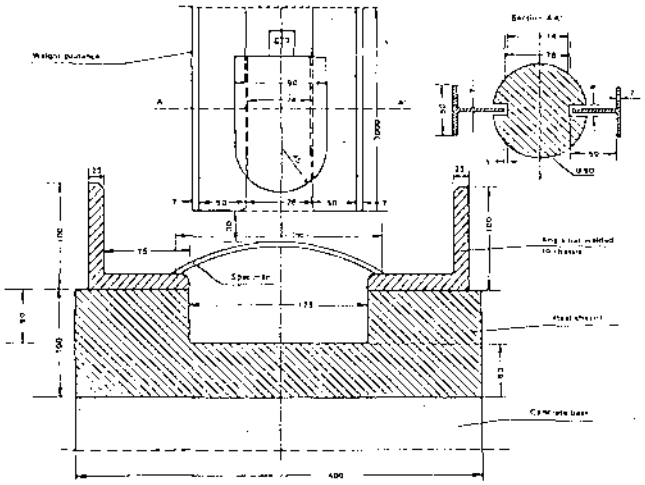
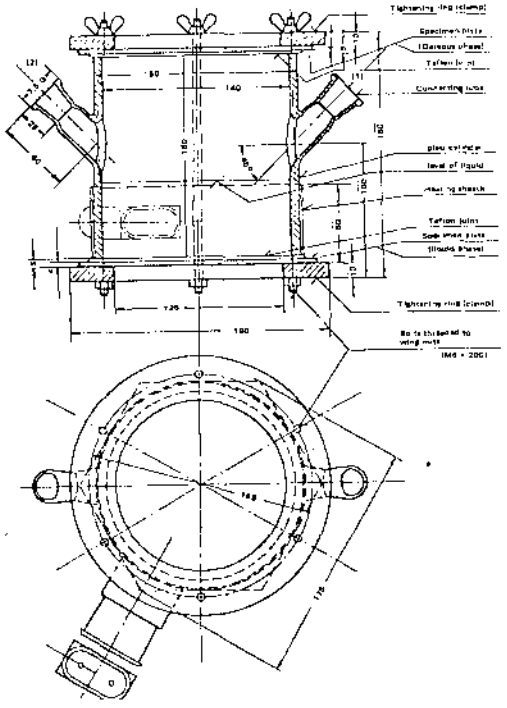


Figure 2

Device to test resistance to chemical agents



REQUIREMENTS CONCERNING THE MATERIALS AND CONSTRUCTION OF FIXED WELDED TANKS, OF DEMOUNTABLE WELDED TANKS, AND OF WELDED SHELLS OF TANK-CONTAINERS FOR WHICH A TEST PRESSURE OF NOT LESS THAN 1 MPa (10 BAR) IS REQUIRED, AND OF WELDED FIXED TANKS, WELDED DEMOUNTABLE TANKS AND WELDED SHELLS OF TANK-CONTAINERS INTENDED FOR THE CARRIAGE OF DEEPLY-REFRIGERATED LIQUEFIED GASES OF CLASS 2.

214000
-214249

(1) Shells intended for the carriage of substances of Class 2, 1° to 6° and 9°, Class 4.2, 3° or Class 8, 6°, shall be made of steel. 214250

(2) Shells intended for the carriage of deeply-refrigerated liquefied gases of Class 2 shall be made of steel, aluminium, aluminium alloy, copper or copper alloy, e.g., brass. However, shells made of copper or copper alloy shall be allowed only for gases containing no acetylene; ethylene, however, may contain not more than 0.005 per cent acetylene.

(3) Only materials appropriate to the lowest and highest working temperature of the shells and of their fittings and accessories may be used.

The following materials shall be allowed for the manufacture of shells: 214251

(a) steels not subject to brittle fracture at the lowest working temperature (see marginal 214265).

The following may be used:

1. mild steels (except for gases of Class 2.7° and 8°);

2. fine-grained unalloyed steels, down to a temperature of -60°C;

3. nickel steels (with a nickel content of 0.5 to 9 per cent), down to a temperature of -196°C, depending on the nickel content;

4. austenitic chrome-nickel steels, down to a temperature of -270°C;

(b) aluminium not less than 99.5 per cent pure, or aluminium alloys (see marginal 214266);

(c) deoxidized copper not less than 99.9 per cent pure; or copper alloys having a copper content of over 56 per cent (see marginal 214267).

(1) Shells made of steel, aluminium or aluminium alloys shall be either seamless or welded. 214252

(2) Shells made of austenitic steel, copper or copper alloys may be hard-soldered.

The fittings and accessories may either be screwed to the shells or be secured thereto as follows: 214253

(a) shells made of steel, aluminium or aluminium alloy: by welding;

(b) shells made of austenitic steel, of copper or of copper alloy: by welding or hard-soldering.

The construction of shells and their attachment to the vehicle, to the underframe or in the container frame shall be such as to preclude with certainty any such reduction in the temperature of the load-bearing components as would be likely to render them brittle. The means of attachment of shells shall themselves be so designed that even when the shell is at its lowest working temperature they still possess the necessary mechanical properties. 214254

214255
-214264

1. Materials and shells

(a) Steel shells

The materials need for the manufacture of shells and the weld beads shall, at their lowest working temperature, but at least at -20°C, meet at least the following requirements as to impact strength. 214265

The tests may be conducted with test-pieces having either a U-shaped or a V-shaped notch.

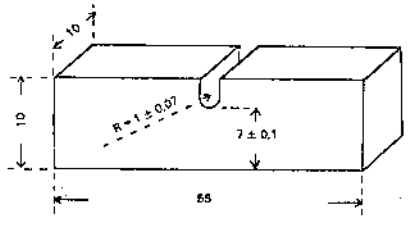
Material	Impact strength[1] [2] of sheet metal and weld beads at lowest working temperature	
	J/cm² [3]	J/cm² [4]
Mild steel and fine-grained steel, killed	34.3	27.5
Ferritic alloy steel Ni < 5%	34.3	21.6
Ferritic alloy steel 5% ≤ Ni ≤ 9%	44.1	34.3
Austenitic Cr-Ni steel	39.2	31.4

[1] Impact strengths determined with different test-pieces are not mutually comparable.

[2] See marginals 214275 to 214277.

[3] The values relate to test-pieces with a U-shaped notch as illustrated below.

[4] The values relate to test-pieces with a V-shaped notch conforming to ISO R 148.



In the case of austenitic steels, only the weld bead need be subjected to an impact-strength test.

For working temperatures below -196°C the impact-strength test is not performed at the lowest working temperature, but at -196°C.

(b) Shells made of aluminium or aluminium alloys

The seams of shells shall meet the requirements laid down by the competent authority. 214266

(c) Shells made of copper or copper alloy

It is not necessary to carry out tests to determine whether the impact strength is adequate. 214267

214268
-214274

2. Tests

(a) Impact-strength tests

The impact strengths indicated in marginal 214265 relate to test-pieces measuring 10 × 10 mm and having a U-shaped or a V-shaped notch. 214275

NOTES: 1. With regard to the shape of the test-piece, see marginal 214265 (table), footnotes [3] and [4].

2. For sheets less than 10 mm but not less than 5 mm thick, test-pieces with a cross-section of 10 × e mm, where "e" represents the thickness of the sheet, shall be used. Such impact-strength tests generally yield higher values than do such tests on standard test-pieces.

3. No impact-strength test shall be carried out on sheets less than 5 mm thick, or on their seams.

(1) For testing sheets the impact strength shall be determined on three test-pieces. Test-pieces with a U-shaped notch shall be taken at right angles to the direction of rolling and test-pieces with a V-shaped notch in the direction of rolling. 214276

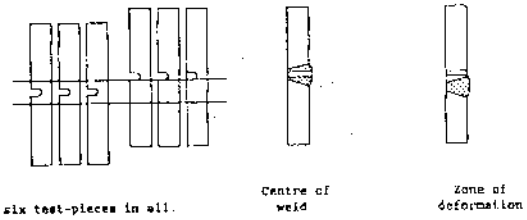
(2) For testing seams the test-pieces shall be taken as follows:

e ≤ 10

three test-pieces from the centre of the weld:

three test-pieces from the zone of deformation created by the weld (the notch shall be completely outside the melted area but as near to it as possible):

ΣΧΗΜΑ

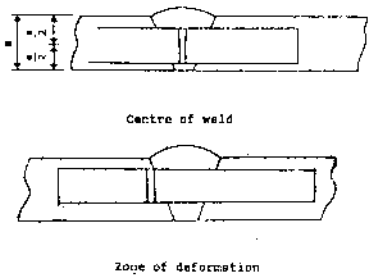


The test-pieces shall be so machined as to have the maximum possible thickness.

10 < e ≤20

three test-pieces from the centre of the weld:

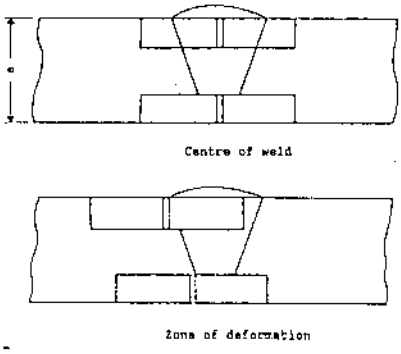
three test-pieces from the zone of deformation:



i.e. six test-pieces in all.

e > 20

Two sets of three test-pieces (one set on the upper face, one set on the lower face) at each of the points indicated below:



i.e. twelve test-pieces in all.

(1) For sheets, the average of the three tests shall meet the minimum values indicated in marginal 214265; none of the values may be more than 30 per cent below the minimum shown. 214277

(2) For welds, the average values obtained from the test-pieces taken at the different points, centre of weld and zone of deformation, shall correspond to the minimum values indicated. None of the values may be more than 30 per cent below the minimum indicated.

214278
-214284

(b) Determination of bending coefficient

(1) The bending coefficient k referred to in marginal 214266 is defined as follows: 214285

$$k = 50 \frac{e}{r},$$

where

e = thickness of the sheet in mm; and

r = mean radius of curvature in mm of the test-piece when the first crack appears in the tension zone.

(2) The bending coefficient k shall be determined for the seam. The width of the test piece shall be eaual to 3 e.

(3) Four tests shall be performed on the seam, two with the root in the compression zone (fig. 1) and two with the root in the tension zone (fig. 2); all individual values obtained shall meet the minimum-value requirements of marginal 214266.



fig. 1



fig. 2

214 286-
219 999

Appendix B.2

ELECTRICAL EQUIPMENT

The electrical equipment of vehicles shall meet the following requirements: 220000

Requirements applicable to the electrical equipment as a whole

(a) Wiring: Conductors shall be generously dimensioned to prevent overheating. They shall be appropriately insulated. Circuits shall be protected against excess current by fuses of automatic cut-outs. The wiring shall be firmly attached and so placed that the conductors are protected against impacts, projected stones and heat emitted by the exhaust system.

(b) 1. Battery master switch: In the case of vehicles used for the carriage of inflammable dangerous goods in tanks (fixed or demountable) or in batteries of receptacles, a switch for breaking all the electrical circuits shall be placed as close to the battery as possible. A direct or remote control system shall be installed in the driving cab and outside the vehicle. It shall be easily accessible and distinctively marked. The switch shall be openable while the engine is running without causing a dangerous surge. The electrical supply to the tachograph may, however, be provided by a circuit connected direct to the battery. Except in the case of vehicles used for the carriage of hydrogen of Class 2, 1°(b) and 7°(b), or carbon disulphide of Class 3,1°(α), the battery master switch, the tachograph and their respective circuits shall be intrinsically safe category Ex ib for Group II B T4 (7.8 per cent ethylene in air). In the case of hydrogen or carbon disulphide, this equipment and related circuits shall be intrinsically safe category Ex ib for Group II C (20 per cent hydrogen in air) [1].

2. Storage batteries: If the batteries are situated elsewhere than under the engine bonnet, they shall be secured in a vented case of metal or another material of equivalent strength, with insulating inner walls.

Requirements applicable to the part of the electrical equipment situated behind the driver's cab

(c) The whole of this equipment shall be so designed, installed and protected as not to be able to cause ignition or short circuiting in normal conditions of use of the vehicles and as to reduce to a minimum the risk of either occurrence in the event of impact or distortion.

In particular:

1. Wiring: Conductors (see (a)) shall consist of cables protected by seamless and rust-proof casings.

2. Lighting: Screw-cap bulbs shall not be used. If the lamps in the body of the vehicle are not fixed in parts of the walls or ceiling so strengthened as to protect them against any mechanical damage, they should be protected by a strong cage or grid.

220001

The inflammable gases and articles of Class 2 referred to in marginal 10251(a) are the following: 220002

(a) Compressed gases
Hydrogen of 1°(b)
Methane of 1°(b)
Carbon monoxide of 1°(bt)
Mixtures of gases of 2°(b)
Synthetic gases of 2°(bt)
Town gas of 2°(bt)
Water gas of 2°(bt)

(b) Liquefied gases
Butane of 3°(b)
l-Butylene of 3°(b)
Cyclopropane of 3°(b)
Dimethyl ether of 3°(b)
Isobutane of 3°(b)
Isobutylene of 3°(b)
Propane of 3°(b)
Propylene of 3°(b)
Ethyl chloride of 3°(bt)
Methyl chloride of 3°(bt)
Ethylamine of 3°(bt)
Hydrogen sulpide of 3°(bt)
Methylamine of 3°(bt)
Methyl mercaptan of 3°(bt)
Trimethylamine of 3°(bt)
Butadienes of 3°(c)
Vinyl chloride of 3°(c)
Vinyl bromide of 3°(c)
Cyanogen chloride of 3°(ct)
Ethylene oxide of 3°(ct)
Gaseous mixtures A, AO, Al, B or C of 4°(b)
Ethane of 5°(b)
Ethylene ane of 5°(b)

(c) Deeply-refrigerated liquefied gases
The gases of 7°(b) and 8°(b)

(d) Gases dissolved under pressure
Acetylene of 9°(c)

(e) Articles containing gas
Aerosol dispensers of 10°(b) and (bt).

220003
-229999

[1] See European Standards EN 50014 and 50020.

Appendix B.3

(see marginal 10282)

230000
-239999

CERTIFICATE OF APPROVAL FOR VEHICLES CARRYING CERTAIN DANGEROUS GOODS

1. CERTIFICATE NO._____
2. testifying that the vehicle specified below fulfils the conditions prescribed by the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) for its acceptance for the international carriage of dangerous goods by road.

3. Valid until .....
4. This certificate must be returned to the issuing service when the vehicle is taken out of service; if the vehicle is transferred to another owner: on expiry of the validity of the certificate: and if there is a material change in one or more essential characteristics of the vehicle.
5. Type of vehicle: closed vehicle, open vehicle, tank-vehicle with/without closed/open trailer/semi-trailer (strike out words which do not apply) .....
.....
.....
6. Name and business address of carrier (owner) ...
.....
7. Registration number (if none: chassis number) ...
8. The vehicle described above has undergone at ... the inspection prescribed by ADR, Annex B, marginal 10282 and fulfills the conditions required for its acceptance for the international carriage by road of dangerous goods of Classes .....
.....
item numbers .....
9. Remarks .....
.....
.....
.....
.....
10. ..... 19....
11. Signature and stamp of issuing service at .....
12. The validity of this certificate is extended until ...
13. Signature and stamp of issuing service at .....
14. The validity of this certificate is extended until ...
15. Signature and stamp of issuing service at .....
16. The validity of this certificate is extended until ...
17. Signature and stamp of issuing service at .....

NOTES:

1. The dimensions of the certificate shall be 210 ×297 mm (format A 4). Both front and back shall be used. The colour shall be white, with a pink diagonal stripe.

2. Every trailer shall be the subject of a separate certificate unless it is covered by the certificate of the vehicle to which it is coupled.

3. Where a certificate is issued pursuant to article 4, paragraph 2, of the Agreement to a vehicle whose construction does not entirely conform to the requirements laid down in Annex B, the certificate's validity shall not extend beyond the duration of the derogation granted by the said article 4, and the text of paragraph 8 of the certificate of approval shall be replaced by the following: "the vehicle described above does nto entirely conform to the requirements laid down in Annex B, but is entitled to the benefit of the provisions of article 4, paragraph 2, of the Agreement".

Appendix B.4

TABLES CONCERNING THE CARRIAGE OF DANGEROUS SUBSTANCES OF CLASS 7: LABEL TO BE PLACED ON VEHICLES CARRYING THESE SUBSTANCES

The minumum distances indicated in the table below between radioactive substances and areas on vehicles reserved for the driving and accompanying personnel are compatible with the provisions of marginal 3659(8). 240000

Total sum of transport index	Minimum distances in metres, no shielding material intervening, from living accommodations or regularly occupied working space Applicable data in the case of exposure time not exceeding 250 hours per annum
Less than 2	1.0
2 to 4	1.5
4 to 8	2.5
8 to 12	3.0
12 to 20	4.0
20 to 30	5.0
30 to 40	5.5
40 to 50	6.5

The minimum safety distances referred to in marginal 3657 for the loading and storage of packages which bear a label "FOTO" together with packages of Category II - YELLOW or Category III - YELLOW are given in the following table. 240001

Separation distances for the loading and the storage of packages which bear a label with the word FOTO together packages of Categories II - YELLOW or III - YELLOW.

Total sum of the packages of the category		Total sum of the transport index	Journey or storage duration, in hours							
YELLOW III	YELLOW II		1	2	4	10	24	48	120	240
			Minimum distances in metres							
		0.2	0.5	0.5	0.5	0.5	1	1	2	3
		0.5	0.5	0.5	0.5	1	1	2	3	5
	1	1	0.5	0.5	1	1	2	3	5	7
	2	2	0.5	1	1	1.5	3	4	7	9
	4	4	1	1	1.5	3	4	6	9	13
	8	8	1	1.5	2	4	6	8	13	18
1	10	10	1	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

240002
-240009

The label to be affixed to the walls of vehicles pursuant to the provisions of marginals 3659(6) and 71500(2) shall conform to the model No.7D reproduced below: 240010



(Minimum length of side: 15 cm)
Symbol and inscription black
on white ground

240011
-249999

Appendix B.5

List of substances and identification numbers 250000

(1) The hazard identification number consists of two or three figures. In general, the figures indicate the following hazards:

2 Emission of gas due to pressure or to chemical reaction
3 Inflammability of liquids (vapours) and gases
4 Inflammability of solids
5 Oxidizing (fire-intensifying) effect
6 Toxicity
8 Corrosivity
9 Risk of spontaneous violent reaction

Doubling of a figure indicates an intensification of that particular hazard.

Where the hazard associated with a substance can be adequately indicated by a single figure, this is followed by a zero.

The following combinations of figures, however, have a special meaning: 22, 333, 423, 44 and 539, see (2) below.

If a hazard identification number is prefixed by the letter "X", this indicates that the substance will react dangerously with water.

(2) The hazard identification numbers listed in paragraph (3) have the following meanings:

20 inert gas
22 refrigerated gas
223 refrigerated inflammable gas
225 refrigerated oxidizing (fire-intensifying) gas
23 inflammable gas
236 inflammable gas, toxic
239 inflammable gas, which can spontaneously lead to violent reaction
25 oxidizing (fire-intensifying) gas
26 toxic gas
265 toxic gas, oxidizing (fire-intensifying)
266 highly toxic gas
268 toxic gas, corrosive
286 corrosive gas, toxic
30 inflammable liquid (flash-point between 21°C and 100°C)
33 highly inflammable liquid (flash-point below 21°C)
X333 spontaneously inflammable liquid, which reacts dangerously with water
336 highly inflammable liquid, toxic
338 highly inflammable liquid, corrosive
X338 highly inflammable liquid, corrosive, which reacts dangerously with water
339 highly inflammable liquid which can spontaneously lead to violent reaction
39 inflammable liquid, which can spontaneously lead to violent reaction
40 inflammable solid
X423 inflammable solid which reacts dangerously with water, emitting inflammable gases
44 inflammable solid, in the molten state at an elevated temperature
446 inflammable solid, toxic, in the molten state, at an elevated temperature
46 inflammable solid, toxic
50 oxidizing (fire-intensifying) substance
539 inflammable organic peroxide
558 strongly oxidizing (fire-intensifying) substance, corrosive

559 strongly oxidizing (fire-intensifying) substance, which can spontaneously lead to violent reaction
589 oxidizing (fire-intensifying) substance, corrosive, which can spontaneously lead to violent reaction
60 toxic or harmful substance
63 toxic or harmful substance, inflammable (flash-point between 21°C and 55°C)
638 toxic or harmful substance, inflammable (flash-point between 21°C and 55°C), corrosive
66 highly toxic substance
663 highly toxic substance, inflammable (flash-point not above 55°C)
68 toxic or harmful substance, corrosive
69 toxic or harmful substance, which can spontaneously lead to violent reaction
80 corrosive or slightly corrosive substance
X80 corrosive or slightly corrosive substance, which reacts dangerously with water
83 corrosive or slightly corrosive substance, inflammable (flash-point between 21°C and 55°C)
839 corrosive or slightly corrosive substance, inflammable (flash-point between 21°C and 55°C) which can spontaneously lead to violent reaction
85 corrosive or slightly corrosive substance, oxidizing (fire-intensifying)
856 corrosive or slightly corrosive substance, oxidizing (fire-intensifying) and toxic
86 corrosive or slightly corrosive substance, toxic
88 highly corrosive substance
X88 highly corrosive substance, which reacts dangerously with water
883 highly corrosive substance, inflammable (flash-point between 21°C and 55°C)
885 highly corrosive substance, oxidizing (fire-intensifying)
886 highly corrosive substance, toxic
X886 highly corrosive substance, toxic, which reacts dangerously with water
89 corrosive or slightly corrosive substance, which can spontaneously lead to violent reaction

(3) The identification numbers referred to in marginal 10500 are listed in tables I and II below.

NOTES

1. The identification numbers to be shown on the orange plates should be looked for first in table I. If in the case of substances of Classes 3, 6.1 and 8 the name of the substance to be carried or the collective heading which covers it is not listed in table I, the identification numbers are to be taken from table II.

2. The danger labels prescribed under marginals 10130 and 10500 (6) take precedence over the labelling indicated in column (e) of tables I and II.

Appendix B.5

Table I

Substances listed under their chemical names or under collective headings which are given a specific «substances identification number» (column (d)). For solutions and mixtures of substances, see also marginal 2002 (8) and (9). This table also includes substances not shown in the class lists of substances, but which nevertheless fall within the classes and item numbers shown in column (b). For substances of Classes 3, 6.1 and 8 not included in this table, see table II. Substances are listed in alphabetical order.

The sign «++» in column (e) means: Labelling of tank - containers and batteries of receptacles to be in accordance with the requirements in marginal 21130, labelling of vehicles with fixed or demountable tanks to be in accordance with the requirements of marginal 21500. The sign «—» in column (e) means: No label prescribed.

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Acetal (1,1-Diethoxyethane)	3, 3°(b)	33	1088	3
Acetaldehyde (Aldehyde)	3, 1°(a)	33	1089	3
Acetic acid glacial and aqueous solutions of acetic acid containing more than 80 per cent pure acid	8, 32°(b)	83	2789	8 + 3
Acetic acid containing from 50 to 80 per cent pure acid	8, 32°(c)	80	2790	8
Acetic anhydride	8, 32°(b)	83	1715	8 + 3
Acetoin (Acetylmethylcarbinol)	3, 31°(c)	30	2621	3
Acetone	3, 3°(b)	33	1090	3
Acetone cyanohydrin	6.1, 11°(a)	66	1541	6.1
Acetonitrile	3, 11°(b)	336	1648	3 + 6.1
Acetyl acetone: see Pantan -2, 4-dione				
Acetyl bromide	8, 36°(b)	80	1716	8
Acetyl cloride	3, 25°(b)	X338	1717	3 + 8
Acetylene tetrabromide: see 1,1,2,2-Tetrabromoethane				
Acetylene tetrachloride: see 1,1,2,2-Tetrachloroethane				
Acetylmethylcarbinol: see Acetoin				
Acrolein	3,.17°(a)	336	1092	3 + 6.1
Acrylamide	6.1,12°(c)	60	2074	6.1A
Acrylamide, solutions of	6.1, 12°(c)	60	2074	6.1A
Acrylic acid	8, 32°(b)	89	2218	8 + 3
Acrylonitrile	3, 11°(a)	336	1093	3 + 6.1
Adiponitrile	6.1, 12°(c)	60	2205	6.1A

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Air, liquid, deeply-refrigerated	2. 8°(a)	225	1003	5
Alcohols, liquid, non-toxic, pure or in mixtures, not otherwise specified in this Appendix				
- having a flash-point between 21°C and 55°C (limit values included)	3. 31°(c)	30	1987	3
- having a flash-point above 55°C	3. 32°(c)	30	1987	–
Aldehyde: see Acetaldehyde				
Aldehydes, not otherwise specified in this Appendix				
- having a flash-point below 21°C	3. 3°(b)	33	1989	3
- having a flash-point between 21°C and 55°C (limit values included)	3. 31°(c)	30	1989	3
- having a flash-point above 55°C	3. 32°(c)	30	1989	–
Aldol (beta-Hydroxybutyraldehyde)	6.1. 13°(b)	60	2839	6.1
Alkaline inorganic substances, solutions of, not otherwise specified in this Appendix				
– corrosive	8.42°(b)	80	1719	8
– slightly corrosive	8. 42°(b)	80	1719	8
Alkyl phenols, with C_2-C_8 chains, not otherwise specified in this Appendix	6.1. 14°(c)	60	2430	6.1A
Alkyl sulphonic acids, not otherwise specified in this Appendix				
– containing more than 5 per cent free sulphuric acid,	8. 1°(b)	80	2584	8
– containing not more than 5 per cent free sulphuric acid, corrosive	8. 34°(b)	80	2586	8
– containing not more than 5 per cent free sulphuric acid, slightly corrosive	8. 34°(b)	80	2586	8
Allyl acetate	3. 17°(b)	336	2333	3 + 6.1
Allyl Alcohol	6.1. 13°(a)	663	1098	6.1 +3
Allylamine	3. 15°(a)	336	2334	3 + 6.1
Allyl bromide	3. 16°(a)	336	1099	3 + 6.1
Allyl chloride	3. 16°(a)	336	1100	3 + 6.1
Allyl chloroformate	8. 64°(a)	88	1722	8
Allyl ethyl ether	3. 17°(b)	336	2235	3 + 6.1
Allyl formate	3. 17°(a)	336	2236	3 + 6.1
Allyl glycidyl ether (1-Allyloxy-2, 3-epoxypropane)	3. 31°(c)	30	2219	3
Allyl isothiocyanate	6.1 20°(b)	69	1545	6.1 +3
1-Allyloxy-2, 3-epoxypropane: see Allyl glycid ether				
Allyl trichlorosilane	8. 37°(b)	839	1724	4.2 + 4.3
Aluminium alkyl halides	4.2. 3°	X333	2221	4.2 + 4.3
Aluminium alkyl halides solutions of	4.2. 3°	X333	2220	4.2 + 4.3
Aluminium alkyls:				
– Aluminium triethyl	4.2. 3°	X333	1102	4.2 + 4.3
– Aluminium triisobutyl	4.2. 3°	X333	1930	4.2 + 4.3
– Aluminium trimethyl	4.2. 3°	X333	1103	4.2 + 4.3
Aluminium bromide, anhydrous	8. 22°(b)	80	1725	8
Aluminium bromide, aqueous solutions of	8. 5°(c)	80	2580	8
Aluminium chloride, anhydrous	8. 22°(c)	80	1726	8
Aluminium chloride, aqueous solutions of	8. 5°(c)	80	2581	8
N-Aminoethylpiperazine	8. 53°(c)	80	2815	8
Aminophenols	6.1. 12°(c)	60	2512	6.1A
Ammonia	2. 3°(at)	268	1005	++
Ammonia dissolved in water containing more than 40 per cent but not more than 50 per cent ammonia by mass	2. 9°(at)	268	2073	++
Ammonia dissolved in water containing more than 35 per cent but not more than 40 per cent ammonia (NH_3) by mass	2. 9°(at)	268	2073	++
Ammonia solutions containing not less than 10 per cent and not more than 35 per cent ammonia	8. 43°(c)	80	2672	8
Ammonium bifluoride	8. 26°(b)	80	1727	8 + 6.1
Ammonium bifluoride, solutions of	8. 26°(b)	80	2817	8 + 6.1
Ammonium bisulphate containing 3 per cent or more free sulphuric acid	8. 23°(b)	80	2506	8

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Ammonium fluoride	6.1. 65°(c)	60	2505	6.1A
Ammonium nitrate, hot concentrated aqueous solutions of	5.1. 6°(a)	589	2426	5 + 8
Ammonium polysulphide, solutions of	8. 45°(b)	86	2818	8
Ammonium silicofluoride	6.1. 66°(c)	60	2854	6.1A
Ammonium sulphide, solutions of	8. 45°(b)	86	2683	8
Amyl acetates	3. 31°(c)	30	1104	3
n-Amyl alcohol	3. 31°(c)	30	1105	3
sec-Amyl alcohol	3. 31°(c)	30	1105	3
Amyl alcohol, tertiary	3. 3°(b)	33	1105	3
n-Amylamine	3. 22°(b)	338	1106	3 + 8
Amyl butyrates	3. 31°(c)	30	2620	3
Amyl chloryde	3. 3°(b)	33	1107	3
Amylene, normal (1-Pentene)	3. 1°(a)	33	1108	3
Amyl mercaptan	3. 3°(b)	33	1111	3
Amyl methyl ketone	3, 31°(c)	30	1110	3
Amyl nitrate	3. 31°(c)	30	1112	3
Amyltrichlorosilane	8. 37°(b)	80	1728	8
Aniline	6.1. 11°(b)	60	1547	6.1
Anisidines	6.1, 12°(c)	60	2431	6.1A
Anisole: see Phenyl methyl ether				
Anisoyl chloride	8. 35°(b)	80	1729	8
Antimony pentachloride ($SbCl_5$)	8. 21°(b)	80	1730	8
Antimony pentachloride, non aqueous solutions of	8. 21°(b)	80	1731	8
Antimony pentafluoride	8. 26°(b)	86	1732	8 + 6.1
Antimony trichloride ($SbCl_3$)	8. 22°(b)	80	1733	8
Argon, liquid, deeply-refrigerated	2. 7°(a)	22	1951	–
Arsenic acid, liquid	6.1. 51°(a)	66	1553	6.1
Arsenic acid, solid	6.1. 51°(b)	60	1554	6.1
Arsenical compounds, liquid, inorganic, not otherwise specified in this Appendix	6.1. 51°(a)	66	1556	6.1
Arsenic bromide	6.1. 51°(b)	66	1555	6.1
Arsenic chloride	6.1. 51°(a)	66	1560	6.1
Arsenic pentoxide	6.1. 51°(b)	60	1559	6.1
Arsenic trioxide (white arsenic)	6.1. 51°(b)	60	1561	6.1
Aryl sulphonic acids, not otherwise specified in this Appendix				
– containing more than 5 per cent free sulphuric acid	8. 1°(b)	80	2584	8
– containing not more than 5 per cent free sulphuric acid, corrosive	8. 34°(b)	80	2586	8
– containing not more than 5 per cent free sulphuric acid, slightly corrosive	8. 34°(c)	80	2586	8
Barium carbonate	6.1. 60°(c)	60	1564	6.1A
Barium oxide	6.1. 60°(c)	60	1884	6.1A
Benzene	3. 3°(b)	33	1114	3
Benzene sulphonyl chloride	3. 36°(c)	80	2225	8
Benzonitrile	6.1. 11°(b)	60	2224	6.1
Benzoquinone	6.1. 14°(b)	60	2587	6.1
Benzotrichloride (Trichloromethylbenzene)	8. 66°(b)	80	2226	8
Benzotrifluoride	3. 3°(b)	33	2338	3
Benzoyl chloride	8. 36°(b)	80	1736	8
Benzyl bromide	6.1. 15°(b)	60	1737	6.1
Benzyl chloride	6.1. 15°(b)	68	1738	6.1
Benzyl chloroformate	8. 64°(a)	88	1739	8
Benzyl cyanide (Phenylacetonitrile)	6.1. 12°(c)	60	2470	6.1A
Benzyl dimethylamine	8. 53°(b)	83	2619	8 + 3
Benzylidene chloride	6.1. 17°(b)	68	1886	6.1
Bicycloheptadiene	3. 3°(b)	33	2251	3
Bis-aminopropylamine (Dipropylenetriamine, 3, 3-Iminobisporylamine)	8. 53°(c)	80	2269	8
1,2-Bis (dimethylamino)ethane (Tetramethylene-diamine)	3. 31°(c)	30	2372	3
Boron tribromide (Boron bromide) (BBr_3)	8. 21°(a)	X88	2692	8
Boron trifluoride acetic acid complex	8. 33°(b)	80	1742	8
Boron trifluoride ether complex	8. 33°(b)	83	2604	8 + 3

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Boron trifluoride propionic acid complex	8, 33°(b)	80	1743	8
Boron trifluoride dihydrate	8, 33°(b)	80	2851	8
Bromine	8, 24°	886	1744	8 + 6.1
Bromine pentafluoride	8, 26°(a)	856	1745	8 + 6.1
Bromine trifluoride	8, 26°(a)	856	1746	8 + 6.1
Bromoacetic acid	8. 31°(b)	80	1938	8
Bromoacetone	6.1. 16°(b)	60	1569	6.1
omega-Bromoacetophenone: see Phenacyl bromide	8. 36°(b)	X80	2513	8
Bromoacetyl bromide	8, 36°(b)	X80	2513	8
Bromobenzene	3, 31°(b)	30	2514	3
alpha-Bromobenzyl cyanide	6.1, 17°(a)	66	1694	6.1
2-Bromobutane	3, 3°(b)	33	2339	3
Bromochlorodifluoromethane (R 12B1)	2, 3°(b)	20	1974	–
Bromochloromethane	6.1, 15°(b)	60	1887	6.1
1-Bromo-3-chloropropane	6.1, 15°(c)	60	2688	6.1A
2-Bromoethyl ethyl ether	3, 3°(b)	33	2340	3
Bromoform	6.1. 15°(c)	60	2515	6.1A
1-Bromo-3-methylbutane	3, 3°(b)	33	2341	3
Bromomethylpropanes	3, 3°(b)	33	2342	3
2-Bromopentane	3. 3°(b)	33	2343	3
Bromopropanes	3. 3°(b)	33	2344	3
Bromotrifluoromethane (R 13B1)	2. 5°(a)	20	1009	–
Butadienes	2. 3°(a)	239	1010	3
Butane	2. 3°(b)	23	1011	3
Butanedione (Diacetyl)	3. 3°(b)	33	2346	3
Butanol: see n-Butyl alcohol				
n-Butanol-2: see sec-Butyl alcohol				
Butanol, tertiary (tertiary Butyl alcohol)	3. 3°(b)	33	1120	3
1-Butene: see 1-Butylene				
cis-2-Butene: see cis-2-Butylene				
trans-2-Butene: see trans-2-Butylene				
Butoxyl (Methoxybutyl acetate)	3. 31°(c)	30	2708	3
n-Butyl acetate	3. 31°(c)	30	1123	3
Butyl acetate, secondary	3. 3°(b)	33	1123	3
Butyl acid phosphate	8. 38°(c)	80	1718	8
n-Butyl acrylate	3. 31°(c)	39	2348	3
n-Butyl alcohol (Butanol)	3. 31°(c)	30	1120	3
sec-Butyl alcohol (n-Butanol-2)	3. 31°(c)	30	1120	3
Butyl alcohol, tertiary: see Butanol, tertiary				
n-Butylamine	3. 22°(b)	338	1125	3 + 8
N-Butylanilines	6.1, 12°(b)	60	2738	6.1
Butyl benzenes	3. 31°(c)	30	2709	3
Butyl bromide, normal	3. 3°(b)	33	1126	3
Butyl chlorides (Chlorobutanes)	3. 3°(b)	33	1127	3
n-Butylchloroformate	6.1, 16°(b)	638	2743	6.1 + 3 + 8
tert-Butylcyclohexylchloroformate	6.1. 17°(c)	68	2747	6.1A + 8
1-Butylene (1-Butene)	2, 3°(b)	23	1012	3
cis-2-Butylene (cis-2-Butene)	2. 3°(b)	23	1012	3
trans-2-Butylene (trans-2-Butene)	2. 3°(b)	23	1012	3
n-Butyl ether: see Di-n-butyl ether				
n-Butyl formate	3. 3°(b)	33	1128	3
N,n-Butyl imidazole	6.1, 12°(b)	60	2690	6.1
Butyl isocyanate, normal	3. 14°(b)	336	2485	3 + 6.1
Butyl isocyanate, tertiary	3. 14°(a)	336	2484	3 + 6.1
Butyl mercaptan	3. 3°(b)	33	2347	3
n-Butyl methacrylate	3. 31°(c)	39	2227	3
Butyl methyl ether	3. 3°(b)	33	2350	3
Butylphenols, in the molten state	6.1. 14°(c)	60	2229	6.1A
Butylphenols, liquid	6.1, 14°(c)	60	2228	6.1A
Butyl propionate	3. 31°(c)	30	1914	3
Butyl toluenes	3. 32°(c)	30	2667	–
Butyltrichlorosilane	8. 37°(b)	83	1747	8 + 3
Butyl vinyl ether	3. 3°(b)	339	2352	3
2-Butyne: see Crotonylene				
Butyraldehyde	3. 3°(b)	33	1129	3
Butyraldoxime	3. 32°(c)	30	2840	–
n-Butyric acid	8. 32°(c)	80	2820	8

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Butyric anhydride	8. 32°(c)	80	2739	8
Butyronitrile	3. 11°(b)	336	2411	3 + 6.1
Butyryl chloride	3. 25°(b)	338	2353	3 + 8
Caesium hydroxide	8. 41°(b)	80	2682	8
Caesium hydroxide, aqueous solutions of	8. 42°(b)	80	2681	8
Calcium arsenate	6.1. 51°(b)	60	1573	6.1
Calcium chlorate, solutions of	5.1. 4°(a)	50	2429	5
Carbon dioxide	2. 5°(a)	20	1013	–
Carbon dioxide, liquid, deeply-refrigerated	2. 7°(a)	22	2187	–
Carbon dioxide containing not more than 6 per cent ethylene oxide by mass	2. 6°(c)	239	1952	++
Carbon dioxide containing more than 6 per cent but not more than 35 per cent ethylene oxide by mass	2. 6°(c)	239	1041	++
Carbon dioxide containing not less than 1 per cent and not more than 10 per cent oxygen by mass	2. 6°(a)	20	1014	–
Carbon disulphide	3. 18°(a)	336	1131	3 + 6.1
Carbon tetrabromide	6.1. 15°(c)	60	2516	6.1A
Carbon tetrachloride	6.1. 15°(b)	60	1846	6.1
Caustic potash: see Potassium hydroxide				
Caustic soda: see Sodium hydroxide				
Chloral: see Trichloroacetaldehyde				
Chlorine	2. 3°(at)	266	1017	++
Chloroacetaldehyde	6.1. 16°(b)	60	2232	6.1
Chloroacetic acid (Monochloroacetic acid), solid	8. 31°(b)	80	1751	8
Chloroacetic acid (Monochloroacetic acid), in the molten state	8. 31°(b)	80	1750	8
Chloroacetic acids, mixtures of	8. 32°(b)	80	1750	8
Chloroacetic acid, (Monochloroacetic acid), solutions of	8. 32°(b)	80	1750	8
Chloroacetone	6.1. 16°(b)	60	1695	6.1
omega-Chloroacetophenone: see Phenacyl chloride				
Chloroacetyl chloride	8. 36°(b)	X80	1752	8
Chloroanisidines	6.1. 17°(c)	60	2233	6.1A
Chlorobenzene (Phenyl chloride)	3. 31°(c)	30	1134	3
Chlorobenzotrifluorides	3. 31°(c)	30	2234	3
Chlorobenzyl chlorides	6.1. 17°(c)	60	2235	6.1A
Chlorobutanes: see Butyl chlorides				
Chlorocresols	6.1. 14°(b)	60	2669	6.1
1-Chloro-1, 1-difluoromethane (R 142b)	2. 3°(b)	23	2517	++
Chlorodifluoromethane (R 22)	2. 3°(b)	20	1018	–
Chlorodinitrobenzene	6.1. 12°(b)	60	1577	6.1
2-Chloroethanol: see Ethylene chlorohydrin				
Chloroform	6.1. 15°(b)	60	1888	6.1
Chloromethylchloroformate	6.1. 16°(b)	638	2745	6.1 + 3 + 8
Chloromethyl ethyl ether	3. 16°(b)	336	2354	3 + 6.1
3-Chloro-4-methylphenyl isocyanate	6.1. 19°(b)	60	2236	6.1
Chloronitroanilines	6.1. 17°(c)	60	2237	6.1A
Chloronitrobenzenes	6.1. 12°(b)	60	1578	6.1
Chloronitrotoluenes	6.1. 17°(c)	60	2433	6.1A
Chloropentafluoroethane (R115)	2. 3°(a)	20	1020	–
2-Chlorophenol	6.1. 16°(c)	68	2021	6.1A
3-Chlorophenol	6.1. 17°(c)	60	2020	6.1A
4-Chlorophenol	6.1. 17°(c)	60	2020	6.1A
Chlorophenyl trichlorosilane	8. 37°(b)	80	1753	8
Chloropicrin	6.1. 16°(a)	66	1580	6.1
Chloroprene	3. 16°(a)	336	1991	3 + 6.1
1-Chloropropane (Propyl chloride)	3. 2°(b)	33	1278	3
2-Chloropropane (Isopropyl chloride)	3. 2°(b)	33	2356	3
3-Chloropropane-1, 2-diol: see Glycerol alpha-monochlorohydrin				
3-Chloro-1-propanol	6.1. 16°(c)	60	2849	6.1A
1-Chloro-2-propanol	6.1. 16°(b)	63	2611	6.1 + 3
2-Chloropropene	3. 1°(a)	33	2456	3
2-Chloropropionic acid	8. 32°(c)	80	2511	8
2-Chloropyridine	6.1. 11°(b)	60	2822	6.1

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Chlorosilanes which do not give off inflammable gases on contact with water, not otherwise specified in this Appendix	3. 21°(a)	X338	2985	3 + 8
– having a flash-point below 21°C	3. 21°(a)	X338	2985	3 + 8
– having a flash-point between 21°C and 55°C (limit values included)	8. 37°(b)	83	2986	8 + 3
– having a flash-point above 55°C	8. 37°(b)	80	2987	8
Chlorosulphonic acid ($SO_2(OH)Cl$)	8. 21°(a)	88	1754	8
Chlorotoluenes	3. 31°(c)	30	2238	3
Chlorotoluidines	6.1. 17°(c)	60	2239	6.1A
1-Chloro-2.2.2-trifluoroethane (R 133a)	2. 3°(a)	20	1983	–
Chlorotrifluoroethane (R 13)	2. 5°(a)	20	1022	–
Chromic acid, solutions of	8. 11°(b)	80	1755	8
Chromic fluoride	8. 26°(b)	80	1756	8 + 6.1
Chromic fluoride, solutions of	8. 26°(b)	80	1757	8 + 6.1
Chromium oxychloride: see Chromyl chloride				
Chromosulphuric acid	8. 1°(a)	88	2240	8
Chromyl chloride (chromium oxychloride) (CrO_2Cl_2)	8. 21°(a)	88	1758	8
Collodions, semi-collodions, solutions of, and other nitrocellulose solutions				
– having a flash -point below 21°C and a boiling point not more than 35°C	3. 4°(a)	33	2059	3
– having a flash -point below 21°C and a boiling higher than 35°C	3. 4°(b)	33	2059	3
– having a flash -point between 21°C and 55°C (limit values included)	3. 33°(c)	30	2060	3
– having a flash -point above 55°C	3. 34°(c)	30	2060	–
Cresols	6.1. 14°(b)	60	2076	6.1
Cresylic acid	6.1. 14°(b)	60	2022	6.1
Crotonic aldehyde (Crotonaldehyde)	3. 3°(b)	33	1143	3
Crotonylene (2-Butyne)	3. 1°(a)	339	1144	3
Cumene (Isopropylbenene)	3. 31°(c)	30	1918	3
Cumyl hydroperoxide: see alpha, alpha-Dimethylbenzyl hydroprepoxide				
Cupriethymediamine, solutions of	8. 53°(b)	86	1761	8
Cyanides, inorganic solutions of	6.1. 41°(a)	66	1935	6.1
Cyanuric chloride	8. 27°(c)	80	2670	8
Cyclobutyl chloroformate	6.1. 16°(b)	638	2744	6.1 + 3 + 8
1.5.9-Cyclododecatriene	6.1. 24°(c)	60	2518	6.1A
Cycloheptane	3. 3°(b)	33	2241	3
Cycloheptene	3. 3°(b)	33	2242	3
Cyclohexane	3. 3°(b)	33	1145	3
Cyclohexanone	3.31°(c)	30	1915	3
Cyclohexene	3. 3°(b)	33	2256	3
Cyclohexenyltrichlorosilane	8. 37°(b)	80	1762	8
Cyclohexyl acetate	3. 32°(c)	30	2243	–
Cyclohexylamine	8. 53°(b)	83	2357	8 + 3
Cyclohexyl isocyanate	6.1. 18°(b)	63	2488	6.1+3
Cyclohexyltrichlorosilane	8. 37°(b)	80	1763	8
Cyclooctadiene	3. 31°(c)	30	2520	3
Cyclooctatetraene	3. 31°(c)	30	2358	3
Cyclopentane	3. 3°(b)	33	1146	3
Cyclopentanol	3. 31°(c)	30	2244	3
Cyclopentanone	3. 31°(c)	30	2245	3
Cyclopentene	3. 2°(b)	33	2246	3
Cyclopropane	2. 3°(b)	23	1027	3
Cymenes (Methyl isopropyl benzenes)	3. 31°(c)	30	2046	3
Decahydronaphthalene (Decalin)	3. 32°(c)	30	1147	–
n-Decane	3. 31°(c)	30	2247	3
Diacetone alcohol, technical	3. 3°(b)	33	1148	3
Diacetyl: see Butanedione				
Diallylamine	3. 22°(b)	338	2359	3+8
Dialyl ether	3. 17°(b)	336	2360	3+6.1
Diaminodiphenyl methane, in the molten state	6.1. 12°(c)	60	2651	6.1A
Di-n-amylamine	6.1. 12°(c)	60	2841	6.1A

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Dibenzyldichlorosilane	8. 37°(b)	80	2434	8
Dibromobenzenes	3. 32°(c)	30	2711	–
1,2-Dibromobutan-3-one	6.1. 16°(b)	60	2648	6.1
1,2-Dibromo-3-chloropropane	6.1. 15°(c)	60	2872	6.1A
sym-Dibromoethane: see Ethylene dibromide				
Dibromomethane: see Methylene bromide				
Di-(n-butyl) amine	8. 53°(b)	83	2248	8+3
Dibutylaminoethanol	6.1. 12°(c)	60	2873	6.1A
Di-n-butyl ether (n-Butyl ether)	3. 31°(c)	30	1149	3
Dichloroacetic acid	8. 32°(b)	80	1764	8
sym.-Dichloroacetone	6.1. 16°(b)	63	2649	6.1+3
Dichloroacetyl chloride	8, 36°(b)	X80	1765	8
Dichloroanilines	6.1. 12°(b)	60	1590	6.1
1,2-Dichlorobenzene	6.1. 15°(c)	60	1591	6.1A
1,2-Dichlorodiethyl ether	6.1. 16°(b)	63	1916	6.1+3
Dichlorodifluoromethane (R 12)	2. 3°(a)	20	1028	–
Dichlorodifluoromethane containing 12 per cent of ethylene oxide by mass	2. 4°(ct)	236	1028	+ +
1,1-Dichloroethane (Ethylidene chloride)	3. 3°(b)	33	2362	3
1,2-Dichloroethane (Ethylene dichloride)	3. 16°(b)	336	1184	3+6.1
1,2-Dichloroethylene	3. 3°(b)	33	1150	3
Dichlorofluoromethane (R 21)	2. 3°(a)	20	1029	–
1,3-Dichlorohydrin (1,3-Dichloro-2-propanol	6.1. 16°(b)	60	2750	6.1
Dichloroisopropyl ether	6.1, 16°(b)	60	2490	6.1
Dichloromethane: see Methylene chloride				
1,1-Dichloro-1-nitroethane	6.1. 16°(b)	60	2650	6.1
Dichloropentanes	3. 31°(c)	30	1152	3
Dichlorophenols	6.1. 17°(c)	60	2021	6.1A
3,4-Dichlorophenyl isocyanate	6.1. 19°(c)	60	2250	6.1
Dichlorophenyltrichlorosilane	8.37°(b)	80	1766	8
1.3-Dichloro-2-propanol: see 1.3-Dichlorohydrin				
1,3-Dichloropropene	3. 31°(c)	30	2047	3
1,2-Dichloro-1,1,2,2,- tetrafluoroethane (R 114)	2. 3°(a)	20	1958	–
Dicychlohexylamine	8. 53°(c)	80	2565	8
Dicyclopentadiene	3. 31°(c)	30	2048	3
1,1-Diethoxyethane: see Acetal				
1,2-Diethoxyethane (Ethylene glycol diethyl ether)	3. 31°(c)	30	1153	3
Diethoxymethante	3. 3°(b)	33	2373	3
3.3,-Diethoxypropene	3. 3°(b)	33	2374	3
Diethylamine	3. 22°(b)	338	1154	3+8
Diethylaminoethanol (N, N-Diethylethanolamine)	3. 32°(c)	30	2686	–
Diethylaminopropylamine	8, 53°(c)	80	2684	8
N,N-Diethylaniline	6.1. 12°(c)	60	2432	6.1A
Diethylbenzenes	3. 32°(c)	30	2049	–
Diethyl carbonate (Ethyl carbonate)	3. 31°(c)	30	2366	3
Diethyldichlorosilane	8. 37°(b)	83	1767	8+3
Diethylenediamine (Piperazine)	8. 52°(c)	80	2579	8
Diethylenetriamine	8. 53°(b)	80	2079	8
N, N-Diethylethanolamine: see Diethylaminoethanol				
N,N-Diethylethylenediamine	8. 53°(b)	83	2685	8+3
Diethyl ketone	3. 3°(b)	33	1156	3
Diethyl sulphate	6.1. 14°(b)	60	1594	6.1
Diethylthiophosphoryl chloride	8. 36°(b)	80	2751	8
1,1-Difluoroethane (R 152a)	2. 3°(b)	23	1030	+ +
1,1-Difluoroaethylene (Vinylidene fluoride)	2. 5°(c)	239	1959	3
Difluorophosphoric acid, anhydrous	8. 10°(b)	80	1768	8
2,3-Dihydropyran	3. 3°(b)	33	2376	3
Diisobutylamine	3. 31°(c)	30	2361	3
Diisobutylenes	3. 3°(b)	33	2050	3
Diisobutyl ketone	3. 31°(c)	30	1157	3
Diisooctyl acid phosphate	8. 38°(c)	80	1902	8
Diisopropylamine	3. 22°(b)	338	1158	3+8
Siisopropylbenzene hydroperoxide (isopropyl cumyl hydroperoxide) with 45 per cent of a mixture of alcohol and ketone	5.2. 18°	539	2171	5
N,N-Diisopropylethanolamine	8. 53°(c)	80	2825	8

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Diisopropyl ether	3. 3°(b)	33	1159	3
Diketene	3. 31°(c)	39	2521	3
1,1-Dimethoxyethane	3. 3°(b)	33	2377	3
1,2-Dimethoxyethane	3. 3°(b)	33	2252	3
Dimethoxymethane (Methylal)	3. 2°(b)	33	1234	3
Dimethylamine, anhydrous	2. 3°(bt)	236	1032	3+6.1
Dimethylamine, aqueous solutions of				
- having a boiling point not more than 35°C	3. 22°(a)	338	1160	3+8
- having a boiling point higher than 35°C	3. 22°(b)	338	1160	3+8
Dimethylaminoacetonitrile	6.1. 11°(b)	63	2378	6.1+3
Dimethylaminoethanol:see Dimethylethanolamine				
Dimethylaminoethyl methacrylate	6.1. 11°(b)	69	2522	6.1
N,N-Diethylaniline	6.1. 11°(b)	60	2253	6.1
Dimethylbenzenes: see Xylenes				
alpha, alpha-dimethylbenzyl hydroperoxide (Cumyl hydroperoxide) with a peroxide content not exceeding 95 per cent	5.2. 10°	539	2116	5
1,3-Diemthylbutylamine	3. 3°(b)	33	2379	3
N. N-Dimethylcarbamoyl chloride	8. 36°(b)	80	2262	8
Dimethyl carbonate	3. 3°(b)	33	1161	3
Dimethylcyclohexanes	3. 3°(b)	33	2263	3
N,N-Dimethylcylohexylamine	8. 33°(b)	83	2264	8+3
Dimethydichlorosilane	3. 21°(a)	X338	1162	3+8
Dimethyldiethoxysilane	3. 3°(b)	33	2380	3
Dimethyldioxanes				
- having a flash-point below 21°C	3. 3°(b)	33	2707	3
- having a flash-point between 21°C and 55°C (limit values included)	3. 31°(c)	30	2707	3
- having a flash-point above 55°C	3. 32°(c)	30	2707	–
Dimethyl disulphide	3. 3°(c)	33	2381	3
Dimethylethanolamine (Dimethylaminoethanol)	3. 31°(c)	30	2051	3
Dimethyl ether	2. 3°(c)	23	1033	3
N,N-Dimethylformamide	3. 32°(c)	30	2265	–
1,1-Dimethylhydrazine	3. 23°(a)	338	1163	3+8
1.2-Dimethylhydrazine	3. 15°(a)	336	2382	3+6.1
Dimethyl-N-propylamine	3. 22°(b)	338	2266	3+8
Dimethyl sulphate	6.1. 13°(a)	66	1595	6.1
Dimethyl sulphide	3. 2°(b)	33	1164	3
Dimethyl thiophosphoryl chloride	8. 36°(c)	80	2267	8
Dinitroanilines	6.1. 12°(b)	60	1596	6.1
Dinitrobenzenes	6.1. 12°(b)	60	1597	6.1
Dinitro-orthocresol	6.1. 75°(b)	60	1598	6.1
Dinitrotoluenes, solid	6.1. 12°(b)	60	2038	6.1
Dinitrotoluenes, molten	6.1; 12°(b)	60	1600	6.1
Dioxane	3. 3°(b)	33	1165	3
Dioxolane	3. 3°(b)	33	1166	3
Dipentene	3. 31°(c)	30	2052	3
Diphenyldichlorosilane	8. 37°(b)	80	1769	8
4,4-Diphenylmethane diisocyanate	6.1. 19°(c)	60	2489	6.1A
Diphenylmethyl bromide	8. 65°(b)	80	1770	8
Dipropylamine	3. 22°(b)	338	2383	3+8
Dipropylenetriamine: see Bis-aminopopylamine				
Dipropyl ether	3. 3°(b)	33	2384	3
Dipropyl ketone	3. 31°(a)	30	2710	3
Disulphur dichloride (S_2Cl_2)	8. 21°(a)	88	1828	8
Ditertiary butyl peroxide	5.2. 1°	539	2102	5
Dodecyltrichlorosilane	8. 37°(b)	80	1771	8
Enamels				
- having a flash-point below 21°C	3. 5°	33	1263	3
- having a flash-point between 21°C and 55°C (limit values included)	3. 31°(c)*	30	1263	3
- having a flash-point above 55°C	3. 32°(c)*	30	1263	–
Epibromohydrin	6.1. 16°(a)	66	2558	6.1
Epichlorohydrin	6.1. 16°(b)	63	2023	6.1+3
1,2-Epoxy-3-ethoxypropane	3. 31°(c)	30	2752	3
Ethane	2. 5°(b)	23	1035	+ +

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Ethane, liquid, deeply-refrigerated	2, 7°(b)	223	1961	+ +
Ethanol (Ethyl alcohol) and its aqueous solutions containing more than 70 per cent alcohol	3, 3°(b)	33	1170	3
Ethanol (Ethyl alcohol), aqueous solutions of, in concentration from 24 per cent up to and including 70 per cent	3, 31°(c)	30	1170	3
Ethanolamine and its solutions	8, 54°(c)	80	2491	8
2-Ethoxyethanol (Ethylene glycol monoethyl ether)	3, 31°(c)	30	1171	3
2-Ethoxyethyl acetate (Ethylene glycol monoethyl ether acetate)	3, 31°(c)	30	1172	3
Ethyl acetate	3, 3°(b)	33	1173	3
Ethyl acrylate	3, 3°(b)	339	1917	3
Ethyl acohol: see Ethanol				
Ethylamine, anhydrous	2, 3°(bt)	236	1036	3+6.1
Ethylamine, aqueous solutions of				
- having a boiling point not more than 35°C	3, 22°(a)	338	2270	3+8
- having a boiling point higher than 35°C	3, 22°(b)	338	2270	3+8
Ethyl amyl ketone	3, 31°(c)	30	2271	3
2-Ethylaniline	6.1, 12°(c)	60	2273	6.1A
N-Ethylaniline	6.1, 12°(c)	60	2272	6.1A
Ethylbenzene, technical	3, 3°(b)	33	1175	3
N-Ethyl-N-benzylaniline	6.1, 12°(c)	60	2274	6.1A
Ethyl bromide	6.1, 15°(b)	60	1891	6.1
Ethyl bromoacetate	6.1, 16°(b)	63	1603	6.1 + 3
2-Ethylbutanol	3, 32°(c)	30	2275	–
2-Ethylbutyl acetate	3, 31°(c)	30	1177	3
Ethyl butyl ether	3, 3°(b)	33	1179	3
Ethyl butyrate	3, 31°(c)	30	1180	3
Ethyl carbonate: see Diethyl carbonate				
Ethyl chloride	2, 3°(bt)	236	1037	+ +
Ethyl chloroacetate	6.1, 16°(b)	63	1181	6.1 + 3
Ethyl chloroformate	3, 16°(a)	336	1182	3 + 6.1
Ethyl crotonate	3, 3°(b)	33	1862	3
Ethyl cyanoacetate	6.1, 12°(c)	60	2666	6.1A
Ethyl dichlorosilane	4.3, 4°(b)	X338	1183	4.3 + 3 + 8
Ethylene	2, 5°(b)	23	1962	3
Ethylene, liquid, deeply - refrigerated	2, 7°(b)	223	1038	3
Ethylene chlorohydrin (2-Chloroethanol)	6.1, 16°(b)	60	1135	6.1
Ethylenediamine	8, 53°(b)	83	1604	8 + 3
Ethylene dibromide (sym.-Dibromoethane)	6.1, 15°(b)	60	1605	6.1
Ethylene dichloride: see 1,2-Dichloroethane				
Ethylene glycol diethyl ether: see 1, 2-Diethoxyethane				
Ethylene glycol monobutyl ether	6.1, 13°(c)	60	2369	6.1A
Ethylene glycol monoethyl ether: see 2-Ethoxyethanol				
Ethylene glycol monoethyl ether acetate: see 2-Ethoxyethyl acetate				
Ethylene glycol monomethyl ether acetate	3, 31°(c)	30	1189	3
Ethyleneimine	3, 12°	336	1185	3 + 6.1
Ethylene oxide containing not more than 10 per cent carbon dioxide by mass	2, 4°(ct)	236	1041	3 + 6.1
Ethylene oxide containing more than 10 per cent but more than 50 per cent carbon dioxide by mass	2, 64°(ct)	236	1041	3 + 6.1
Ethylene oxide containing carbon dioxide: see Carbon dioxide containing ethylene oxide				
Ethylene oxide with nitrogen	2, 4°(ct)	236	1040	3 + 6.1
Ethyl ether	3, 2°(a)	33	1155	3
Ethyl fluid	6.1, 31°(a)	66	1649	6.1
Ethyl formate	3, 3°(b)	33	1190	3
2-Ethyl hexaldehyde	3, 31°(c)	30	1191	3
2-Ethylhexylamine	8, 53°(c)	83	2276	8 + 3
2-Ethylhexyl chloroformate	6.1, 16°(b)	68	2748	6.1 + 8
Ethylidene chloride: see 1, 1-Dichloroethane				
Ethyl isobutyrate	3, 3°(b)	33	2385	3
Ethyl lactate	3, 31°(ψ)	30	1192	3

* See, however, NOTE under section D of marginal 2301.

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Ethyl mercaptan	3, 18°(β)	336	2363	3 + 6.1
Ethyl methacrylate	3, 3°(β)	339	2277	3
Ethyl methyl ketone	3, 3°(β)	33	1193	3
Ethyl orthoformate	3, 31°(ψ)	30	2524	3
Ethyl oxalate	6.1, 13°(ψ)	60	2525	6.1A
Ethyl phenyl dichlorosilane	8, 37°(β)	83	2435	8 + 3
1-Ethylpiperidine	3, 3°(β)	33	2386	3
Ethyl propionate	3, 3°(β)	33	1195	3
Ethyl propyl ether	3, 3°(β)	33	2615	3
Ethyl sulphide	3, 18°(β)	336	2375	3 + 6.1
Ethylsulphuric acid	8, 34°(β)	80	2571	8
Ethyltoluidines	6.1, 12°(β)	60	2754	6.1
Ethyltrichlorosilane	3, 21°(α)	X338	1196	3 + 8
Ferric chloride (Iron trichloride), anhydrous ($FeCl_3$)	8, 22°(ψ)	80	1773	8
Ferric chloride (Iron trichloride), aqueous solutions of	8, 5°(ψ)	80	2582	8
Fluoboric acid, aqueous solutions of, containing not more than 78 per cent pure acid (HBF_4)	8, 8°(β)	80	1775	8
Fluorobenzene	3, 3°(β)	33	2387	3
Fluorophosphoric acide, anhydrous	8, 10°(β)	80	1776	8
Fluorosulphonic acid	8, 10°(α)	88	1777	8
Fluorotoluenes	3, 3°(β)	33	2388	3
Fluosilicic adic (Hydrofluosilicic acid) (H_2SiF_6)	8, 9°(β)	80	1778	8
Formaldehyde, aqueous solutions of (e.g. Formalin), containing not less than 5 per cent formaldehyde, also containing not more than 35 per cent methanol				
– having a flash-point between 21°C and 55°C (limit values included)	8, 63°(ψ)	83	1198	8 + 3
– having a flash-point above 55°C	8, 63°(ψ)	80	2209	8
Formic acid containing more than 70 per cent pure adic	8, 32°(β)	80	1779	8
Formic acid containing from 50 to 70 per cent pure acid	8, 32°(ψ)	80	1779	8
Fumaryl chloride	8, 36°(β)	80	1780	8
Furan	3, 1°(α)	33	2389	3
Furfural (Furfuraldehyde)	3, 32°(ψ)	30	1199	–
Furfurylamine	8, 53°(ψ)	83	2526	8 + 3
Furfuryl alcohol	6.1, 13°(ψ)	60	2874	6.1A
Gas mixture R 500	2, 4°(α)	20	2602	–
Gas mixture R 502	2, 4°(α)	20	1973	–
Gas mixture R 503	2, 6°(α)	20	2599	–
Glycerol alpha-monochlorohydrin (3-Chloropropane-1, 2-diol)	6.1, 17°(ψ)	60	2689	6.1A
Glycidaldehyde	6.1, 13°(β)	63	2622	6.1 + 3
Helium, liquid, deeply-refrigerated	2, 7°(α)	22	1963	–
Heptanes	3, 3°(β)	33	1206	3
Heptanes	3, 3°(β)	33	2278	3
Hexachloroacetone	6.1, 17°(ψ)	60	2661	6.1A
Hexachlorobenzene	6.1, 17°(ψ)	60	2729	6.1A
Hexachlorobutadiene	6.1, 17°(ψ)	60	2279	6.1A
Hexachlorocyclopentadiene	6.1, 17°(α)	66	2646	6.1
Hexadecyltrichlorosilane	8, 37°(β)	80	1781	8
Hexadienes	3, 3°(β)	33	2458	3
Hexafluoroacetone hydrate	6.1, 17°(b)	60	2552	6.1
Hexafluoroethane (R 116)	2, 5°(a)	20	2193	–
Hexafluorophosphoric acid	8, 10°(b)	80	1782	8
Hexafluoropropylene (R 1216)	2, 3°(at)	26	1858	+ +
Hexaldehyde	3, 31°(c)	30	1207	3
Hexamethylenediamine	8, 52°(c)	80	2280	8
Hexamethylenediamine, solutions of	8, 53°(b)	80	1783	8
Hexamethylene diisocyanate	6.1, 19°(b)	60	2281	6.1
Hexamethyleneimine	3, 22°(b)	338	2493	3 + 8
Hexanes	3, 3°(b)	33	1208	3
1-Hexene	3, 3°(b)	33	2370	3
Hexyltrichlorosilane	8, 37°(b)	80	1784	8

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Hydrazine, aqueous solutions of, containing not more than 64 per cent hydrazine	8. 44°(b)	86	2030	8 + 6.1
Hydriodic acid, solutions of	8. 5°(b)	80	1787	8
Hydrobromic acid, solutions of	8. 5°(b)	80	1788	8
Hydrocarbons, liquid, pure or in mixtures, not otherwise specified in this Appendix				
– having a flash-point below 21°C	3. 3°(b)	33	1203	3
– having a flash-point below 21°C and 55°C (limit values included)	3. 31°(c)	30	1223	3
– having a flash-point above 55°C	3. 32°(c)	30	1202	–
Hydrochloric acid, solutions of	8. 5°(b)	80	1789	8
Hydrocyanic acid, aqueous solutions of, containing not more than 20 per cent pure acid	6.1. 2°	633	1613	6.1 + 3
Hydrofluoric acid and sulphuric acid mixtures	8. 7°(a)	886	1786	8 + 6.1
Hydrofluoric acid, anhydrous (Hydrogen fluoride)	8. 6°(a)	886	1052	8 + 6.1
Hydrofluoric acid, aqueous solutions of, containing more than 85 per cent anhydrous hydrofluoric acid	8. 6°	886	1790	8 + 6.1
Hydrofluoric acid, aqueous solutions of, containing more than 60 per cent but not more than 85 per cent anhydrous hydrofluoric acid	8. 7°(a)	886	1790	8 + 6.1
Hydrofluoric acid, aqueous solutions of, containing not more than 60 per cent anhydrous hydrofluoric acid	8. 7°(a)	886	1790	8 + 6.1
Hydrofluosilicic acid: see Fluosilicic acid				
Hydrogen, liquid, deeply-refrigerated	2. 7°(b)	223	1966	+ +
Hydrogen bromide	2. 3°(at)	286	1048	8 + 6.1
Hydrogen chloride	2. 5°(at)	286	1050	8 + 6.1
Hydrogen fluoride: see Hydrofluoric acid, anhydrous				
Hydrogen peroxide, stabilized and aqueous solutions containing more than 60 per cent hydrogen peroxide, stabilized	5.1. 1°	559	2015	5
Hydrogen peroxide, aqueous solutions of, containing not less than 20 per cent but not more than 60 per cent hydrogen peroxide	8. 62°(b)	85	2014	8 + 5
Hydrogen peroxide, aqueous solutions of, containing not less than 8 per cent but less than 20 per cent hydrogen peroxide	8. 62°(c)	85	2984	8 + 5
Hydrogen sulphide	2. 3°(bt)	236	1053	3 + 6.1
Hydrogen sulphides, aqueous solutions of, not otherwise specified in this Appendix	8. 45°(c)	80	1719	8
Hydroquinone	6.1. 14°(c)	60	2662	6.1A
beta-Hydroxybutyraldehyde: see Aldol				
Hydroxylamine sulphate	8. 27°(c)	80	2865	8
Hypochlorite solutions containing not less than 16 per cent available chlorine	8. 61°(b)	85	1791	8
Hypochlorite solutions containing more than 5 per cent but less than 16 per cent available chlorine	8. 61°(c)	85	1791	8
3,3-Imino-bis-propylamine: see Bis-aminopropylamine				
Iron pentacarbonyl	6.1. 3°	663	1994	6.1 + 3
Iron trichloride: see Ferric chloride				
Isoamyl formate	3. 31°(c)	30	1109	3
Isobutane	2. 3°(b)	23	1969	3
Isobutanol: see Isobutyl alcohol				
Isobutene: see Isobutylene				
Isobutyl acetate	3. 3°(b)	33	1213	3
Isobutyl acrylate	3. 31°(c)	39	2527	3
Isobutyl alcohol (Isobutanol)	3. 31°(c)	30	1212	3
Isobutylamine	3. 22°(b)	338	1214	3 + 8
Isobutylene (Isobutene)	2. 3°(b)	23	1055	3
Isobutylene trimer: see Triisobutylene				
Isobutyl formate	3. 3°(b)	33	2393	3
Isobutyl isobutyrate	3. 31°(c)	30	2528	3
Isobutyl isocyanate	3. 14°(b)	336	2486	3 + 6.1

Name of substances (a)	Class and item number (b)	Hazard identification No (upper part) (c)	Substance identification No (lower part) (d)	Label (e)
Isobutyl methacrylate	3. 31°(c)	39	2283	3
Isobutyl propianate	3. 31°(c)	30	2394	3
Isobutyraldehyde	3. 3°(b)	33	2045	3
Isobutyric acid	8. 32°(c)	80	2529	8
Isobutyric anhydride	8. 32°(c)	80	2530	8
Isobutyronitrile	3. 11°(b)	336	2284	3 + 6.1
Isobutyryl chloride	3. 25°(b)	338	2395	3 + 8
Isocyanates, solutions of, having a flash-point below 21°C	3. 14°(b)	336	2478	3 + 6.1
Isocyanatobenzotrifluorides	6.1. 18°(b)	60	2285	6.1 3
3-Isocyanatomethyl-3, 5, 5-trimethylcyclohexyl isocyanate: see Isophorone diisocyanate				
Isododecane: see Pentamethylheptane				
Isopentane	3. 1°(a)	33	1265	3
Isophoronediamine	8. 53°(c)	80	2289	8
Isophorone diisocyanate (3-Isocyanatomethyl-3. 5, 5-trimethylcyclohexyl isocyanate)	6.1. 19°(c)	60	2290	6.1A
Isoprene	3. 2°(a)	339	1218	3
Isopropanol (Isopropyl alcohol)	3. 3°(b)	33	1219	3
Isopropenyl acetate	3. 3°(b)	33	2403	3
Isopropyl acetate	3. 3°(b)	33	1220	3
Isopropyl acid phosphate	8. 38°(c)	80	1793	8
Isopropyl alcohol: see Isopropanol				
Isopropylamine	3. 22°(a)	338	1221	3 + 8
Isopropylbenzene: see Cumene				
Isopropyl butyrate	3. 3°(b)	33	2405	3
Isopropylchloride: see 2-Chloropropane				
Isopropyl cumyl hydroperoxide: see Diisopropylbenzene hydroperoxide				
Isopropylethylene: see 3-Methyl-1-butene				
Isopropyl isobutyrate	3. 3°(b)	33	2406	3
Isopropyl isocyanate	3. 14°(a)	336	2483	3 + 6.1
Isopropyl nitrate	3. 3°(b)	33	1222	3
Isopropyl propionate	3. 3°(b)	33	2409	3
Krypton, liquid, deeply-refrigerated	2. 7°(a)	22	1970	–
Lead acetate	6.1. 62°(c)	60	1616	6.1A
Lead alkyls with halogenated-organic compounds, mixtures of	6.1. 31°(a)	66	1649	6.1
Lead compounds, not otherwise specified in this Appendix	6.1. 62°(c)	60	2291	6.1A
Lead sulphate containing 3 per cent or more free sulphuric acid	8. 23°(b)	80	1794	8
Lithium hydroxide	8. 41°(b)	80	2680	8
Magnesium arsenate	6.1. 51°(b)	60	1622	6.1
Maleic anhydride	8. 31°(c)	80	2215	8
Malononitrile	6.1. 12°(b)	60	2647	6.1
p-Menthanyl hydroperoxide with a peroxide content not exceeding 95 per cent	5.2. 14°(a)	539	2125	5
Mercaptoethanol (Thioglycol)	6.1. 20°(b)	60	2966	6.1
Mercuric chloride	6.1. 52°(b)	60	1624	6.1
Mercury acetate	6.1. 52°(b)	60	1629	6.1
Mesitylene (1,3,5-Trimethylbenzene)	3. 31°(c)	30	2325	3
Mesityl oxide	3. 31°(c)	30	1229	3
Methacrylaldehyde	3. 17°(b)	336	2396	3 + 6.1
Methacrylic acid	8. 32°(c)	89	2531	8
Methallyl alcohol	3. 31°(c)	30	2614	3
Methane, liquid, deeply-refrigerated	2. 7°(b)	223	1972	3
Methanol (Methyl alcohol)	3. 17°(b)	336	1230	3 + 6.1
Methoxybutyl acetate: see Butoxyl				
4-Methoxy-4-methylpentan-2-one	3. 31°(c)	30	2293	3
Methoxyethanol	3. 31°(c)	30	1188	3
Methoxymethyl isocyanate	3. 14°(a)	336	2605	3 + 6.1
Methyl acetate	3. 3°(b)	33	1231	3
Methyl acrylate	3. 3°(b)	339	1919	3
Methylal: see Dimethoxymethane				
Methyl alcohol: see Methanol				

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Methyl allyl chloride	3. 3°(b)	33	2554	3
Methylamine, anhydrous	2. 3°(bt)	236	1061	+ +
Methylamine, aqueous solutions of				
– having a boiling point not more than 35°C	3. 22°(a)	338	1235	3 + 8
– having a boiling point higher than 35°C	3. 22°(b)	338	1235	3 + 8
Methyl amyl acetate	3. 31°(c)	30	1233	3
Methyl amyl alcohol (Methyl isobutyl carbinol)	3. 31°(c)	30	2053	3
N-Methylaniline	6.1, 11°(c)	60	2294	6.1A
Methyl bromide	2. 3°(at)	26	1062	6.1
Methyl bromoacetate	6.1, 16°(b)	63	2643	6.1 + 3
3-Methyl butan-2-one	3. 3°(b)	33	2397	3
2-Methyl-1-butene	3. 1°(a)	33	2459	3
3-Methyl-1-butene (Isopropylethylene)	3. 1°(a)	33	2561	3
2-Methyl-2-butene	3. 2°(b)	33	2460	3
Methyl tert-butyl ether	3. 3°(b)	33	2398	3
Methyl butyrate	3. 3°(b)	33	1237	3
Methyl chloride	2. 3°(bt)	236	1063	3 + 6.1
Methyl chloroacetate	6.1, 16°(b)	63	2295	6.1 + 3
Methyl chloroformate	3. 16°(a)	336	1238	3 + 6.1
Methylchloromethyl ether	3, 16°(b)	336	1239	3 + 6.1
Methylcyclohexane	3. 3°(b)	33	2296	3
Methylcyclohexanone	3. 31°(c)	30	2297	3
Methylcyclopentane	3. 3°(b)	33	2298	3
Methyl dichloroacetate	6.1, 16°(c)	60	2299	6.1A
Methyldichlorosilane	4.3, 4°(b)	X338	1242	4.3 + 3 + 8
Methylene bromide (Dibromomethane)	6.1, 15°(c)	60	2664	6.1A
Methylene chloride (Dichloromethane)	6.1, 15°(c)	60	1593	6.1A
2-Methyl-5-ethyl pyridine	6.1, 11°(c)	60	2300	6.1A
Methyl formate	3. 1°(a)	33	1243	3
2-Methylfuran	3. 3°(b)	33	2301	3
5-Methylhexan-2-one	3. 31°(c)	33	2302	3
Methylhydrazine	3. 23°(a)	338	1244	3 + 8
Methyl iodide	6.1. 15°(b)	60	2644	6.1
Methyl isobutyl carbinol: see Methyl amyl alcohol				
Methyl isobutyl ketone	3. 3°(b)	33	1245	3
Methyl isopropyl benzenes: see Cymenes				
Methyl isothiocyanate	6.1. 20°(c)	63	2477	6.1A + 3
Methyl isovalerate	3. 3°(b)	33	2400	3
Methyl mercaptan	2. 3°(bt)	236	1064	6.1 + 3
Methyl methacrylate	3. 3°(b)	339	1247	3
Methylmorpholines				
– having a flash-point below 21°C	3. 22°(b)	338	2535	3 + 8
– having a flash-point of 21°C or over	8. 53°(b)	83	2535	8 + 3
Methyl orthosilicate (Tetramethoxysilane)	3. 17°(a)	336	2606	3 + 6.1
Methylpentadienes	3. 3°(b)	33	2461	3
3-Methyl-2-pentene-4-yne-1-01: see 1-Pentol				
Methylphenyldichlorosilane	8. 37°(b)	83	2437	8 + 3
1-Methyl piperidine	3. 3°(b)	33	2399	3
Methyl propionate	3. 3°(b)	33	1248	3
Methyl propyl ether	3. 2°(b)	33	2612	3
Methyl propyl ketone	3. 3°(b)	33	1249	3
Methylpyridines: see Picolines				
alpha-Methylstyrene	3. 31°(c)	30	2303	3
Methyltetrahydrofuran	3. 3°(b)	33	2536	3
Methyl trichloroacetate	6.1. 16°(c)	60	2533	6.1A
Methyltrichlorosilane	3. 21°(a)	X338	1250	3 + 8
2-Methyl valeraldehyde	3. 3°(b)	33	2367	3
Methyl vinyl ether	2. 3°(et)	236	1087	+ +
Methyl vinyl ketone	3. 3°(b)	339	1251	3
Mixtures F 1, F 2 and F 3	2. 4°(a)	20	1078	–
Mixtures of 1,3-butadiene and hydrocarbons	2. 4°(c)	239	1010	+ +
Mixtures of caustic soda and quicklime: see Soda lime				
Mixtures of hydrocarbons (liquefied gas) (Mixtures A, A 0, A 1, B and C)	2. 4°(b)	23	1965	3
Mixtures of methylacetylene and propadiene with hydrocarbons				

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
(Mixtures P 1 and P 2)	2. 4°(c)	239	1060	3
Mixtures of methyl bromide and chloropicrin (liquefied gas)	2. 4°(at)	26	1581	+ +
Mixtures of methyl chloride and chloropicrin (liquefied gas)	2. 4°(bt)	236	1582	+ +
Mixtures of methyl chloride and methylene chloride (liquefied gas)	2. 4°(bt)	236	1912	+ +
Mixtures of sulphuric acid and more than 30 per cent pure nitric acid	8. 3°(a)	885	1796	8
Mixtures of sulphuric acid and not more than 30 per cent pure nitric acid	8. 3°(b)	88	1796	8
Molybdenum pentachloride ($MoCl_5$)	8. 22°(c)	80	2508	8
Monochloroacetic acid, solid: see Chloroacetic acid, solid				
Monochloroacetic acide, in the molten state: see Chloroacetic acid, in the molten state				
Monochloroacetic acid, solutions of: see Chloroacetic acid, solutions of				
Monochloroacetonitrile	6.1. 11°(b)	60	2668	6.1
Monochloroanilines, liquid	6.1. 12°(b)	60	2019	6.1
Monochloroanilines, solid	6.1. 12°(b)	60	2018	6.1
Mononitroanilines	6.1. 12°(b)	60	1661	6.1
Mononitrotoluenes	6.1. 12°(b)	60	1664	6.1
Morpholine	3. 31°(c)	30	2054	3
Naphthalene in the molten state	4.1. 11°(c)	44	2304	4.1
beta-Naphthylamine	6.1. 12°(b)	60	1650	6.1
Natural gas, liquid, deeply-refrigerated	2. 8°(b)	223	1972	3
Neon, liquid, deeply-refrigerated	2. 7°(a)	22	1913	–
Nickel tetracarbonyl	6.1. 3°	663	1259	6.1 + 3
Nicotine sulphate	6.1. 77°(b)	60	1658	6.1
Nitrating acid mixtures, spent	8. 3°(b)	80	1826	8
Nitric acid, red fumig	8. 2°(a)	856	2032	8
Nitric acid containing more than 70 per cent pure acid	8. 2°(a)	885	2032	8
Nitric acid containing mot more than 70 per cent pure acid	8. 2°(b)	80	2031	8
Nitric acid, mixtures with sulphuric acid: see Mixtures of sulphuric acid and nitric acid				
Nitroanisoles	6.1. 12°(c)	60	2730	6.1A
Nitrobenzene	6.1. 12°(b)	60	1662	6.1
Nitrobenzenesulphonic acid	8. 34°(b)	80	2305	8
Nitrobenzotrifluorides	6.1. 12°(b)	60	2306	6.1
Nitrobromobenzenes	6.1. 12°(c)	60	2732	6.1A
Nitrocellulose solutions: see Collodions, solutions of				
3-Nitro-4-chlorobenzotrifluoride	6.1. 12°(b)	60	2307	6.1
Nitrocresols	6.1. 12°(c)	60	2446	6.1A
Nitroethane	3. 31°(c)	30	2842	3
Nitrogen, liquid, deeply-refrigerated	2. 7°(a)	22	1977	–
Nitrogen dioxide NO_2 (Nitrogen peroxide, Nitrogen tetroxide N_2O_4)	2. 3°(at)	265	1067	5 + 6.1
Nitrophenols	6.1. 12°(c)	60	1663	6.1A
Nitropropanes	3. 31°(c)	30	2608	3
Nitrosylsulphuric acid	8. 1°(b)	88	2308	8
Nitrous oxide N_2O	2. 5°(a)	25	1070	5
Nitrous oxide N_2O, deeply-refrigerated	2. 7°(a)	225	2201	5
Nitroxylenes	6.1. 12°(b)	60	1665	6.1
Nonane	3. 31°(c)	30	1920	3
Nonyltrichlorosilane	8. 37°(b)	80	1799	8
Octadexyltrichlorosilane	8. 37°(b)	80	1800	8
Octadienes				
– having a flash-point below 21°C	3. 3°(b)	33	2309	3
– having a flash-point between 21°C and 55°C (Limit values included)	3. 31°(c)	30	2309	3
Octafluorocyclobutane (RC 318)	2. 3°(a)	20	1976	–
Octanes	3. 3°(b)	33	1262	3
Octyltrichlorosilane	8. 37°(b)	83	1801	8 + 3
Oleum (Sulphuric acid) fuming	8. 1°(a)	X886	1831	8 + 6.1

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Oxalates, soluble in water	6.1, 67°(c)	60	2449	6.1A
Oxygen, liquid, deeply refrigerated	2, 7°(a)	225	1073	5
Paints				
– having a flash-point below 21°C	3, 5°	33	1263	3
– having a flash-point between 21°C and 55°C (limit values included)	3, 31°(c)*	30	1263	3
– having a flash-point above 55°C	3, 32°(c)*	30	1263	
Paraldehyde	3, 31°(c)	30	1264	3
Pentachloroethane	6.1, 15°(b)	60	1669	6.1
Pentamethylheptane (Isododecane)	3, 31°(c)	30	2286	3
Pentan-2,4-dione (Acetyl acetone)	3, 31°(c)	30	2310	3
Pentane, normal	3, 2°(b)	33	1265	3
1-Pentene: see Amylene, normal				
1-Pentol (3-Methyl-2-pentene-4-yne-1-01)	8, 66°(b)	80	2705	8
Perchloric acid, aqueous solutions of, containig more than 50 per cent but not more than 72.5 per cent pure acid ($HClO_4$)	5.1, 3°	558	1873	5 + 8
Perchloric acid, aqueous solutions of, containig more than 50 per cent pure acid ($HClO_4$)	8, 4°(b)	85	1802	8
Perchloroethylene: see Tetrachloroethylene				
Perchloromethylmercaptan	6.1, 16°(a)	66	1670	6.1
Pesticides, organo-phosphorus compounds				
– solid	6.1, 71°(a)	66	2783	6.1
	71°(b)	60	2783	6.1
	71°(c)	60	2783	6.1A
–liquid, having a flash-point below 21°C	3, 19°	336	2784	3 + 6.1
	6°	33	2784	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1, 71°(a)	663	3017	6.1 + 3
	71°(b)	63	3017	6.1 + 3
	71°(c)	63	3017	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 71°(a)	66	3018	6.1
	71°(b)	60	3018	6.1
	71°(c)	60	3018	6.1A
Pesticides, chlorinated hydrocarbons solid	6.1, 72°(a)	66	2761	6.1
	72°(b)	60	2761	6.1
	72°(c)	60	2761	6.1A
– liquid, having a flash-point below 21°C	3, 19°	336	2762	3 + 6.1
	6°	33	2762	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1, 72°(a)	663	2995	6.1 + 3
	72°(b)	63	2995	6.1 + 3
	72°(c)	63	2995	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 72°(a)	66	2996	6.1
	72°(b)	60	2996	6.1
	72°(c)	60	2996	6.1A
Pesticides, chloro-phenoxyacetic derivatives				
– solid	6.1, 73°(a)	66	2765	6.1
	73°(b)	60	2765	6.1
	73°(c)	60	2765	6.1A
– liquid, having a flash-point below 21°C	3, 19°	336	2766	3 + 6.1
	6°	33	2766	3 + 6.1A
– liquid, having a flash-point below 21°C - 55°C	6.1, 73°(a)	663	2999	6.1 + 3
	73°(b)	63	2999	6.1 + 3
	73°(c)	63	2999	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 73°(a)	66	3000	6.1
	73°(b)	60	3000	6.1
	73°(c)	60	3000	6.1A
Pesticides, carbamates				
– solid	6.1, 76°(a)	66	2757	6.1
	76°(b)	60	2757	6.1
	76°(c)	60	2757	6.1A
– liquid, having a flash-point below 21°C	3, 19°	336	2758	3 + 6.1
	6°	33	2758	3 + 6.1A

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
– liquid, having a flash-point of 21°C - 55°C	6.1, 76°(a)	663	2991	6.1 + 3
	76°(b)	63	2991	6.1 + 3
	76°(c)	63	2991	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C				
	6.1, 76°(a)	66	2992	6.1
	76°(b)	60	2992	6.1
	76°(c)	60	2992	6.1A
Pesticides, thiocarbamates				
– solid	6.1, 76°(a)	66	2771	6.1
	76°)b)	60	2771	6.1
	76°(c)	60	2771	6.1A
– liquid, having a flash-point below 21°C	3. 19°	336	2772	3 + 6.1
	6°	33	2772	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1. 76°(a)	663	3005	6.1. + 3
	76°(b)	63	3005	6.1. + 3
	76°(c)	63	3005	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 76°(a)	66	3006	6.1
	76°(b)	60	3006	6.1
	76°(c)	60	3006	6.1A
Pesticides, organotin compounds				
– solid	6.1. 79°(a)	66	2786	6.1
	79°(b)	60	2786	6.1
	79°(c)	60	2786	6.1A
– liquid, having a flash-point below 21°C	3. 19°	336	2787	3 + 6.1
	6°	33	2787	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1. 79°(a)	663	3019	6.1 + 3
	79°(b)	63	3019	6.1 + 3
	79°(c)	63	3019	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1. 79°(a)	66	3020	6.1
	79°(b)	60	3020	6.1
	79°(c)	60	3020	6.1A
Pesticides, derivatives of bipyridyl				
– solid	6.1. 82°(a)	66	2781	6.1
	82°(b)	60	2781	6.1
	82°(c)	60	2781	6.1A
– liquid, having a flash-point below 21°C	3. 19°	336	2782	3 + 6.1
	6°	33	2782	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1. 82°(a)	663	3015	6.1 + 3
	82°(b)	63	3015	6.1 + 3
	82°(c)	63	3015	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 82°(a)	66	3016	6.1
	82°(b)	60	3016	6.1
	82°(c)	60	3016	6.1A
Pesticides, inorganic compounds of arsenic				
– solid	6.1, 84o(a)	66	2759	6.1
	84°(b)	60	2759	6.1
	84°(c)	60	2759	6.1A
– liquid, having a flash-point below 21°C	3. 19°	336	2760	3 + 6.1
	6°	33	2760	3 + 6.1A
–liquid, having a flash-point of 21°C - 55°C	6.1. 84°(a)	663	2993	6.1 + 3
	84°(b)	63	2993	6.1 + 3
	84°(c)	63	2993	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1. 84°(a)	66	2994	6.1
	84°(b)	60	2994	6.1
	84°(c)	60	2994	6.1A
Pesticides, inorganic compounds of mercury				
– solid	6.1. 86°(a)	66	2777	6.1
	86°(b)	60	2777	6.1
	86°(c)	60	2777	6.1A
– liquid, having a flash-point below 21°C	3. 19°	336	2778	3 + 6.1
	6°	33	2778	3 + 6.1A
– liquid, having a flash-point of 21°C - 55°C	6.1. 86°(a)	663	3011	6.1 + 3

Name of substances (a)	Class and item number (b)	Hazard Indentification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
	86°(b)	63	3011	6.1 + 3
	86°(c)	63	3011	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 86°(a)	66	3012	6.1
	86°(b)	60	3012	6.1
	86°(c)	60	3012	6.1A
Pesticides, inorganic compounds of copper - *solid*	6.1, 87°(a)	66	2775	6.1
	87°(b)	60	2775	6.1
	87°(c)	60	2775	6.1A
– liquid, having a flash-point below 21°C	3, 19°	336	2776	3 + 6.1
	6°	33	2776	3+6.1A
– liquid, having a flash-point of 21°C-55°C	6.1, 87°(a)	663	3009	6.1 + 3
	87°(b)	63	3009	6.1 + 3
	87°(c)	63	3009	6.1A + 3
– liquid, not inflammable or having a flash-point above 55°C	6.1, 87°(a)	66	3010	6.1
	87°(b)	60	3010	6.1
	87°(c)	60	3010	6.1A
Phenacyl bromide (omega-Bromoacetophenone)	6.1, 17°(b)	60	2645	6.1
Phenacyl chloride (omega-Chloroacetophenone)	6.1, 17°(b)	60	1697	6.1
Phenetidines	6.1, 12°(c)	60	2311	6.1A
Phenol, in the molten state	6.1, 13°(b)	68	2312	6.1
Phenol, solutions of	6.1, 13°(b)	68	2821	6.1
Phenolsulphonic acid, liquid	8, 34°(b)	80	1803	8
Phenylacetonitride: see Benzyl cyanide				
Phenylacetyl chloride	8, 36°(b)	80	2577	8
Phenylcarbylamine chloride	6.1, 17°(a)	66	1672	6.1
Phenyl chloride: see Chlorobenzene				
Phenylchloroformate	6.1, 16°(b)	68	2746	6.1 + 8
Phenylenediamines	6.1, 12°(c)	60	1673	6.1A
Phenylhydrazine	6.1, 12°(b)	60	2572	6.1
Phenyl isocyanate	6.1, 18°(b)	63	2487	6.1 + 3
Phenyl methyl ether (Anisole)	3, 31°(c)	30	2222	3
Phenyl phosphorus dichloride	8, 36°(b)	80	2798	8
Phenylthiophosphoryl dichloride	8, 36°(b)	80	2799	8
Phenyltrichlorosilane	8, 37°(b)	80	1804	8
Phosgene	2, 3°(at)	266	1076	2
Phosphoric acid	8, 11°(c)	80	1805	8
Phosphoric acid, anhydrous: see Phosphorus pentoxide				
Phosphorus, white or yellow				
– in the molten state	4.2, 1°	446	2447	4.2
– solid	4.2, 1°	44	1381	4.2
Phosphorus oxybromide ($POBr_3$)	8, 22°(b)	80	1939	8
Phosphorus oxybromide ($POBr_3$) molten	8, 22°(b)	80	2576	8
Phosphorus oxychloride (Phosphoryl chloride) ($POCl_3$)	8, 21°(b)	80	1810	8
Phosphorus pentachloride (PCl_5)	8, 22°(b)	80	1806	8
Phosphorus pentasulphide	4.1, 8°	40	1340	4.1
Phosphorus pentoxide (phosphoric acid, anhydrous)	8, 27°(b)	80	1807	8
Phosphorus sesquisulphide	4.1, 8°	40	1341	4.1
Phosphorus tribromide (PBr_3)	8, 21°(b)	80	1808	8
Phosphorus trichloride (PCl_3)	8, 21°(b)	80	1809	8
Phosphoryl chloride: see Phosphorus oxychloride				
Phthalic anhydride	8, 31°(c)	80	2214	8
Picolines (Methylpyridines)	3, 31°(c)	30	2313	3
Pinane hydroperoxide (Pinanyl hydroperoxide): see 2,6,6-Trimethyl norpinanyl hydroperoxide				
alpha-Pinene	3, 31°(c)	30	2368	3
Piperazine: see Diethylenediamine				
Piperidine	3, 22°(b)	338	2401	3 + 8
Pivaloyl chloride (Trimethyl acetyl chloride)	8, 36°(b)	83	2438	8 + 3
Potash lye: see Potassium hydroxide, solutions of				
Potassium	4.3, 1°(a)	423	2257	4.3

Name of substances (a)	Class and item number (b)	Hazard Indentification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Potassium arsenate	6.1, 51°(b)	60	1677	6.1
Potassium arsenite	6.1, 51°(b)	60	1678	6.1
Potassium bifluoride	8, 26°(b)	80	1811	8 + 6.1
Potassium bisulphate containing 3 per cent or more free sulphuric acid	8,23°(b)	80	2509	8
Potassium chlorate, solutions of	5.1, 4°(a)	50	2427	5
Potassium fluoride	6.1, 65°(c)	60	1812	6.1A
Potassium hydroxide (Caustic potash)	8, 41°(b)	80	1813	8
Potassium hydroxide, solutions of (Potash lye)	8, 42°(b)	80	1814	8
Potassium oxide	8, 41°(b)	80	2033	8
Potassium sulphide containing not less than 30 per cent water of crystallization	8, 45°(b)	80	1847	8
Potassium sulphide, aqueous solutions of	8, 45°(c)	80	1847	8
Printers inks				
– having a flash-point below 21°C	3, 5°	33	1210	3
– having a flash-point between 21°C and 55°C (limit values included)	3, 31°(c)*	30	1210	3
– having a flash-point above 55°C	3, 32°(c)*	30	1210	–
Propane	2, 3°(b)	23	1973	3
n-Propanol, technical	3, 3°(b)	33	1274	3
Propionaldehyde	3, 3°(b)	33	1275	3
Propionic acid containing not less than 50 per cent pure acid	8, 32°(c)	80	1848	8
Propionic anhydride	8, 32°(c)	80	2496	8
Propionitrile	3, 11°(b)	336	2404	3 + 6.1
Propionyl chloride	3, 25°(b)	338	1815	3 + 8
Propyl acetate	3, 3°(b)	33	1276	3
n-Propylamine	3, 22°(b)	338	1277	3 + 8
n-Propylbenzene	3, 31°(c)	30	2364	3
Propyl chloride: see 1-Chloropropane				
Propylene	2, 3°(b)	23	1077	3
Propylenediamine	8, 53°(b)	83	2258	8 + 3
Propylene dichloride	3, 3°(b)	33	1279	3
Propyleneimine	3, 12°	336	1921	3 + 6.1
Propylene oxide	3, 2°(a)	33	1280	3
Propylene tetramer: see Tetrapropylene				
Propylene trimer: see Tripropylene				
Propyl formates	3, 3°(b)	33	1281	3
Propyl isocyanate, normal	3, 14°(a)	336	2482	3 + 6.1
Propyl mercaptan	3, 3°(b)	33	2402	3
Propyltrichlorosilane	8, 37°(b)	83	1816	8 + 3
Pyridine	3, 15°(b)	336	1282	3 + 6.1
Pyrosulphuryl chloride ($S_2O_5Cl_2$)	8, 21°(b)	80	1817	8
Pyrrolidine	3, 22°(b)	338	1922	3 + 8
Quinoline	6.1, 12°(c)	60	2656	6.1A
R 12: see Dichlorodifluoromethane				
R 12B1: see Bromochlorodifluoromethane				
R 13: see Chlorotrifluoromethane				
R 13B1: see Bromotrifluoromethane				
R 21: see Dichlorofluoromethane				
R 22: see Chlorodifluoromethane				
R 23: see Trifluoromethane				
R 114: see 1,2-Dichloro-1,1,2,2-tetrafluoroethane				
R 115: see Chloropentafluoroethane				
R 116: see Hexafluoroethane				
R 133a: see 1-Chloro-2,2,2-trifluoroethane				
R 142b: see 1-Chloro-1,1-difluoroethane				
R 152a: see 1,1-Difluoroethane				
R 500: see Gas mixture R 500				
R 502: see Gas mixture R 502				
R 503: see Gas mixture R 503				
R 1113: see Trifluorochloroethylene				
R 1216: see Hexafluoropropylene				
RC 318: see oOctafluorocyclobutane				

* See however NOTE under section D of marginal 2301.

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Resins in solution in inflammable liquids				
– having a flash-point below 21 °C	3. 5°	33	1866	3
– having a flash-point between 21 °C and 55 ° C (limit values included)	3. 31°(c)*	30	1866	3
– having a flash-point above 55 °C	3. 32°(c)*	30	1866	–
Resorcinol	6.1. 14°(c)	60	2876	6.1A
Selenates	6.1. 55°(a)	66	2630	6.1
Selenic acid	8. 11°(a)	88	1905	8
Selenites	6.1. 55°(a)	66	2630	6.1
Selenium disulphide	6.1. 55°(b)	60	2657	6.1
Selenium metal	6.1. 55°(c)	60	2658	6.1A
Silicochloroform: see Trichlorosilane				
Silicon tetrachloride ($SiCl_4$)	8. 21°(b)	80	1818	8
Soda lime (Mixtures of caustic soda and quicklime)	8. 41°(c)	80	1907	8
Soda lye: see Sodium hydroxide, solutions of				
Sodium	4.3. 1°(a)	X423	1428	4.3
Sodium aluminate, solutions of	8. 42°(b)	80	1819	8
Sodium arsenate	6.1. 51°(b)	60	1685	6.1
Sodium arsenite, solid	6.1. 51°(b)	60	2027	6.1
Sodium arsenite, aqueous, solutions of				
– toxic	6.1. 51°(b)	60	1686	6.1
– harmful	6.1. 51°(c)	60	1686	6.1A
Sodium bifluoride	8. 26°(b)	80	2439	8 + 6.1
Sodium bisulphate, aqueous solutions of	8. 1°(b)	80	2837	8
Sodium bisulphate containing 3 per cent or more free sulphuric acid	8. 23°(b)	80	1821	8
Sodium chlorate, solid	5.1. 4°(a)	50	1495	5
Sodium chlorate, solutions of	5.1. 4°(a)	50	2428	5
Sodium chlorite, solutions of	5.1. 4°(c)	50	1908	5
Sodium fluoride	6.1. 65°(c)	60	1690	6.1A
Sodium hydrogen sulphide containing not less than 25 per cent water of crystallization	8. 45°(b)	80	2949	8
Sodium hydroxide (Caustic soda)	8. 41°(b)	80	1823	8
Sodium hydroxide, solutions of (Soda lye)	8. 42°(b)	80	1824	8
Sodium methylate, alcoholic solutions of	3. 24°(b)	338	1289	3 + 8
Sodium oxide	8. 41°(b)	80	1825	8
Sodium pentachlorophenate	6.1. 17°(b)	60	2567	6.1
Sodium potassium alloys	4.3. 1°(a)	X423	1422	4.3
Sodium sulphide containing not less than 30 per cent water of crystallization	8. 45°(b)	80	1849	8
Sodium sulphide, aqueous solutions of	8. 45°(c)	80	1849	8
Stannic chloride, anhydrous ($SnCl_4$)	8. 21°(b)	80	1827	8
Stannic chloride pentahydrate ($SnCl_4.5H_2O$)	8. 22°(c)	80	2440	8
Styrene (Vinylbenzene)	3. 31°(c)	39	2055	3
Sulphides, aqueous solutions of, not otherwise specified in this Appendix	8. 45°(c)	80	1719	8
Sulphur	4.1. 2°(a)	40	1350	4.1
Sulphur in the molten state	4.1. 2°(b)	44	2448	4.1
Sulphur dichloride (SCl_2)	8. 21°(a)	X88	1828	8
Sulphur dioxide	2. 3°(at)	26	1079	+ +
Sulphur hexafluoride	2. 5°(a)	20	1080	–
Sulphuric acid	8. 1°(b)	80	1830	8
Sulphuric acid, fuming: see Oleum				
Sulphuric acid, mixtures with nitric acid: see Mixtures of sulphuric acid and nitric acid				
Sulphuric acid, waste	8. 1°(b)	80	1832	8
Sulphur trioxide	8. 1°(a)	X88	1829	8
Sulphuryl chloride (SO_2Cl_2)	8. 21°(a)	X88	1834	8
Tars, liquid	3. 32°(c)	30	1999	–
Terpene hydrocarbons, not otherwise specified in this Appendix				
– having a flash-point between 21 °C and 55 °C (limit values included)	3. 31°(c)	30	2319	3
– having a flash-point above 55 °C	3. 32°(c)	30	2319	–
Terpinolene	3. 31°(c)	30	2541	3

* See, however, NOTE under section D of marginal 2301.

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
1,1,2,2-Tetrabromoethane (Acetylene tetrabromide)	6.1. 17°(c)	60	2504	6.1A
1,1,2,2-Tetrachloroethane (Acetylene tetrachloride)	6.1, 15°(b)	60	1702	6.1
Tetrachloroethylene (Perchloroethylene)	6.1. 15°(c)	60	1897	6.1A
Tetrachlorophenols	6.1. 17°(c)	60	2020	6.1A
Tetraethylenepentamine	8. 53°(c)	80	2320	8
Tetraethyl lead	6.1. 31°(a)	66	1649	6.1
Tetraethyl silicate	3. 31°(c)	30	1292	3
1,2,3,6-Tetrahydrobenzaldehyde	3. 32°(c)	30	2498	–
Tetrahydrofuran	3. 3°(b)	33	2056	3
Tetrahydrophthalic anhydride	8. 31°(c)	80	2698	8
1,2,3,6-Tetrahydropyridine	3, 3°(b)	33	2410	3
Tetrahydrothiophene	3. 3°(b)	33	2412	3
Tetramethoxysilane: see Methyl orthosilicate				
Tetramethylammonium hydroxide	8. 51°(b)	80	1835	8
Tetramethylethylenediamine: see 1,2-Bis (diamethylamino) ethane				
Tetramethyl lead	6.1. 31°(a)	663	1649	6.1 + 3
Tetramethylsilane	3. 1°(a)	33	2749	3
Tetranitromethane, free from combustible impurities	5.1. 2°	559	1510	5
Tetrapropylene (Propylene tetramer)	3. 32°(c)	30	2850	–
Tetrapropylorthotitanate	3, 31°(c)	30	2413	3
4-Triapentanal	6.1. 20°(c)	60	2785	6.1A
Thioacetic acid	3. 3°(b)	33	2436	3
Thioglycol: see Mercaptoethanol				
Thioglycolic acid	8, 32°(b)	80	1940	8
Thionyl chloride ($SOCl_2$)	8. 21°(a)	X88	1836	8
Thiophene	3, 3°(b)	33	2414	3
Thiophenol	6.1. 20°(a)	663	2337	6.1 + 3
Thiophosgene	6.1. 20°(b)	60	2474	6.1
Thiophosphoryl chloride ($PSCl_3$)	8. 21°(b)	80	1837	8
Titanium tetrachloride ($TiCl_4$)	8. 21°(b)	80	1838	8
Titanium trichloride, mixtures of, non-pyrophoric	8. 22°(b)	80	2869	8
Toluene	3. 3°(b)	33	1294	3
Toluene sulphonic acids, solid	8. 34°(c)	80	2585	8
Toluene sulphonic acids, solutions of	8. 34°(c)	80	2586	8
Toluidines	6.1. 12°(b)	60	1708	6.1
2,4-Toluylenediamine	6.1. 12°(c)	60	1709	6.1A
2,4-Toluylene diisocyanate and isomeric mixtures	6.1. 19°(b)	60	2078	6.1
Triallylamine	3. 31°(a)	30	2610	3
Triallyl borate	6.1. 13°(c)	60	2609	6.1A
Tributylamine	8. 53°(c)	80	2542	8
Trichloroacetaldehyde (Chloral)	6.1. 16°(b)	60	2075	6.1
Trichloroacetic acid	8. 31°(b)	80	1839	8
Trichloroacetic acid, solutions of	8. 32°(b)	80	2564	8
Trichloroacetyl chloride	8. 36°(b)	X80	2442	8
Trichlorobenzenes	6.1. 17°(c)	60	2321	6.1A
Trichlorobutene	6.1. 17°(b)	60	2322	6.1
1,1,1-Trichloroethane	6.1. 15°(c)	60	2831	6.1A
Trichloroethylene	6.1. 15°(c)	60	1710	6.1A
Trichloromethylbenzene: see Benzotrichloride				
Trichlorophenols	6.1. 17°(c)	60	2020	6.1A
Trichlorosilane (Silicochloroform)	4.3. 4°(a)	X338	1295	4.3 + 3 + 8
Tricresylphosphate with more than 3 per cent ortho isomer	6.1. 23°(b)	60	2574	6.1
Triethylamine	3. 22°(b)	338	1296	3 + 8
Triethyl borate	3. 3°(b)	33	1176	3
Triethylenetetramine	8. 53°(b)	80	2259	8
Triethyl phosphite	3. 31°(c)	30	2323	3
Trifluoracetic acid	8. 32°(a)	88	2699	8
Trifluorochloroethylene (R 1113)	2. 3°(ct)	236	1082	+ +
1,1,1-Trifluoroethane	2. 3°(b)	23	2035	+ +
Trifluoromethane (R 23)	2. 5°(a)	20	1984	–
Triisobutylene (Isobutylene trimer)	3. 31°(c)	30	2324	3

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Trimethyl acetyl chloride: see Pivaloyl chloride				
Trimethylamine, anhydrous	2. 3°(bt)	236	1083	3 + 6.1
Trimethylamine, aqueous solutions of				
– having a boiling point not more than 35°C	3. 22°(a)	338	1297	3 + 8
– having a boiling point higher than 35°C	3. 22°(b)	338	1297	3 + 8
1.3.5-Trimethylbenzene: see Mesitylene				
Trimethyl borate	3. 3°(b)	33	2416	3
Trimethylchlorosilane	3. 21°(a)	X338	1298	3 + 8
Trimethylcyclohexylamine	8. 53°(c)	80	2326	8
Trimethylhexamethylenediamines	8. 53°(c)	80	2327	8
Trimethylhexamethylene diisocyanate and isomeric mixtures	6.1. 19°(c)	60	2328	6.1A
2.6.6-Trimethyl norpinanyl hydroperoxide (Pinanyl hydroperoxide: Pinane hydroperoxide) with a peroxide content not exceeding 95 per cent	5.2. 15°(a)	539	2162	5
Trimethyl phosphite	3. 31°(c)	30	2329	3
Tripropylamine	8. 53°(b)	83	2260	8 + 3
Tripropylene (Propylene trimer)	3. 31°(c)	30	2057	3
Turpentine	3. 31°(c)	30	1299	3
Undecane	3. 32°(c)	30	2330	–
Valeraldehyde	3. 2°(b)	33	2058	3
Valeryl chloride	8. 36°(b)	80	2502	8
Vanadium oxytrichloride ($VOCl_3$)	8. 21°(b)	80	2443	8
Vanadium oxytrichloride ($VOCl_3$), aqueous solutions of	8. 5°(b)	80	2443	8
Vanadium pentoxide	6.1. 58°(b)	60	2862	6.1
Vanadium tetrachloride (VCl_4)	8. 21°(a)	88	2444	8
Vanadium trichloride (VCl_3)	3. 22°(c)	80	2475	8
Varnishes				
– having a flash-point below 21°C	3. 5°	33	1263	3
– having a flash-point between 21°C and 55° C (limit values included)	3. 31°(c)*	30	1263	3
– having a flash-point above 55°C	3. 32°(c)*	30	1263	–
Vinyl acetate	3. 3°(b)	339	1301	3
Vinylbenzene: see Styrene				
Vinyl bromide	2. 3°(et)	236	1085	+ –
Vinyl butyrate	3. 3°(b)	339	2838	3
Vinyl chloride	2. 3°(ac	239	1086	3
Vinyl chloroacetate	6.1. 16°(b)	60	2589	6.1
Vinyl ethyl ether	3. 2°(b)	339	1302	3
Vinyl fluoride	2. 5°(c)	239	1860	+ – +
Vinylidene chloride	3. 1°(a)	339	1303	3
Vinylidene fluoride: see 1.1-Difluoroethylene				
Vinyl isobutyl ether	3. 3°(b)	339	1304	3
Vinyl toluene, mixed isomers	3. 31°(c)	39	2618	3
Vinyltrichlorosilane	3. 21°(a)	X338	1305	3 + 8
White arsenic: see Arsenic trioxide				
Xenon	2. 5°(a)	20	2036	–
Xenon, liquid, deeply refrigerated	2. 7°(a)	22	2591	–
Xylenes (Dimethylbenzenes)	3. 31°(c)	30	1307	3
Xylenols	6.1. 14°(b)	60	2261	6.1
Xylidines	6.1. 12°(b)	60	1711	6.1
Xylyl bromide	6.1. 17°(b)	60	1701	6.1
Zinc chloride ($ZnCl_2$)	8. 22°(c)	80	2331	8
Zinc chloride ($ZnCl_2$), aqueous solutions of	8. 5°(c)	80	1840	8
Zirconium tetrachloride ($ZrCl_4$)	8. 22°(c)	80	2503	8

Appendix B.5

Table II

List of substances of Classes 3. 6.1 and 8 not listed by name in Table 1 and not falling under a collective heading included in that table, but which nevertheless must be assigned to these Classes and to which no specific «substance identification number» is assigned. Substances are grouped according to Class and to the item number corresponding to the hazards presented during carriage.

NOTE This table applies only to substances of Classes 3. 6.1 and 8 not included in table 1.

* See, however, NOTE under section D of marginal 2301.

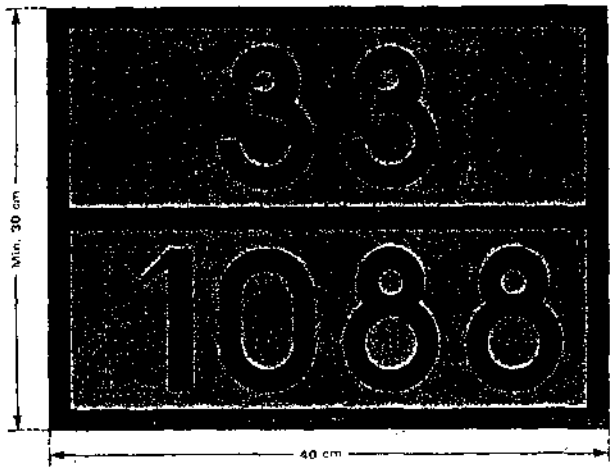
Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Inflammable liquids having a flash - point below 21°C, not toxic and not corrosive	3. 1°-5°	33	1993	3
Harmful substances and preparations used as pesticides and having a flash - point below 21°C	3. 6°	33	3021	3 + 6.1A
Toxic inflammable liquids having a flash-point below 21°C	3. 11°, 14°-18°, 20°	336	1992	3 + 6.1
Highly toxic or toxic substances and preparations used as pesticides, inflammable, having a flash-point below 21°C	3. 19°	336	3021	3 + 6.1
Corrosive inflammable liquids having a flash-point below 21°C	3. 21°-26°	338	2924	3 + 8
Inflammable liquids, not toxic and not corrosive, having a flash-point between 21°C and 100°C	3. 31°	30	1993	3
	3. 32°	30	1993	–
Highly toxic liquids, inflammable, having a flash-point between 21°C and 55°C	6.1, letter (a) of the items 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	663	2929	6.1 + 3
Toxic liquids, inflammable, having a flash-point between 21°C and 55°C	6.1, letter (b) of the items 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	63	2929	6.1 + 3
Harmfull liquids, inflammable, having a flash-point between 21°C and 55°C	6.1, letter (c) of the items 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	63	2929	6.1A + 3
Highly toxic liquids, not inflammable or having a flash-point above 55°C	6.1, letter (a) of the items 11°-24°, 51°, 55, 68°	66	2810	6.1
Toxic liquids, not inflammable or having a flash-point above 55°C	6.1, letter (b) of the items 11°-24°, 51-55°, 57-68°	60	2810	6.1
Harmful liquids, not inflammable or having a flash-point above 55°C	6.1, letter (c) of the items 11°-24°, 51-55°, 57-68°	60	2810	6.1A
Highly toxic solids, combustible	6.1, letter (a) of the items 11°-24°	66	2930	6.1
Toxic solids, combustible	6.1, letter (b) of the items 11°-24°	60	2930	6.1
Harmful solids, combustible	6.1, letter (c) of the items 11°-24°	60	2930	6.1A
Highly toxic solids, not combustible	6.1, letter (a) of the items 51°, 55°, 68°	66	2811	6.1
Toxic solids, not combustible	6.1, letter (b) of the items 51°-55°, 57°-68°	60	2811	6.1
Harmful solids, not combustible	6.1, letter (c) of the items 51°-55°, 57°-68°	60	2811	6.1A
Highly toxic liquid substances and preparations used as pesticides, inflammable, having a flash-point between 21°C and 55°C	6.1, letter (a) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	663	2903	6.1 + 3
Toxic liquid substances and preparations used as pesticides, inflammable, having a flash - point between 21°C and 55°C	6.1, letter (b) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	63	2903	6.1 + 3

Name of substances (a)	Class and item number (b)	Hazard Identification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Harmful liquid substances and preparations used as pesticides, inflammable, having a flash - point between 21°C and 55°C	6.1, letter (c) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	63	2903	6.1A + 3
Highly toxic liquid substances and preparations used as pesticides, inflammable, having a flash - point above 55°C	6.1, letter (a) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	66	2902	6.1
Toxic liquid substances and preparations used as pesticides, not inflammable or inflammable having a flash - point above 55°C	6.1, letter (b) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2902	6.1
Harmful liquid substances and preparations used as pesticides, not inflammable or inflammable having a flash - point above 55°C	6.1, letter (c) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2902	6.1A
Highly toxic solid substances or preparations used as pesticides	6.1, letter (a) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	66	2588	6.1
Toxic solid substances or preparations used as pesticides	6.1, letter (b) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2588	6.1
Harmful solid substances or preparations used as pesticides	6.1, letter (c) of the items 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2588	6.1A
Highly corrosive liquids, inflammable, having a flash-point between 21°C and 55°C	8, letter (a) of the items 32°, 33°, 36°, 37°, 64°, 66°	883	2920	8 + 3
Corrosive or slightly corrosive liquids, inflammable, having a flash-point between 21°C and 55°C	8, letter (b) + (b) and (c) of the items 32°-34°, 36°-39°, 51°, 53°, 54°, 64°, 66°	83	2920	8 + 3
Highly corrosive liquids not inflammable or having a flash - point above 55°C	8, letter (a) of the items 1°, 3°, 10°, 11°, 21°, 27°, 32°, 33°, 36°, 37°, 64°, 66°	88	1760	8
Highly corrosive liquids not inflammable or having a flash - point above 55°C	8.26°(a)	88	1760	8 + 6.1
Corrosive or slightly corrosive liquids, not inflammable or having a flash-point above 55°C	8, letters (b) and (c) of the items 1°, 3°, 5°, 10°, 11°, 21°, 23°, 27°, 32°-34°, 36°-39°, 51°, 53°, 54°, 64°, 66°	88	1760	8
Corrosive or slightly corrosive liquids, not inflammable or having a flash-point above 55°C	8. 26° (b) or (c)	80	1760	8 + 6.1
Highly corrosive solids, combustible	8, letter (a) of the items 64°, 65°	88	2921	8

Name of substances (a)	Class and item number (b)	Hazard Indentification No (upper part) (c)	Substance Identification No (lower part) (d)	Label (e)
Corrosive or slightly corrosive solids, combustible	8, letters (b) and (c) of the items 31°, 33°-35°, 37-39°, 51°, 52°, 54°, 64°, 65°	80	2921	8
Highly corrosive solids, not combustible	8, letter (a) of the items 8°, 11°, 27°, 65°	88	1759	8
Highly corrosive solids, not combustible	8, 26°(a)	88	1759	8 + 6.1
Corrosive or slightly corrosive solids, not combustible	8, letters (b) and (c) of the items 11°, 22°, 26°, 27°, 31°, 33°-35°, 37°-39°, 41°, 45°, 65°	80	1759	8
Corrosive or slightly corrosive solids, not combustible	8, 26 (b) or (c)	80	1759	8 + 6.1

250 001

Identification numbers shall be shown on the plate as indicated below:



Identification number of danger (2 ou 3 figures)

Identification number of substance (4 figures)

Background orange.
Border, horizontal line and figures black, 15 mm thickness.

250 002
259 999

Appendix B.6

(see marginal 10381)

The certificate of competence for drivers of vehicles carrying dangerous goods issued in conformity with the prescription in marginal 10 315 shall have the layout as reproduced in the model below. It is recommended that the format shall be the same as the European national driving permit, namely A7 (74 X 105 mm) or a double sheet which can be folded to that format. 260000

(for model certificate see over)

Appendix B.6

1

ADR - TRAINING CERTIFICATE FOR DRIVERS OF VEHICLES CARRYING DANGEROUS GOODS

Certificate No .....

Distinguishing sign of issuing State .....

Valid for class(es) [1/ 2/]

1a, 1b, 1c
2
3
4.1, 4.2, 4.3
5.1, 5.2
6.1, 6.2
7
8

until (date)[3/] .....

[1/] Delete those not applicable
[2/] For extension to other classes, see page 3
[3/] For renewal, see page 2

2

Surname .....
First name(s) .....
Date of birth .....Nationality .....
Signature of holder .....

Issued by .....
Date .....
Signature[4/] .....

Renewed until .....
By .....
Date .....
Signature[4/] .....

[4/] and/or seal (or stamp) of issuing authority

3

EXTENDED TO CLASS(ES)[5/]

1a, 1b, 1c, 2 3, 4.1, 4.2, 4.32 5.1, 5.2, 6.1, 6.2 7, 8	Date ..... Signature and/or seal or stamp .....
1a, 1b, 1c, 2 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 7, 8	Date ..... Signature and/or seal or stamp .....
1a, 1b, 1c, 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 7, 8	Date ..... Signature and/or seal or stamp .....

[5/] Delete those not applicable

4

For national regulations only

ΟΙΚΟΝΟΜΙΚΗ ΕΠΙΤΡΟΠΗ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ
ΕΠΙΤΡΟΠΗ ΜΕΤΑΦΟΡΩΝ ΕΣΩΤΕΡΙΚΟΥ

ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ

ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR) ΚΑΙ ΠΡΩΤΟΚΟΛΛΟ ΥΠΟΓΡΑΦΗΣ

Συνετάγη και υπεγράφη στη Γενεύη την 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ Ι
(Συμφωνιά, Πρωτόκολλο Υπογραφής και Παράρτημα Α)

ΗΝΩΜΕΝΑ ΕΘΝΗ

Ν. Υόρκη, 1985

ΠΡΟΛΟΓΟΣ

Το παρακάτω κείμενο περιλαμβάνει, εκτός από τη Συμφωνία και Πρωτόκολλο Υπογραφής, τα Παραρτήματα με τη μορφή με την οποία τέθηκαν σε ισχύ την 29 Ιουλίου 1968, καθώς και τις τροποποιήσεις αυτών, μέχρι της 1ης Μαΐου 1985.

Η Γραμματεία της Οικονομικής Επιτροπής για την Ευρώπη επιθυμεί να εκφράσει την εκτίμησή της και τις ευχαριστίες της προς την Διεθνή Ένωση Μεταφορών (IRU) για την βοήθειά της στην διευκόλυνση της συντάξεως και δημοσιεύσεως της παρούσης αναθεωρημένης εκδόσεως Ευρωπαϊκής Συμβάσεως που αφορά τις Διεθνείς Οδικές Μεταφορές (ADR).

ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

ΤΑ ΣΥΜΒΑΛΛΟΜΕΝΑ ΜΕΡΗ,

ΕΠΙΘΥΜΟΥΝΤΑ να αυξήσουν την ασφάλεια της διεθνούς οδικής μεταφοράς,

ΣΥΜΦΩΝΗΣΑΝ τα παρακάτω:

Άρθρο 1.

Για την εφαρμογή της παρούσας Συμφωνίας,

(α) με τον όρο «όχημα» νοούνται τα αυτοκίνητα, αρθρωτά οχήματα, ρυμουλκούμενα οχήματα (TRAILERS) και ημιρυμουλκούμενα (SEMI - TRAILERS), όπως ορίζεται στο άρθρο 4 της Σύμβασης Περί Οδικής Κυκλοφορίας της 19ης Σεπτεμβρίου 1949, εκτός των οχημάτων που ανήκουν ή τελούν υπό τις διαταγές των ενόπλων δυνάμεων του Συμβαλλόμενου Μέρους·

(β) με τον όρο «επικίνδυνα εμπορεύματα» νοούνται οι ύλες και τα είδη των οποίων η διεθνής οδική μεταφορά απαγορεύεται από, ή επιτρέπεται μόνον υπό ωρισμένους όρους από τα Παραρτήματα Α και Β·

(γ) με τον όρο «διεθνής μεταφορά» νοείται οποιαδήποτε επιχείρηση μεταφοράς, εκτελούμενη στην εδαφική περιοχή (επικράτεια) δύο τουλάχιστον Συμβαλλόμενων Μερών με οχήματα που ορίζονται στη πιο πάνω παράγραφο (α).

Άρθρο 2.

1. Υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράφραφος 3, επικίνδυνα εμπορεύματα η μεταφορά των οποίων ποκλείεται από το Παράρτημα Α δεν θα γίνονται δεκτά για διεθνή μεταφορά.

2. Η διεθνής μεταφορά άλλων επικίνδυνων εμπορευμάτων θα εξουσιοδοτείται υπό την επιφύλαξη της τηρήσεως των

(α) όρων του Παραρτήματος Α για τα στο θέμα εμπορεύματα, ειδικότερα όσον αφορά τη συνεργασία και ετικετοποίησή του και των

(β) όρων του Παραρτήματος Β, ειδικότερα όσον αφορά τη κατασκευή, εξοπλισμό και λειτουργία του οχήματος του μεταφέροντος τα στο θέμα εμπορεύματα, υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράγραφος 2.

Άρθρο 3.

Τα Παραρτήματα της παρούσας Συμφωνίας θα αποτελούν αναπόσπαστο τμήμα αυτής.

Άρθρο 4

1. Κάθε Συμβαλλόμενο Μέρος θα έχει το δικαίωμα να ρυθμίζει ή απαγορεύει, για λόγους εκτός της ασφαλείας διαρκούσης της μεταφοράς, την εισαγωγή επικίνδυνων εμπορευμάτων στην εδαφική του περιοχή (επικράτεια).

2. Οχήματα σε υπηρεσία στην επικράτεια του Συμβαλλόμενου Μέρους όταν τεθεί σε ισχύ η παρούσα Συμφωνία ή τιθέμενα σε υπηρεσία στην επικράτεια αυτή εντός δύο μηνών από της θέσεώς της σε ισχύ θα επιτρέπεται, για χρονική περίοδο τριών ετών από της θέσεώς της σε ισχύ θα επιτρέπεται, για χρονική περίοδο τριών ετών από της θέσεώς της σε ισχύ, να εκτελούν τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων ακόμη και εάν η κατασκευή και ο εξοπλισμός τους δεν είναι ολωσδιόλου σύμφωνα με τις διατάξεις του Παραρτήματος Β για την στο θέμα επιχείρηση μεταφοράς. Δυνάμει ειδικών άρθρων του Παραρτήματος Β, όμως, η περίοδος αυτή μπορεί να μειωθεί.

3. Τα Συμβαλλόμενα Μέρη θα έχουν το δικαίωμα να κανονίζουν, με ειδικές διμερείς ή πολυμερείς συμφωνίες, όπως ορισμένα από τα επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία αποκλείονται από όλες τις διεθνείς μεταφορές μπορούν, υπό την επιφύλαξη ορισμένωνόρων, να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους, ή όπως επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία γίνονται δεκτά για διεθνή μεταφορά μόνον υπό ειδικούς όρους μπορούν να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους υπό όρους λιγώτερο αυστηρούς από εκείνους των Παραρτημάτων της παρούσας Συμφωνίας. Οι διμερείς ή πολυμερείς ειδικές συμφωνίες οι αναφερόμενες στη παρούσα παράγραφο θα ανακοινώνονται στο Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος θα ανακοινώνει αυτές στα Συμβαλλόμενα Μέρη τα οποία δεν έχουν υπογράψει τις συμφωνίες αυτές.

Άρθρο 5

Οι επιχειρήσεις μεταφοράς στις οποίες η παρούσα Συμφωνία έχει εφαρμογή θα παραμένουν υπό την επιφύλαξη των εθνικών ή διεθνών κανονισμών που ισχύουν γενικά στην οδική κυκλοφορία, στη διεθνή οδική μεταφορά και στο διεθνές εμπόριο.

Άρθρο 6.

1. Χώρες - μέλη της Οικονομικής Επιτροπής για την Ευρώπη και χώρες πούγιναν δεκτές στην Επιτροπή με συμβουλευτική ιδιότητα κατά τη παράγραφο 8 των όρων παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας

(α) υπογράφοντας αυτήν

(β) επικυρώνοντας αυτήν μετά την υπογραφή της υπό την επιφύλαξη της επικυρώσεως·

(γ) προσχωρώντας σ' αυτήν.

2. Χώρες που μπορούν να μετάσχουν σε ορισμένες δραστηριότητες της Οικονομικής Επιτροπής για την Ευρώπη σύμφωνα με τη παράγραφο 11 των όρων παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας με τη προσχώρησή τους σ' αυτή αφού τεθεί σε ισχύ.

3. Η Συμφωνία θα είναι ανοικτή για υπογραφή μέχρι της 15ης Δεκεμβρίου 1957. Μετά θα είναι ανοικτή για προσχώρηση.

4. Επικύρωση ή προσχώρηση θα πραγματοποιείται με την κατάθεση εγγράφου στο Γενικό Γραμματέα των Ηνωμένων Εθνών.

Άρθρο 7.

1. Η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα μετά την ημερομηνία κατά την οποία ο αριθμός των χωρών των αναφερομένων στο άρθρο 6, παράγραφος 1, οι οποίες υπόγραψαν αυτή χωρίς επιφύλαξη επικυρώσεως ή οι οποίες κατέθεσαν τα έγγραφα επικυρώσεως ή προσχωρήσεώς του ανέλθει συνολικά σε πέντε. Όμως, τα Παραρτήματα αυτής δεν θα έχουν εφαρμογή μέχρι έξι μήνες από της θέσεως σε ισχύ της Συμφωνίας.

2. Για οποιαδήποτε χώρα που επικυρώνει ή προσχωρεί στη παρούσα Συμφωνία μετά την υπογραφήν αυτής χωρίς επιφύλαξη επικυρώσεως την κατάθεση των εγγράφων επικυρώσεως ή προσχωρήσεως των πέντε χωρών των αναφερόμενων στο άρθρο 6. παράγραφος 1, η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα αφότου ή χώρα αυτή καταθέσει το έγγραφο της επικυρώσεως ή προσχωρήσεως και τα Παραρτήματα αυτής θα έχουν εφαρμογή για τη χώρα αυτή είτε την αυτήν ημερομηνίαν εάν είναι ήδη σε ισχύ μέχρι της ημερομηνίας αυτής, είτε, εάν δεν είναι σε ισχύ μέχρι της ημερομηνίας αυτής, είτε, εάν δεν είναι σε ισχύ μέχρι της ημερομηνίας αυτής, την ημερομηνία κατά την οποία θα ισχύουν σύμφωνα με τις διατάξεις της παραγράφου 1 του παρόντος άρθρου.

Άρθρο 8.

1. Οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί να καταγγείλει τη παρούσα Συμφωνία ειδοποιώντας σχετικά τον Γενικό Γραμματέα των Ηνωμένων Εθνών.

2. Η καταγγελία θα τίθεται σε ισχύ δώδεκα μήνες μετά την παραλαβή από τον Γενικό Γραμματέα της γνωστοποιήσεως της καταγγελίας.

Άρθρο 9.

1. Η παρούσα Συμφωνία θα παύσει να ισχύει εάν, αφού τεθεί σε ισχύ, ο αριθμός των Συμβαλλομένων Μερών είναι μικρότερος των πέντε κατά τη διάρκεια δώδεκα συναπτών μηνών.

2. Στη περίπτωση που θα συναφθεί παγκόσμια συμφωνία για τη ρύθμιση της μεταφοράς επικίνδυνων εμπορευμάτων, οποιαδήποτε διάταξη της παρούσας Συμφωνίας είναι αντίθετη προς οποιαδήποτε διάταξη της παγκόσμιας αυτής συμφωνίας, από της ημερομηνίας κατά την οποία η τελευταία θα τεθεί σε ισχύ, θα παύει αυτομάτως να έχει εφαρμογή στις σχέσεις μεταξύ των Συμβαλλόμενων της παρούσας Συμφωνίας Μερών που γίνονται συμβαλλόμενα μέρη της παγκόσμιας συμφωνίας και αυτομάτως θα αντικαθίστανται από τη σχετική διάταξη της παγκόσμιας αυτής συμφωνίας.

Άρθρο 10.

1. Οποιαδήποτε χώρα μπορεί, κατά την υπογραφή της παρούσας Συμφωνίας χωρίς επιφύλαξη επικυρώσεως ή την κατάθεση του εγγράφου της επικυρώσεως ή προσχωρήσεως ή οποτεδήποτε μετέπειτα, να δηλώσει με γνωστοποίηση απευθυνόμενη στο Γενικό Γραμματέα των Ηνωμένων Εθνών ότι η παρούσα Συμφωνία θα επεκταθεί σε όλες ή οποιεσδήποτε από τις επικράτειες για τις διεθνείς σχέσεις των οποίων είναι υπεύθυνη.

Η Συμφωνία και τα Παραρτήματα αυτής θα επεκτείνονται στην επικράτεια ή επικράτειες που κατονομάζονται στη γνωστοποίηση ένα μήνα μετά τη παραλαβή αυτής από τον Γενικό Γραμματέα.

2. Οποιαδήποτε χώρα που προέβη σε δήλωση, σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου, ότι επεκτείνει την παρούσα Συμφωνία σε οποιαδήποτε επικράτεια για τις διεθνείς σχέσεις της οποίας είναι υπεύθυνη, μπορεί να καταγγείλει τη Συμφωνία χωριστά για την επικράτεια αυτή σύμφωνα με τις διατάξεις του Άρθρου 8.

Άρθρο 11.

1. Οποιαδήποτε διαφορά μεταξύ δύο ή περισσότερων Συμβαλλόμενων Μερών σχετική με την ερμηνεία ή την εφαρμογή της παρούσας Συμφωνίας θα τακτοποιείται εφόσον είναι δυνατόν με μεταξύ τους διαπραγματεύσεις.

2. Οποιαδήποτε διαφορά που δεν τακτοποιείται με διαπραγμάτευση θα παραπέμπεται σε διαιτησία εάν οποιαδήποτε από τα έχοντα τη διαφορά Συμβαλλόμενο Μέρος το ζητήσει και κατά συνέπεια θα παραπέμπεται σε ένα ή περισσότερους διαιτητάς που θα επιλέγονται κατόπιν συμφωνίας των εχόντων τη διαφορά Μερών. Εάν εντός τριών μηνών από της ημερομηνίας της αιτήσεως διαιτησίας τα έχοντα τη διαφορά Μέρη αδυνατούν να συμφωνήσουν στην επιλογή διαιτητού ή διαιτητών, οποιοδήποτε των Μερών αυτών μπορεί να ζητήσει από τον Γραμματέα των Ηνωμένων Εθνών να διορίσει ένα διαιτητή στον οποίο θα παραπεμφθεί η διαφορά για την έκδοση αποφάσεως.

3. Η απόφαση του διαιτητή ή διαιτητών των διορισθέντων σύμφωνα με τη παράγραφο 2 του παρόντος άρθρου θα είναι δεσμευτική για τα έχοντα τη διαφορά Συμβαλλόμενα Μέρη.

Άρθρο 12.

1. Κάθε Συμβαλλόμενο Μέρος μπορεί, κατά την υπογραφή, επικύρωση, ή προσχώρηση στην παρούσα Συμφωνία, να δηλώσει ότι δεν θεωρεί εαυτό δεσμευμένο από το άρθρο 11. Άλλα Συμβαλλόμενα Μέρη δεν θα δεσμεύονται από το άρθρο 11 σε σχέσει με οποιοδήποτε Συμβαλλόμενο Μέρος το οποίο διατύπωσε τέτοια επιφύλαξη.

2. Οποιοδήποτε Συμβαλλόμενο Μέρος που διατύπωσε την επιφύλαξη που προβλέπεται στη παράγραφο 1 του παρόντος άρθρου μπορεί οποτεδήποτε να αποσύρει την επιφύλαξη αυτή γνωστοποιώντας σχετικά στον Γενικό Γραμματέα των Ηνωμένων Εθνών.

Άρθρο 13

1. Μετά τη τριετή ισχύ της παρούσας Συμφωνίας, οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί, με γνωστοποίηση προς τον Γενικό Γραμματέα των Ηνωμένων Εθνών, να ζητήσει όπως συγκληθεί διάσκεψη προς τον σκοπό της αναθεωρήσεως του κειμένου της Συμφωνίας. Ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη την αίτηση και διάσκεψη αναθεωρήσεως θα συγκληθεί από τον Γενικό Γραμματέα εάν, εντός περιόδου τεσσάρων μηνών από της ημερομηνίας της γνωστοποιήσεως από τον Γενικό Γραμματέα, όχι λιγότερα του ενός τετάρτου των Συμβαλλομένων Μερών γνωστοποιήσουν εις αυτόν ότι συμφωνούν με την αίτηση.

2. Εάν διάσκεψη συγκληθεί σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου, ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει αυτό σ' όλα τα Συμβαλλόμενα Μέρη και να προσκαλέσει αυτά να υποβάλουν εντός περιόδου τριών μηνών τις προτάσεις πού μπορεί να επιθυμούν να συζητηθούν στη Διάσκεψη. Ο Γενικός Γραμματέας οφείλει να κυκλοφορήσει σ' όλα τα Συμβαλλόμενα Μέρη τη προσωρινήν ημερήσια διάταξη της διασκέψεως, μαζί με τα κείμενα των προτάσεων αυτών, τρεις μήνες τουλάχιστο προ της ημερομηνίας της διεξαγωγής της διασκέψεως.

3. Ο Γενικός Γραμματέας οφείλει να προσκαλέσει σε διάσκεψη, συγκληθείσα σύμφωνα με το παρόν άρθρο, όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1 και χώρες που γίνηκαν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2.

4. Ανεξάρτητα της διαδικασίας αναθεωρήσεως της προβλεπομένης από το Άρθρο 13, Συμβαλλόμενο Μέρος μπορεί να προτείνει μία ή περισσότερες τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας. Προς τον σκοπόν αυτόν οφείλει να διαβιβάσει το κείμενο αυτών στον Γενικό Γραμματέα των Ηνωμένων Εθνών. Ο Γενικός Γραμματέας μπορεί επίσης να προτείνει τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας προς τον σκοπό της εξασφαλίσεως συμφωνίας (αρμονίας) μεταξύ των Παραρτημάτων αυτών και λοιπών διεθνών συμφωνιών σχετικών με την μεταφοράν επικίνδυνων εμπορευμάτων.

2. Ο Γενικός Γραμματέας οφείλει να διαβιβάσει οποιαδήποτε πρόταση που υποβλήθηκε σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου σ' όλα τα Συμβαλλόμενα Μέρη και να πληροφορήσει σχετικά τις λοιπές χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1.

3. Οποιαδήποτε προταθείσα τροποποίηση των Παραρτημάτων θα θεωρείται ότι έγινε δεκτή εάν, εντός τριών μηνών από της ημερομηνίας κατά την οποίαν ο Γενικός Γραμματέας την κυκλοφορήσει, το ένα τρίτο τουλάχιστο των Συμβαλλόμενων Μερών, ή πέντε τούτων εάν το ένα τρίτο υπερβαίνει τον αριθμό αυτό, έχει δόσει στο Γενικό Γραμματέα γραπτή γνωστοποίηση της αντιρρήσεώς του προς την προταθείσα τροποποίηση. Εάν η τροποποίηση θεωρηθεί ότι έγινε δεκτή, θα τεθεί σε ισχύ για όλα τα Συμβαλλόμενα Μέρη, είτε στη λήξη συμπληρωματικής περιόδου τριών μηνών είτε, σε περιπτώσεις οπου παρόμοιες τροποποιήσεις έγιναν ή ενδέχεται να γίνουν στις λοιπές διεθνείς συμφωνίες τις αναφερόμενες στη παράγραφο 1 του παρόντος άρθρου, στη λήξη περιόδου η διάρκεια της οποίας θα καθορισθεί από τον Γενικό Γραμματέα κατά τρόπο ώστε να επιτραπεί, οπουδήποτε είναι δυνατό, η ταυτόχρονη θέση σε ισχύ της τροποποιήσεως και εκείνων που έγιναν ή ενδέχεται να γίνουν στις λοιπές αυτές συμφωνίες· η περίοδος αυτή, δεν θα είναι μικρότερης διάρκειας από ένα μήνα.

4. Ο Γενικός Γραμματέας οφείλει, το ταχύτερο δυνατό, να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη και σ' όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1, οποιαδήποτε αντίρρηση σε προτεινόμενη τροποποίηση που μπορεί να ληφθεί από τα Συμβαλλόμενα Μέρη.

5. Εάν η προτεινόμενη τροποίηση των Παραρτημάτων δεν θεωρείται ότι έγινε δεκτή, αλλά εάν τουλάχιστον ένα Συμβαλλόμενο Μέρος, εκτός του Συμβαλλομένου Μέρους που πρότεινε την τροποποίηση έχει δόσει στον Γενικό Γραμματέα γραπτή γνωστοποίηση της συμφωνίας του με την πρόταση, συνέλευσης όλων των Συμβαλλομένων Μερών και όλων των χωρών των αναφερομένων στο άρθρο 6, παράγραφος 1, θα συγκληθεί από τον Γενικό Γραμματέα εντός τριών μηνών από της λήξεως της περιόδου των τριών μηνών εντός της οποίας, συμφώνως προς την παράφραφο 3 του παρόντος άρθρου, γνωστοποίηση πρέπει να δοθεί της αντιρρήσεως προς την τροποποίηση. Ο Γενικός Γραμματέας μπορεί επίσης να προσκαλέσει στη συνέλευση αυτή εκπροσώπους των:

(α) διακρατικών οργανισμών που ενδιαφέρονται για ζητήματα μεταφοράς·

(β) διεθνών μη-κρατικών οργανισμών οι δραστηριότητες των οποίων σχετίζονται απ' ευθείας με τη μεταφορά επικίνδυνων εμπορευμάτων στις επικράτειες των Συμβαλλομένων Μερών.

6. Τροποποίηση που υιοθετήθηκε από περισσότερα του μισού του συνολικού αριθμού των Συμβαλλομένων Μερών σε συνέλευση συγκληθείσα σύμφωνα με τη παράγραφο 5 του παρόντος άρθρου θα τίθεται σε ισχύ για όλα τα Συμβαλλόμενα Μέρη σύμφωνα με τη διαδικασία την συμφωνηθείσα στη Συνέλευση αυτή από τη πλειοψηφία των παριστάμενων στη Συνέλευση Συμβαλλόμενων Μερών.

Άρθρο 15.

Επιπροσθέτως των γνωστοποιήσεων των προβλεπόμενων από τα άρθρα 13 και 14 ο Γενικός Γραμματέας των Ηνωμένων Εθνών οφείλει να γνωστοποιήσει στις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1 και στις χώρες που έγιναν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2,

(α) τις υπογραφές, επικυρώσεις και προσχωρήσεις σύμφωνα με το άρθρο 6·

(β) τις ημερομηνίες στις οποίες η παρούσα Συμφωνία και τα Παραρτήματα αυτής τέθηκαν σε ισχύ σύμφωνα με το άρθρο 7·

(γ) τις καταγγελίες σύμφωνα με το άρθρο 8·

(δ) τη λήξη της Συμφωνίας σύμφωνα με το άρθρο 9·

(ε) κοινοποιήσεις και καταγγελίες που λήφθηκαν σύμφωνα με το άρθρο 10·

(στ) δηλώσεις και γνωστοποιήσεις που λήφθηκαν σύμφωνα με το άρθρο 12. παράγραφοι 1 και 2·

(ζ) την αποδοχή και την ημερομηνία θέσεως σε ισχύ των τροποποιήσεων σύμφωνα με το άρθρο 14, παράγραφοι 3 και 6.

Άρθρο 16.

1. Το Πρωτόκολλο Υπογραφής της παρούσας Συμφωνίας θα έχει την αυτή ισχύ, αποτέλεσμα και διάρκεια όπως η Συμφωνία, της οποίας θα θεωρείται σαν αναπόσπαστο τμήμα.

2. Ουδεμία θα επιτρέπεται επιφύλαξη για τη παρούσα Συμφωνία, πλην εκείνων που διατυπώθηκαν στο Πρωτόκολλο Υπογραφής και εκείων που έγιναν σύμφωνα με το άρθρο 12.

Άρθρο 17.

Μετά την 15ην Δεκεμβρίου 1957, το πρωτότυπο της παρούσας Συμφωνίας θα κατατεθεί στον Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος οφείλει να διαβιβάσει επικυρωμένα αληθή αντίγραφα αυτού σε κάθε μία από τις χώρες που αναφέρονται στο άρθρο 6, παράγραφος 1.

ΣΕ ΠΙΣΤΩΣΗ ΤΩΝ ΟΠΟΙΩΝ οι υπογεγραμμένοι, εξουσιοδοτημένοι δεόντως προς τούτο, υπόγραψαν την παρούσα Συμφωνία.

Καταρτίστηκε στη Γενεύη, σήμερα τη τριακοστή Σεπτεμβρίου, Χίλια Εννιακόσια Πενήντα Επτά, σε ένα αντίγραφο στην Αγγλική και Γαλλική γλώσσα για το κείμενο της κυρίας Συμφωνίας και στη Γαλλική γλώσσα για τα Παραρτήματα, κάθε δε κείμενο είναι εξ ίσου αυθεντικό κείμενο της κυρίας Συμφωνίας.

Ο Γενικός Γραμματέας των Ηνωμένων Εθνών παρακαλείται να ετοιμάσει μετάφραση των Παραρτημάτων στην Αγγλική γλώσσα και επισυνάψει αυτήν στα επικυρωμένα αληθή αντίγραφα τα αναφερόμενα στο άρθρο 17.

ΠΡΩΤΟΚΟΛΛΟ ΥΠΟΓΡΑΦΗΣ

ΤΗΣ ΕΥΡΩΠΑΪΚΗΣ ΣΥΜΦΩΝΙΑΣ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

Προβαίνοντας στην υπογραφή της Ευρωπαϊκής Συμφωνίας για τη Διεθνή Οδική Μεταφορά Επικίνδυνων Εμπορευμάτων (ADR) ο υπογεγραμμένος, δεόντως εξουσιοδοτημένος).

1. Θεωρώντας ότι οι όροι οι διέποντες την θαλάσσια μεταφορά επικινδύνων εμπορευμάτων προς ή από το Ηνωμένο Βασίλειο διαφέρουν βασικά από εκείνους που περιέχονται στο Παράρτημα Α της ADR και ότι είναι αδύνατο να τροποποιηθούν ώστε να συμφωνούν με το τελευταίο στο εγγύς μέλλον·

ΛΑΜΒΑΝΟΝΤΑΣ ΥΠΟΨΗ την υπόσχεση τη δοθείσα από το ΗΝΩΜΕΝΟ ΒΑΣΙΛΕΙΟ να υποβάλει σαν τροποποίηση του πιο πάνω αναφερθέντος Παραρτήματος Α ειδικό παράρτημα περιέχον ειδικές διατάξεις για οδική - θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων μεταξύ της Ηπείρου και του Ηνωμένου Βασιλείου·

ΣΥΜΦΩΝΗΣΑ ότι, μέχρι της θέσεως σε ισχύ του πιο πάνω αναφερφέντος ειδικού παραρτήματος, επικίνδυνα εμπορεύματα μεταφερόμενα δυνάμει της ADR προς ή από το Ηνωμένο Βασίλειο, θα συμμορφούνται προς τις διατάξεις του Παραρτήματος Α της ADR καθώς και προς τους όρους του Ηνωμένου Βασιλείου για τη θαλλάσια μεταφορά επικινδύνων εμπορευμάτων·

2. ΛΑΜΒΑΝΩ ΣΗΜΕΙΩΣΗ της δηλώσεως του αντιπροσώπου της Γαλλίας κατά την οποία η Κυβέρνησις της Γαλλικής Δημοκρατίας επιφυλάσσεται του δικαιώματος, κατά παρέκβαση των διατάξεων του άρθρου 4, παράγραφος 2, να αρνηθεί να επιτρέψει όπως οχήματα σε υπηρεσία στην επικράτεια άλλου Συμβαλλομένου Μέρους, οποιαδήποτε κι' αν ήταν τι ημερομηνία που τέθηκαν σε υπηρεσία, χρησιμοποιηθούν για τη μεταφορά επικινδύνων προϊόντων στη Γαλλική επικράτεια, εκτός εάν τα οχήματα αυτά πληρούν είτε τους για τη μεταφορά αυτή όρους του Παράρτήματος Β είτε τους για τη μεταφορά των στο θέμα εμπορευμάτων όρους του Γαλλικού Κανονισμού που διέπει την οδική μεταφορά επικινδύνων εμπορευμάτων.

3. ΠΡΟΤΕΙΝΩ όπως, προ της υποβολής σύμφωνα προς το άρθρο 14, παράγραφος 1, ή άρθρο 13, παράγραφος 2, οι προτεινόμενες τροποποιήσεις της παρούσας Συμφωνίας ή των Παραρτημάτων αυτής συζητηθούν κατ' αρχήν, εφόσον είναι δυνατόν, σε συνεδριάσεις εμπειρογνωμόνων των Συμβαλλόμενων Μερών και εάν χρειασθεί, των λοιπών χωρών των αναφερομένων, στο άρθρο 6, παράγραφος 1, της Συμφωνίας και των διεθνών οργανισμών των αναφερόμενων στο άρθρο 14, παράγραφο 5, της Συμφωνίας.

ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΟΔΙΚΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)

ΠΑΡΑΡΤΗΜΑ Α
ΔΙΑΤΑΞΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΤΙΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ & ΕΙΔΗ

Περιεχόμενο

Μέρος Ι. ΟΡΙΣΜΟΣ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

		Περιθώρια		
Ορισμοί	2000	και	2001	
Γενικές διατάξεις	2002	-	2099	

Μέρος ΙΙ. ΚΑΤΑΣΤΑΣΗ ΥΛΩΝ ΚΑΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΓΙΑ ΤΙΣ ΔΙΑΦΟΡΕΣ ΚΛΑΣΕΙΣ

Κλάση 1α	Εκρηκτικές ύλες και είδη	2100	και επόμενα
Κλάση 1β	Είδη γεμιστά με εκρηκτικές ύλες	2130	»
Κλάση 1γ	Πυροκροτητές (αναφλεκτήρες), πυροτεχνήματα και παρόμοια εμπορεύματα	2170	»
Κλάση 2	Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση	2200	»
Κλάση 3	Εύφλεκτα υγρά	2300	»
Κλάση 4.1	Εύφλεκτα στερεά	2400	»
Κλάση 4.2	Ύλες υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη	2430	
Κλάση 4.3	Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό	2470	και επόμενα
Κλάση 5.1	Οξειδωτικές ύλες	2500	»
Κλάση 5.2	Οργανικά υπεροξείδια	2550	»
Κλάση 6.1	Τοξικές ύλες	2600	και επόμενα
Κλάση 6.2	Απεχθείς (αιχαμερές) ύλες και ουσίες που προξενούν μόλυνση	2650	»
Κλάση 7	Ραδιενεργείς ύλες	2700	»
Κλάση 8	Διαβρωτικές ύλες	2800	»

Μέρος ΙΙΙ. Προσθήκες ΠΑΡΑΡΤΗΜΑΤΟΣ Α

Προσθήκη Α.1	Όροι σταθερότητας και ασφάλειας διέποντες τις εκρηκτικές ύλες, εύφλεκτα στερεά και οργανικά υπεροξείδια·	3100	και επόμενα
Προσθήκη Α.2	Διατάξεις σχετικές με τη φύση των από κράμα αλουμινίου δοχείων για ωρισμένα αέρια της Κλάσεως 2· διατάξεις σχετικές με τα υλικά και τη κατασκευή των δοχείων των προοριζομένων για τη μεταφορά των βαθειά - κατεψυγμένων (DEEPLY - RERRIGERATED) υγροποιημένων αερίων της Κλάσεως 2· και διατάξεις διέπουσες τις δοκιμές σε διανεμητές αεροζόλ και μη ξανα-γεμιζόμενα δοχεία για αέρια υπό πίεση, της Κλάσεως 2, 10° και 11°	3200	»
Προσθήκη Α.3	Δοκιμές σχετικές με εύφλεκτα υγρά των Κλάσεων 3 και 6.1	3300	»

Προσθήκη Α.4	Υπό επιφύλαξη 3400	»
Προσθήκη Α.5	Γενικές διατάξεις συσκευασίας, τύποι συσκευασίας, απαιτήσεις εφαρμοστέες στη συσκευασία, απαιτήσεις δοκιμασίας για τις συσκευασίες: .3500	»
Προσθήκη Α.6	Διατάξεις σχετικές με ραδιενεργείς ύλες Κλάσεως 7 ...3600	»
Προσθήκη Α.7	Υπό επιφύλαξη 3700	»
Προσθήκη Α.8	Υπό επιφύλαξη 3800	»
Προσθήκη Α.9	Διατάξεις σχετικές με ετικέτες κινδύνου· Επεξήγηση σύμβολων και προτύπων ετικετών 3900	»

Μέρος Ι
ΟΡΙΣΜΟΙ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

ΟΡΙΣΜΟΙ 1-1999

(1) Για την εφαρμογή του παρόντος Παραρτήματος: 2000

– με τον όρο «αρμόδια αρχή» νοείται η αρχή που διορίστηκε σαν αρμόδια αρχή σε κάθε χώρα και κάθε ειδική περίπτωση από τη Κυβέρνηση·

– με τον όρο «εύθραυστο κόλο (πακέτο)» νοείται κόλο (πακέτο) περιέχον εύθραυστο δοχείο (π.χ. δοχείο κατασκευασμένο από γυαλί, πορσελάνη, πηλό ή παρόμοια υλικά) που δεν κλείνεται σε συσκευασία με αποτελεσματική προστασία όλων των πλευρών του σε περίπτωση κρούσεως (βλέπε επίσης περιθώριο 2001(5))·

– με τον όρο «αέριο» νοείται αέριο ή ατμός·

– με τον όρο «επικίνδυνες ύλες», όταν χρησιμοποιείται μόνος, νοούνται οι ύλες και τα είδη που ορίσθηκαν σαν ύλες και είδη της ADR·

– με τον όρο «μεταφορά σε χύμα» νοείται η μεταφορά στερεάς ύλης χωρίς συσκευασία·

– με τον όρο «RID νοούνται οι Διεθνείς Κανονισμοί οι διέποντες τη Σιδηροδρομική Μεταφορά Επικινδύνων Εμπορευμάτων (Παράρτημα Ι της Διεθνούς Συμβάσεως Περί Σιδηροδρομικής Μεταφοράς Εμπορευμάτων (CIM)).

(2) Για την εφαρμογή του παρόντος Παραρτήματος, οι δεξαμενές (βλέπε ορισμούς Παραρτήματος Β) δεν τοποθετούνται στην αυτή βάση με τα δοχεία, του όρου «δοχείο» χρησιμοποιουμένου υπό την περιοριστικήν αυτού έννοια. Διατάξεις σχετικές με τα δοχεία έχουν εφαρμογή σε σταθερές δεξαμενές, συστοιχίες δοχείων, αφαιρετές δεξαμενές και δεξαμενές - δοχεία (TANK - CONTAINERS) μόνον εάν αυτό συνομολογείται ρητά.

(3) Με τον όρο «πλήρες φορτίο» νοείται οποιοδήποτε φορτίο προερχόμενο από έναν αποστολέα, για το οποίο φορτίο επιφυλάσσεται αποκλειστικά η χρήση οχήματος ή μεγάλου δοχείου (CONTAINER) και όλες οι εργασίες για τη φόρτωση και εκφόρτωση του οποίου διεξάγονται σύμφωνα προς τις οδηγίες του αποστολέα ή του παραλήπτη.

Μονάδες μετρήσεως:

(1) Οι εξής μονάδες μετρήσεως 1/ εφαρμόζονται στο παρόν Παράρτημα και στο Παράρτημα Β: 2001

ΜΕΤΡΗΣΗ	SI ΜΟΝΑΣ 2/	ΔΕΚΤΕΣ ΕΝΑΛ. ΑΛΚΤ. ΜΟΝΑΔΕΣ	ΣΕ/ΣΗ ΜΕΤΑΞΥ ΜΟΝΑΔΩΝ
Μήκος	μ. (μέτρο)	–	–
Επιφάνεια	$μ^2$ (τετρ. μέτρο)	–	–
Όγκος	$μ^3$ (κυβ. μέτρο)	1 λίτρο 3/	10^{-3} $μ^3$
Χρόνος	S (δευτερόλ.)	MIN. λεπτό	1 λεπτό: 60 δλ
		Η ώρα	3600 δλ
		D ημέρα	86400 δλ
Μάζα	KG Κιλό	G γραμμάριο	10^{-3} κιλά
	Τ τόννος	10^3 κιλά	
Πυκνότης μάζης	κιλό/$μ^3$	κιλό/λίτρο	10^{-3} κιλ/$μ^3$
Θερμοκρασία	K KELVIN	C βαθ. Κελσίου	(273.15 K)
Διαφορά θερμοκρ.	K (KELVIN)	C » »	1 C: 1K
Ισχύς	N NEWTON	–	1 N: 1 κιλ. μ/S^2
Πίεση	Pa (PASCAL)	BAR	10^5 Pa
Τάση	N/$μ^2$	N/MM^2	1 MPa
Έργο	J (Ζούλ)	1 J:1 N.μ:1W.S	
Ενέργεια	J (Ζούλ)	KWH (κιλοβατώρα)	3.6 MJ
Ποσότης θερμότητος	J (Ζούλ)	eV (ηλεκτροβόλτ)	$0.1602.10^{-18}$J
Ηλεκτρ. Ισχύς	W (βατ)	–	1 J/S:1 N.μ/S
Κινηματικό Ιξώδες	$μ^2$/S	χστ^2/S	$10^{-6}μ^2$/S
Δυναμικό ιξώδες	Pa.S	μPa./S	10^{-3}Pa.S

ΙΣΧΥΣ:
1 κιλό:9.807N
1 N: 0.102 κιλά

ΤΑΣΗ:
1 κιλ/χστ^2: 9.807 N/χστ^2
1 N/χστ^2: 0.102 κιλ/χστ^2

ΠΙΕΣΗ:
1 Pa: 1 N/$μ^2$: 10^{-5} BAP: $1.02.10^{-5}$ κιλ/εκ^2: $0.75.10^{-2}$ TORR
1BAR: 1N/$μ^2$: 10^{-5} BAR: 1.02 κιλ/εκ^2: 750 TORR
1 κιλ/εκ^2: $9.807.10^4$ Pa: 0.9807 BAR: 736 TORR
1TORR: $1.33.10^2$ Pa: $1.33.10^{-3}$ BAR: $1.36.10^{-3}$ κιλ/εκ^2

Τα δεκαδικά πολλαπλάσια και υπο-πολλαπλάσια μιας μονάδος μπορούν να σχηματίζονται με προθέματα που θα έχουν τις εξής σημασίες και θα τοποθετούνται προ του ονόματος της μονάδος: 2001

ΣΥΝΤΕΛΕΣΤΗΣ:	ΠΡΟΘΕΜΑ:	ΣΥΜΒΟΛΟ:
$1.000.000.000.000.000.00010^{18}$	πεντάκις εκ.	EXA E
$1.000.000.000.000.00010^{15}$	τετράκις εκ.	PETA P
$1.000.000.000.00010^{12}$	τρίς εκ.	TERA T
$1.000.000.00010^9$	δίς εκ.	GIGA C
$1.000.00010^6$	εκατομμύριο	MEGA M
1.00010^3	χίλια	KILO K
10010^2	εκατό	HECTO H
1010^1	δέκα	DECA Da
0.1010^{-1}	δέκατο	DECI D
0.0110^{-2}	εκατοστό	CENTI C
0.00110^{-3}	χιλιοστό	MILLI M
$0.000.00110^{-6}$	εκατομ/στό	MICRO μ
$0.000.000.00110^{-9}$	δίς εκατ/τό	NANO N
$0.000.000.000.00110^{-12}$	τρίς εκ/στό	PICO P
$0.000.000.000.000.00110^{-15}$	τετράκις εκ/τό	FEMTO F
$0.000.000.000.000.000.00110^{-18}$	πεντάκις εκ/τό	ATTO A

ΠΑΡΑΤΗΡΗΣΗ: 10^9 (δισεκατομμύριο) χρησιμοποιείται από τα Ηνωμένα Έθνη, ανάλογο δε είναι το δισεκατομμυριοστό (10^{-9}).

ΕΝΕΡΓΕΙΑ, ΕΡΓΟ, ΠΟΣΟΤΗΣ ΘΕΡΜΟΤΗΤΟΣ
1 J NM: $0.278.10^{-6}$ KWH: 0.102 KGM: $0.239.10^{-3}$KCAL
1 KWH: $3.6.10^6$ J: 367.10^3 KGM: 860 KCAL
1 KGM: 9.807 J: $2.72.10^{-6}$ KWH: $2.34.10^{-3}$ KCAL
1 KCAL: $4.19.10^3$ J: $1.16.10^{-3}$ KWH: 427 KGM

Ηλεκτρ. Ισχύς:
1W: 0.102 KGM/S:
0.86KCAL/H
1 KGM/S: 9.807 W: 8.43 KCAL/H

Κινηματικό ιξώδες:
1 $μ^2$/S: 10^4 ST (STOKES)
1 ΣΤ: 10^{-4} M^2/Σ

Δυναμικό ιξώδες:
1 Pa. S: 1 NS/$μ^2$: 10 P (POISE): 0.102 KGS/$μ^2$
1 P: 0.1 Pa. S: 0.1 NS/$μ^2$: $1.02.10^{-2}$ KGS/$μ^2$
1KGS/$μ^2$: 9.807 Pa. S: 9.807 NS/$μ^2$: 98.07 P

2) Το διεθνές σύστημα μονάδων (SI) είναι αποτέλεσμα αποφάσεων που ελήφθησαν στην Γενική Συνδιάσκεψη Μέτρων και Σταθμών (Δ/ση: Περίμετρο BRETEUIL, Πάρκο ST. CLOUD F-29 310, Σέβρες).

3) Η συντομογραφία «L» για το λίτρο μπορεί επίσης να χρησιμοποιείται αντί της συντομογραφίας «λ» όταν δεν υπάρχει στη γραφομηχανή διαθέσιμο το ένα ή το άλλο ψηφίο.

(2) Όπου χρησιμοποιείται η λέξη «βάρος» στο παρόν Παράρτημα και στο Παράρτημα Β, σημαίνει «μάζα».

(3) Όποτε το βάρος μιας συσκευασίας αναφέρεται στο παρόν Παράρτημα και στο Παράρτημα Β, νοείται η μικτή μάζα, εκτός αν δηλώνεται άλλως. Η μάζα του δοχείου ή των δεξαμενών για την μεταφορά των εμπορευμάτων δεν περιλαμβάνεται στην μικτή μάζα.

(4) Αν δεν δηλώνεται ρητά κάτι διαφορετικό, το σύμβολο «%» στο παρόν Παράρτημα και στο Παράρτημα Β αντιπροσώπευει:

α) Στην περίπτωση μιγμάτων στερεών ή υγρών, επίσης στην περίπτωση διαλυμμάτων ή στερεών που έχουν διαβραχεί με υγρό: ποσοστό μάζας βάσει της συνολικής μάζας του μίγματος, του διαλύματος ή του διαποτισμένου στερεού.

β) Στην περίπτωση αεριωδών μιγμάτων: ποσοστό κατ' όγκον βάσει του συνολικού όγκου του αεριώδους μίγματος.

5) Πιέσεις κάθε είδους σχετικές με τα δοχεία, (όπως πίεση δοκιμασίας, εσωτερική πίεση, πίεση ανοίγματος βαλβίδας ασφαλείας), σημειώνονται πάντα σαν πιέσεις θλιβομέτρου (πιέσεις μεγαλύτερες από την ατμοσφαιρική πίεση). Ωστόσο,

1/ Οι εξής στρογγυλοποιημένοι αριθμοί χρησιμοποιούνται για την μετατροπή των μέχρι τούδε χρησιμοποιουμένων μονάδων σε μονάδες SI:

η πίεση ατμού των ουσιών εκφράζεται πάντα σε απόλυτη πίεση.

(6) Όπου το παρόν Παράρτημα Β ακθορίζει βαθμό πληρώσεως δοχείων ή δεξαμενών, ο βαθμός αυτός πληρώσεως αναφέρεται πάντα σε θερμοκρασία 15° C των ουσιών, εκτός αν σημειώνεται κάποια άλλη θερμοκρασία.

(7) Εύθραυστα δοχεία ασφαλισμένα, είτε μόνα τους είτε σε ομάδες, με αποσβεστικά υλικά (κτυπημάτων) σε μεγάλο δοχείο με ισχυρά τοιχώματα, δεν θεωρούνται εύθραυστα δοχεία, εαν και εφ' όσον το γερό δοχείο είναι στεγανό και με τέτοιο τρόπο σχεδιασμένο και μελετημένο ώστε σε περίπτωση θραύσης ή διαρροής των ευθραύστων δοχείων να μη μπορεί το περιεχόμενο τους να διαφύγει από το γερό δοχείο και η μηχανική αντοχή του τελευταίου να μην μπορεί να εξασθενήσει από διάβρωση κατά την διάρκεια της μεταφοράς.

(8) Θεσπίζεται ο εξής τύπος μετατροπής (μετασχηματισμού) κατά προσέγγιση μέχρις ότου οι μονάδες SI ενσωματωθούν εντελώς και σε όλα τα κείμενα του παρόντος Παραρτήματος και του Παραρτήματος Β:

$$1 \text{ κιλό/χστ}^2 = 10.\ \text{N/χστ}^2$$
$$1 \text{ κιλό/εκ}^2 = 1 \text{ BAR}$$

ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

(1) Το παρόν Παράρτημα καθορίζει τα επικίνδυνα εμπορεύματα τα οποία εξαιρούνται της διεθνούς οδικής μεταφοράς και τα επικίνδυνα τα οποία γίνονται δεκτά για τέτοια μεταφορά υπό ωρισμένους όρους. Ομαδοποιεί τα επικίνδυνα εμπορεύματα σε περιοριστικές και μη-περιοριστικές Κλάσεις. Εκ των επικινδύνων εμπορευμάτων των καλυπτομένων από τους τίλτους των περιοριστικών Κλάσεων (Κλάσεις 1α, 1β, 1γ, 2, 4.2, 4.3, 5.2, 6.2 και 7), εκείνα που απαριθμούνται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 2101, 2131, 2171, 2201, 2431, 2471, 2551, 2651 και 2701) γίνονται δεκτά για μεταφορά υπό όρους οριζομένους στα άρθρα αυτά, και άλλα εξαιρούνται από τη μεταφορά. Μερικά από τα επικίνδυνα εμπορεύματα τα καλυπτόμενα από τους τίτλους των μη-περιοριστικών Κλάσεων (Κλάσεις 3, 4.1, 5.1, 6.1 και 8), με σημειώσεις που παραθέτονται στα άρθρα τα σχετικά με τις διάφορες Κλάσεις, εξαιρούνται από τη μεταφορά εκ των λοιπών εμπορευμάτων των καλυπτομένων από τους τίτλους των μη-περιοριστικών Κλάσεων, εκείνα που αναφέρονται ή ορίζονται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 2301, 2401, 2501, 2601 και 2801) γίνονται δεκτά για μεταφορά μόνον υπό όρους οριζομένους εις τα άρθρα αυτά, και εκείνα που δεν αναφέρονται ή ορίζονται εις αυτά δεν θεωρούνται ότι είναι επικίνδυνα εμπορεύματα για τους σκοπούς της παρούσας Συμφωνίας και γίνονται δεκτά για μεταφορά χωρίς οποιουσδήποτε ειδικούς όρους.

(2) οι Κλάσεις του Παραρτήματος αυτού είναι οι παρακάτω:

Κλάση 1α	Εκρηκτικές ύλες και είδη	Περιοριστική
Κλάση 1β	Είδη γεμιαμένα με εκρηκτικές ύλες	»
Κλάση 1γ	Πυροκροτητές (αναφλεκτήρες), πυροτεχνήματα και παρόμοια εμπορεύματα	»
Κλάση 2	Αέρια: πεπιεσμένα, υγροποιημένα, ή διαλυμένα υπό πίεση	»
Κλάση 3	Εύκλεκτα υγρά	Μη-περιοριστική
Κλάση 4.1	Εύφλεκτα στερεά	»
Κλάση 4.2	Ύλες υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη	Περιοριστική
Κλάση 4.3	Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό	»
Κλάση 5.1	Οξειδωτικές ύλες	Μη-περιοριστική
Κλάση 5.2	Οργανικά υπεροξείδια	Περιοριστική
Κλάση 6.1	Τοξικές ύλες	Μη-περιοριστική
Κλάση 6.2	Απεχθείς (σιχαμερές) ύλες και ύλες που προξενούν μόλυνση	Περιοριστική
Κλάση 7	Ραδιενεργείς ύλες	»
Κλάση 8	Διαβρωτικές ύλες	Μη-περιοριστική

(3) Κάθε μεταφορά εμπορευμάτων διεπομένη από 2002 το παρόν Παράρτημα θα είναι το αντικείμενο ενός εγγράφου μεταφοράς. Ο αποστολέας θα γνωρίζει γραπτώς στον μεταφορέα τις λεπτομέρειες που πρόκειται να συμπεριληφθούν στο έγγραφο μεταφοράς όπως αναφέρεται για κάθε κλάση στο Μέρος ΙΙ του παρόντος παραρτήματος στις παραγράφους 2.Β. Το έγγραφο μπορεί να είναι εκείνο που απαιτείται από άλλες ισχύουσες διατάξεις. Εμπορεύματα η μεταφορά των οποίων διέπεται από το τρόπον αυτόν θα περιγράφονται στο έγγραφο μεταφοράς σύμφωνα με τις ενδείξεις της παραγράφουΒ των ειδικών διατάξεων κάθε Κλάσεως. Οι λεπτομέρειες που θα καταχωρούνται στο έγγραφο μεταφοράς θα είναι συντεταγμένες στην επίσημη γλώσσα της προωθούσας (τα εμπορεύματα) χώρας, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν, τυχόν, δασμολόγια (TARRIFFS) διεθνούς οδικής μεταφοράς, ή συμφωνίες συνασφθείσες μεταξύ των ενδιαφερομένων για την επιχείρηση της μεταφοράς χωρών, προβλέπουν αλλιώς. Το έγγραφο μεταφοράς θα συνοδεύεται, εαν κριθεί ενδεδειγμένον, από οδηγίες που θα εφαρμοσθούν σε περίπτωση ατυχήματος (βλέπε Παράρτημα Β, περιθώριο 10 185). Το έγγραφο μεταφοράς θα συνοδεύει τα μεταφερόμενα επικίνδυνα εμπορεύματα.

(4) Εάν λόγω του μεγέθους του φορτίου μια αποστολή δεν μπορεί να φορτωθεί ολόκληρη σε ένα μεταφορικό μέσο, τουλάχιστο τόσα χωριστά, ή αντίγραφα του ενός εγγράφου, θα εκδίδονται όσα και τα φορτωθέντα μεταφορικά μέσα. Επί πλέον, σ' όλες τις περιπτώσεις, χωριστά έγγραφα μεταφοράς θα εκδίδονται για αποστολές ή τμήματα αποστολών τα οποία δεν μπορούν να φορτωθούν μαζί στο αυτό όχημα λόγω γων απαγορεύσεων του Παραρτήματος Β.

(5) Εξωτερικές συσκευασίες συμπληρωματικές εκείνων που ορίζει το παρόν Παράρτημα μπορούν να χρησιμοποιούνται υπό τον όρον ότι δεν αντίκεινται στο πνεύμα των διατάξεων του παρόντος Παραρτήματος των σχετικών με τις εξωτερικές συσκευασίες. Εάν τέτοιες πρόσθετες συσκευασίες χρησιμοποιηθούν, οι προβλεπόμενες ενδείξεις και ετικέτες θα εφαρμοσθούν σ' αυτές.

(6) Εάν η μικτή συσκευασία διαφόρων επικίνδυνων υλών, μεταξύ των, ή με άλλα εμπορεύματα επιτρέπεται εκ των διατάξεων της παραγράφου Α.3 των ισχυουσών για τις διάφορες Κλάσεις διατάξεων, οι εσωτερικές συσκευασίες οι περιέχουσες διάφορες επικίνδυνες ύλες θα χωρίζονται προσεκτικά και αποτελεσματικά ή μια από την άλλη στις συλλογικές συσκευασίες εαν επικίνδυνοι αντενέργειαι, όπως η παραγωγή επικίνδυνης θερμότητας, ανέφλεξη, ο σχηματισμός μιγμάτων που είναι ευαίσθητα στην τριβή ή κρούση, και η απελευθέρωση ευφλέκτων ή τοξικών αερίων, ενδέχεται να κροκύψουν ως αποτέλεσμα βλάβης (ζημίας) ή καταστροφής των εσωτερικών συσκευασιών. Ειδικώτερα, εαν εύθραυστα δοχεία χρησιμοποιηθούν και συγκεκριμένα εαν τα ρηθέντα δοχεία περιέχουν υγρά, ο κίνδυνος σχηματισμού επικινδύνων μιγμάτων θα αποφεύγεται και προς τον σκοπόν αυτόν θα λαμβάνονται όλα τα κατάλληλα μέτρα, όπως η χρήση καταλλήλου απορθστικού υλικού σε επαρκή ποσότητα, η ασφάλεια των δοχείων με δεύτερη, γερή συσκευασία, και η υποδιαίρεση των συλλογικών συσκευασιών σε πολλά διαμερίσματα.

(7) Εάν μικτή συσκευασία χρησιμοποιηθεί, οι διατάξεις του παρόντος Παραρτήματος οι σχετικές με τις λεπτομέρειες στο έγγραφο μεταφοράς θα ισχύουν σε σχέση με κάθε μία από τα διάφορα είδη των επικινδύνων υλών που περιέχονται στη συλλογική συσκευασία, και η συλλογική συσκευασία θα φέρει όλες τις επιγραφές και όλες τις ετικέτες κινδύνου τις προβλεπόμενες στο παρόν Παράρτημα για τις επικίνδυνες ύλες που η συλλογική συσκευασία περιέχει.

(8) Εάν διαλύματα υλών απαριθμούμενα στο απρόν Παράρτημα δεν αναφέρονται ρητά στον κατάλογο της Κλάσεως στην οποία οι διαλυμένες ύλες ανήκουν, αυτά εν τούτοις, θα θεωρούνται ως ύλες της ADR εάν η συμπύκνωσή των είναι τέτοια ώστε να διατηρείται ο εγγενής κίνδυνος στις ίδιες τις ύλες αυτές· η συσκευασία τους στη περίπτωση αυτή πρέπει να συμμρφώνεται προς τους όρους της παραγράφου Α των ειδικών διατάξεων που ισχύουν για την Κλάση στην οποίαν οι ρυθμίσεις ύλες ανήκουν, και εξυπακούεται ότι συσκευασίες που θα ήσαν ακατάλληλες για τη μεταφορά υγρών δεν πρέπει να χρησιμοποιούνται.

(9) Μίγματα υλοων της ADR με άλλες ύλες θα θεωρούνται ως ύλες τηα ADR εάν διατηρούν τον εγγενή κίνδυνο στην ύλη που είναι ύλη τηα ADR.

(10) Ο αποστολέας, είτε στο έγγραφο της μετασφοράς είτε με χωριστή δήλωση, πρέπει να βεβαιώνει ότι η προσκομισθείσα ύλη μπορεί να μεταφερθεί οδικώς σύμφωνα με τις διατάξεις της ADR, οτι η κατάστασή της, επεξεργασία και, η κατάλληλη συσκευασία και τοποθέτηση ετικέτας συμμορφώνεται προς τις διατάξεις της ADR. Επί πλέον, εάν πολλά επικίνδυνα εμπορεύματα συσκευάζονται μαζί σεμία συλλογική συσκευασία ή σεένα δοχείο (CONTAINER), ο αποστολέας υποχρεούται να δηλώσει ότι η μικτή αυτή συσκευασία δεν απαγορεύεται.

(11) Ύλη της οποίας η ειδική ραδιενέργεια δεν υπερβαίνει τα 74/KBQ/KG (0.002 MICROCURIE ανά γραμμάριο) και ηοποία καλύπτεται υπό συλλογικό τίτλον οιασδήποτε Κλάσεως θα εξαιρείται της μεταφοράς, εάν, επιπροσθέτως, καλύπτεται υπό τον τίλτον περιοριστικής Κλάσεως στην οποία δενείναι γραμμένη.

(12) Ύλη της οποίας ηειδική ραδιενέργεια δενυπερβαίνει τα 0.002 MICROCURIE ανά γραμμάριο και ηοποία δενείναι γραμμένη μετην ονοπμασία της σεΚλάση, αλλά καλύπτεται υπό δύο ή περισσοτέρων συλλογικών τίτλων διαφόρων Κλάσεων, θα υπόκειται στους όρους μεταφοράς που αναφέρονται:

(α) στη περιοριστική Κλάση, εάν μία από τις κλάσεις για τις οποίες πρόκειται είναι περιοριστική Κλάση·

(β) στη Κλάση, την αντιστοιχούσα για τον επικρατούντα κίνδυνο τον παρουσιαζόμενο από την ύλη κατά την διάρκεια της μεταφοράς, εάν καμμία από τις Κλάσεις για τις οποίες πρόκειται είναι περιοριστική Κλάσις.

(1) Το παρόν Παράρτημα περιέχει για κάθε Κλάση πληντης Κλάσεως 7:

(α) κατάλογο των επικίνδυνων υλών των αποτελεούντων την Κλάση, και όπου έχει εφαρμογήν, υπό μορφή περιθωρίου έχοντος αριθμό λήγοντα στο γράμμα «α», τις εξαιρέσεις τις επιτρεπόμενες από τις διατάξεις της ADR για μερικές από τις ύλες αυτές εάν συμμορφώνονται προς ωρισμένους όρους·

(β) διατάξεις υποδιαιρούμενες όπως παρακάτω:

Α .Κόλα (Πακέτα):

1. Γενικοί όροι συσκευασίας·
2. Συσκευασία μιας ύλης ή ειδών του αυτού είδους·
3. Μικτή συσκευασία·
4. Ενδείξεις και ετικέτες κινδύνου επάνω στα κόλα (πακέτα).

Β. Λεπτομέρειες (στοιχεία) του εγγράφου μεταφοράς.

Γ. Κενά κόλα (είδη συσκευασίας).

Δ. (όπου ενδείκνυται) Άλλες διατάξεις.

(2) Διατάξεις σχετικές με:

– την αποστολή σεχήμα, μέσα σεδοχεία (CONTAINERS) και σεδεξαμενές·

– τη μέθοδο διεκπεραιώσεως (προωθήσεως) και περιορισμούς στη προώθηση·

– απαγορεύσεις στη μικτή φόρτωση· και τον

– εξοπλισμό μεταφοράς

μπορείτε να βρήτε στο Παράρτημα Β και στις προσθήκες του, που περιέχουν επίσης σχετικές διατάξεις εφαρμοζόμενες ειδικά στην οδική μεταφορά.

(3) Οι προσθήκες του Παραρτήματος τούτου περιέχουν:

Προσθήκη Α.1: Όροι σταθερότητας και ασφάλειας αφορώντας τις εκρηκτικές ύλες, τα εύφλεκτα στερεά και οργανικά υπεροξείδια, μεκανόνες για δοκιμές·

προσθήκη Α.2: Συστάσεις σχετικές μετη φύση (προέλευση) των εκ κράματος αλουμινίου δοχείων για ωρισμένα αέρια της Κλάσεως 2· διατάξεις σχετικές μετα υλικά και την κατασκευή δοχείων, προοριζομένων για τη μεταφορά βαθειά – κατεψυγμένων (DEEPLY – REFRIGERATED) υγροποιημένων αερίων της Κλάσεως 2· και διατάξεις σχετικές με δοκιμές σε διανεμητές αεροζόλ και μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέρια υπό πίεση της Κλάσεως 2, 10° και 11°.

Προσθήκη Α.3: Δοκιμές (έλεγχοι) σχετικές με εύφλεκτα υγρά των Κλάσεων 3 και 6.1·

Προσθήκη Α.5: Διατάξεις σχετικές με δοκιμές (ελέγχους) σε μεταλλικά βαρέρια αναφερόμενα στα περιθώρια 2303(6) και 2813(1)(γ)·

Προσθήκη Α.6: Διατάξεις σχετικές με ραδιενεργείς ύλες της Κλάσεως 7·

προσθήκη Α.9: Διατάξεις σχετικές με τις ετικέτες κινδύνου, και τη επεξήγηση των συμβόλων.

Οι προσθήκες Α.4, Α.7 και Α.8 είναι υπό επιφύλαξη.

(4) Για την Κλάση 7, οι λεπτομέρειες οι σχετικές με τους όρους της συσκευασίας, τη μικτή συσκευασία, την τοποθέτηση ετικετών και το μαρκάρισμα των κόλων καθώς και οι διατάξεις που διέπουν την αποθήκευση, διεκπεραίωση και μεταφορά, καθορίζονται στους πίνακες του Παραρτήματος Α τους απαριθμούμενους στο περιθώριο 2702. Μερικές από τις λεπτομέρειες και τεχνικές διατάξεις που αφορούν την Κλάση αυτή έχουν επεξεργασθεί στην Προσθήκη Α.6 η οποία περιλαμβάνει επίσης τον πλήρη πίνακα ραδιοπυρηνούχων (RADIONUCLIDES) και μέθοδο ελέγχου των κόλων εξ υλών της Κλάσεως 7.

2004

Όπου οι διατάξεις οι σχετικές με τη μεταφορά «πλήρους φορτίου» έχουν εφαρμογήν, οι αρμόδιες αρχές ενδέχεται να απαιτήσουν όπως το όχημα ή μεγάλο δοχείο (CONTAINER) 2005

το χρησιμοποιούμενο για τη σχετική επιχείρηση μεταφοράς φορτωθεί μόνο σε ένα σημείο και εκφορτωθεί μόνο σε ένα σημείο.

(1) Εάν το όχημα που διεξάγει επιχείρηση μεταφοράς σύμφωνα με τις διατάξεις της ADR μεταφερθεί σετμήμα του ταξιδίου όχι μεοδική ρυμούλκηση, τότε οποιεσδήποτε εθνικές ή διεθνείς διατάξεις οι οποίες, στο αναφερόμενο τμήμα, διέπουν την μεταφορά επικίνδυνων εμπορευμάτων μετον τρόπο της μεταφοράς τον χρησιμοποιηθέντα για τη μεταφορά του οχήματος της οδού, θα έχουν και μόνο εφαρμογή για το αναφερόμενο τμήμα του ταξιδίου. 2006

(2(Σε περιπτώσεις όπου ηεπιχείρηση μεταφοράς που υπόκειται στις διατάξεις τηςADR υπόκειται ομοίως για το σύνολο ή μέρος του οδικού ταξιδίου στις διατάξεις συμβάσεως η οποία ρυθμίζει τη μεταφορά επικινδύνων εμπορευμάτων με τρόπον μεταφοράς πλην της οδικής μεταφοράς δυνάμει άρθρων επεκτεινόντων τη δυνατότητα εφαρμογής της αναφερόμενης συμβάσεως σε ωρισμένες υπηρεσίες αυτοκινήτων, τότε οι διατάξεις της διεθνούς συμβάσεως θα έχουν εφαρμογήν, για το στο θέμα ταξίδιο παράλληλα με τις διατάξεις εκείνες της ADR που είναι ασυμβίβαστες· τα άλλα άρθρα της ADR δεν θα έχουν εφαρμογήν για το στο θέμα ταξίδιο.

2007
-2009

Προς τον σκοπό της διεξαγωγής των απαραιτήτων δοκιμών (ελέγχων) προς τροποποίηση των διατάξεων του παρόντος Παραρτήματος για να εφαρμοσθούν στις τεχνολογικές και βιομηχανικές αναπτύξεις, οι αρμόδιες αρχές των Συμβαλλομένων Μερών μπορούν να συμφωνήσουν απ' ευθείας μεταξύ τους να εξουσιοδοτήσουν ορισμένες επιχειρήσεις μεταφοράς στις εδαφικές τους περιοχές (επικράτειες) με προσωρινή ανάκληση των διατάξεων του παρόντος Παραρτήματος. Η αρχή η οποία πήρε την πρωτοβουλία για την έγκριση της προσωρινής ανακλήσεως οφείλει να γνωστοποιήσει την ανάκληση στην αρμόδια υπηρεσία ανακλήσεων της Γραμματείας των Ηνωμένων Εθνών, και η υπηρεσία αυτή θα θέσει αυτήν υπόψη των Συμβαλλομένων Μερών. 2010

2011
-2099

ΜΕΡΟΣ ΙΙ

ΚΑΤΑΛΟΓΟΣ ΥΛΩΝ ΚΑΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΔΙΑΦΟΡΩΝ ΚΛΑΣΕΩΝ

ΚΛΑΣΗ 1α. ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ ΚΑΙ ΕΙΔΗ

Σημείωση: Ύλες και είδη που δεν μπορουν να εκραγούν σε επαφή με φλόγα και που δεν είναι περισσότερο ευαίσθητες σε κρούση ή τριβή του δινιτροβενζολίου δεν υπόκεινται στις διατάξεις της Κλάσεως 1α.

1. Κατάλογος υλών και ειδών

(1) Μεταξύ των υλών και ειδών που καλύπτονται υπό τον τίτλο της Κλάσεως 1α, μόνον εκείνες που αναγράφονται στο περιθώριο 2101 γίνονται δεκτές για μεταφορά και τότε μόνο υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και τα είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR. 2100

(2) Στις εκρηκτικές ύλες που γίνονται δεκτές για μεταφορά, η νιτρογλυκερίνη μπορεί να αντικατασταθεί εν όλω ή εν μέρει από:

(α) νιτρογλυκόλη ή

(β) δινιτροδιαιθυλενογλυκόλη ή

(γ) ζάχαρο εμπλουτισμένο με άζωτο (εμπλουτισμένη με άζωτο σακχαρόζη) ή

(δ) μίγμα των παραπάνω υλών.

1° Πολύ εμπλουτισμένη με άζωτο νιτροκυτταρίνη (όπως βαμβακοπυρίτις), τ.έ. με άζωτο άνω του 12.6 στα εκατό, καλώς σταθεροποιημένο και περιέχον επιπροσθέτως: 2101

όταν η νιτροκυτταρίνη δεν συμπιέζεται, όχι λιγώτερο του 25 στα εκατό νερό ή αλκοόλη (μεθυλική, αιθυλική, κανονική προπυλική ή ισοπροπυλική, βουτυλική, ή αμυλική αλκοόλη ή μίγματα αυτών), συμπεριλαμβανομένης της μετουσιωμένης αλκοόλης· ή μίγματα νερού και αλκοόλης·

όταν η νιτροκυτταρίνη συμπιέζεται, όχι λιγώτερο του 15

στα εκατό νερό, ή όχι λιγώτερο του 12 στα εκατό κηρού παραφίνης ή άλλων παρομοίων υλών.

Βλέπε επίσης Προσθήκη Α.1., περιθώριο 3101.

Σημείωση: 1. Η νιτροκυτταρίνη με περιεχόμενο αζώτου μη υπερβαίνο το 12.6 στα εκατό είναι ύλη της Κλάσεως 4.1. εάν συμμορφώνεται με τις προδιαγραφές που αναφέρονται στο περιθώριο 2401, 7° (α), (β) ή (γ).

2. Η νιτροκυτταρίνη υπό μορφήν ακαθάρτου λεπτού στρώματος νιτροκυτταρίνης (NITROCELLULOSE - FILM WASTE), ελευθέρου ζελατίνης, σε κυλίνδρους, φύλλα ή λωρίδες, είναι ύλη της Κλάσεως 4.2. (βλέπε περιθώριο 24321 4°).

2° CORPITE PASTE (Κορδίτης πάστα), μη ζελατινώδης («POWDER CAKE»), προς χρήση στην κατασκευή άκαπνης πυρίτιδας και περιέχουσα άνω του 70 στα εκατόν άνυδρης ύλης και όχι λιγώτερο του 30 στα εκατό νερό' η άνυδρη ύλη δεν πρέπει να περιέχει άνω του 50 στα εκατό νιτρογλυκερίνη ή παρόμοιες υγρές εκρηκτικές ύλες.

3° Ζελατινώδης νιτροκυτταρινούχος πυρίτις και ζελατινώδης νιτροκυτταρινούχος πυρίτις περιέχουσα νιτρογλυκερίνη (νιτρογλυκερινούχος πυρίτις):

(α) μη-πορώδης και μη-κονιώδης

(β) πορώδης ή κονιώδης

Βλέπε επίσης Προσθήκη Α.1 περιθώριο 3102.

4° Πλαστικοποιημένη νιτροκυτταρίνη περιέχουσα όχι λιγότερο του 12 στα εκατό αλλά λιγότερου του 18 στα εκατό πλαστικοποιημένες ύλες (όπως φθαλμικό βουτύλιο ή πλαστικοποιητική ύλην τουλάχιστον ίσην σε δραστικότητα με το φθαλμικό βουτύλιο) και της οποίας η νιτροκυτταρίνη έχει περιεχόμενον αζώτου μη υπερβαίνον το 12.6 στα εκατόν, επίσης υπό μορφήν ρινισμάτων (CHIPS).

Σημείωση: Πλαστικοποιημένη νιτροκυτταρίνη περιέχουσα όχι λιγώτερο του 18 στα εκατό φθαλικό βουτύλιο ή πλαστικοποιητική ύλην τουλάχιστον ίσην σεδραστικότητα είναι ύλη της Κλάσεως 4.1. (βλέπε περιθώριο 2401 7° (β) και (γ)).

Βλέπε επίσης Προσθήκην Α.1., περιθώριο 3102, Ι.

5° Μη-ζελατινώδης νιτροκυτταρινούχος πυρίτις. Βλέπε επίσης Προσθήκην Α.1, περιθώριον 3102.

6° Τρινιτροτολουόλη (τολίτης), επίσης όταν πιεσθεί ή χυθεί, τρινοτροτολουόλη μεμιγμένη μεαλουμίνιο, μίγματα μετην ονομασία υγρή τρινοτροτολουόλη, και τρινιτροανιζόλη.

Βλέπε επίσης Προσθήκην Α.1. περιθώριο 3103.

7° (α) HEXYL (Εξυλένιο) (εξανιτροδιφαινυλαμίνη) και πικρικό οξύ (μελινίτις).

(β) PETROLITES (Πεντολίτες) μίγματα τετρανιτρικής πενταερυθριτόλης και τρινιτροτολουόλης) και HEXOLITES (Εξολίτες) (μίγματα τριμεθυλενίου - τρινιτραμίνης και τρινιτροτολουόλης) εάν το εις τρινιτροτολουόλην περιεχόμενόν τους είναι τέτοιο ώστε ηευαισθησία τους σεπερίπτωση κρούσεως δενυπερβαίνει την ευαισθησία της τετρύλης).

(γ) PHLEGMATIZED PENTHRITE (Αδρανοποιημένος Πενθρίτης) (τετρανιτρική πενταεθριτόλη) και PHLEGMATIZED HEXOGEN (Αδρανοποιημένον Εξογόνον) (τριμεθυλένιον - τρινιτραμίνιον), αμφότερα αδρανοποιημένα δι' ενσωματώσεως κηρού, κηρού παραφίνης ή άλλων παρόμοιων δραστικών υλών σετέτοια ποσότητα ώστε ηευαισθησία των υλών αυτών σεπερίπτωση κρούσεως να μηνυπερβαίνει την ευαισθησία της τετρύλης).

Για τα (α), (β) και (γ) βλέπε επίσης Προσθήκην Α.1, περιθώριο 3103.

Σημείωση: Οι ύλες της 7° (β) και το PHLEGMATIZED HEXOGEN της 7° (γ) μπορεί επίσης να περιέχουν αλουμίνιο.

8° Εκρηκτικές οργανικές αζωτούχοι - συνθέσεις (ενώσεις):

(α) διαλυτές στο νερό, π.χ. τρινιτρορεζορκίνη.

(β) αδιάλυτες στο νερό, π.χ. τετρύλη (τρινιτροφαινυλικομεθυλοτραμίνιον).

(γ) Αναφλεκτικά εμπύρια τετρύλης χωρίς μεταλλικό κάλυμμα.

Για τα (α) και (β) βλέπε επίσης Προσθήκην Α.1., περιθώριο 3103.

Σημείωση: Εκτός για υγρή τρινιτροτολουόλη (6°), οι κρηκτικές οργανικές αζωτούχοι - συνθέσεις (ενώσεις) αεστερεά κατάσταση δενγίνονται δεκτές για μεταφορά.

9° (α) Υγρός πενθρίτης (τετρανιτρική πενταερυθριτόλη) και υγρόν εξογόνον (τριμεθυλένιο - τρινιτραμίνιο) υγροποιημένα εξολοκλήρου μεόχι λιγότερο του 20 στα εκατό νερό στην περιπτωση του πρώτου και όχι λιγώτερο του 15 στα εκατό στην περίπτωση του δευτέρου·

(β) υγροί πεντολίτες (μίγματα πενθρίτου και τρινιτροτολουόλης) και υγροί εξολίτες (μίγματα εξογόνου και τρινιτροτολουόλης) ή ευαισθησία των οποίων σεπερίπτωση κρούσεως σεξηρά κατάσταση υπερβαίνει εκείνην την τετρύλης και οι οποίες είναι υγροποιημένες εξολοκλήρου μεόχι λιγώτερο του 15 στα εκατό νερό·

(γ) υγρά μίγματα πενθρίτου ή εξογόνου μεκηρόν, κηρόν παραφίνης ή ύλες όμοιες μεκηρόν ή κηρόν παραφίνης, ηευαισθησία των οποίων σεπερίπτωση κρούσεως σεξηρά κατάσταση υπερβαίνει εκείνη της τετρύλης και οι οποίες είναι υγροποιημένες εξολοκλήρου μεόχι λιγώτερο του 15 στα εκατό νερό·

(δ) πεπιεσμένα αναφλεκτικά εμπύρια πενθρίτου χωρίς μεταλλικό κάλυμμα.

Για τα (α), (β) και (γ), βλέπε επίσης Προσθήκην Α.1., περιθώριο 3103.

10° (α) Υπεροξείδιο Βενζοϋλίου:

1. σεξηρά κατάσταση ή μελιγώτερο του 10 στα εκατό νερό.

2. μελιγώτερο του 30 στα εκατό αδρανοποιητική ύλη (PHLEMATIZER).

Σημείωση: 1. Το υπεροξείδιο βενζοϋλίου μεόχι λιγώτερο του 10 στα εκατό νερό ή μεόχι λιγώτερο του 30 στα εκατό αδρανοποιητική ύλη (PHLEGHMATIZER) είναι ύλη της Κλάσεως 5.2. (βλέπε περιθώριο 2551, 8° (α) καί (β)).

2. Το υπεροξείδιο βενζοϋλίου μεόχι λιγώτερο του 70 στα εκατό ξηρά και αδρανή στερεά δενυπόκειται στις διατάξεις της ADR.

(β) Υπεροξείδια Κυκλοεξανόνης (L - HYDROXY - L' HYDROPEROXYDICYCLOHEXYL υπεροξείδιο και BIS - (L - HYDROXYCYCLOHEXYL) υπεροξείδιο και μίγματα των δύο τούτων συνθέσεων):

1. σεξηρά κατάσταση ή μελιγώτερο του 5 στα εκατό νερό·

2. μελιγώτερο του 30 στα εκατό αδρανοποιητικής ύλης (PHLEGMATIZER)·

Σημείωση: 1. Τα υπεροξείδια κυκλοεξανόνης και τα μίγματά τους μεόχι λιγώτερο του 5 στα εκατό νερό ή όχι λιγώτερο του 30 στα εκατό αδρανοποιητική ύλη είναι ύλες της Κλάσεως 5.2. (βλέπε περιθώριο 2551 9° (α) και (β)).

2. Τα υπεροξείδια κυκλοεξανόνης και τα μίγματά τους μεόχι λιγώτερο του 70 στα εκατό ξηρά και αδρανή στερεά δενυπόκεινται στις διατάξεις της ADR.

(γ) Υπεροξείδιο Παραχλωροβενζοϋλίου:

1. σε ξηρά κατάσταση ή με λιγώτερο του 10 τοις εκατόν νερό·

2. με λιγώτερο του 30 στα εκατόν αδρανοποιητικήν ύλην (PHLEGMATIZER).

Σημείωσις: 1. Το υπεροξείδιο παραχλωροβενζοϋλίου με όχι λιγώτερο του 10 στα εκατόν νερό ή με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ύλης είναι ύλη της Κλάσεως 5.2 (βλέπε 2551 17°(α).

2. Το υπεροξείδιο παραχλωροβενζοϋλίου με όχι λιγότερο του 70 στα εκατόν ξηρά και αδρανή στερεά δεν υπόκειται στις διατάξεις της ADR.

11°(α) Μελανή πυρίτις (με βάσιν νιτρικού καλίου) υπό μορφήν κόκκων ή αλεύρου (κόνεως)·

β) ορυκτική πυρίτις βραδείας ενεργείας (SLOW MINING POWDERS) όμοια με μελανήν πυρίτιδα (αποτελουμένη από νιτρικόν νάτριον, θείο και ξυλάνθρακα, άνθρακα ή λιγνίτην, ή αποτελουμένη από νιτρικόν κάλιον μετά ή άνευ νιτρικού νατρίου, θείου άνθρακος ή λιγνίτου)·

γ) φυσίγγια πεπιεσμένης μελανής πυρίτιδας ή πυρίτιδας ομοίας με πεπιεσμένην μελανήν πυρίτιδα.

Σημείωσις: Η πυκνότης της πεπιεσμένης μάζας δεν πρέπει να είναι μικρότερη των 1.5 γραμμαρίων ανά CM^3.

Για τα (α) και (β), βλέπε επίσης Προσθήκην Α.Ι., περιθώριο 3104.

12 – ο α) Νιτρικές εκρητικές ύλες, υπό μορφή πυρίτιδος μη καλυπτόμενες υπό των 11° ή 14°(α) ή (γ) και αποτελούμενες βασικώς εκ νιτρικού αμμωνίου ή εκ μίγματος νιτρικού αμμωνίου και άλκαλι ή νιτρικών υλών αλκαλικών γαιών ή μίγματος νιτρικού αμμωνίου και χλωριούχου νατρίου, ή μίγματος άλκαλι ή νιτρικών υλών αλκαλικών γαιών και χλωριούχου αμμωνίου, ή μίγματος νιτρικού αμμωνίου μα άλκαλι ή νιτρικών υλών αλκαλικών γαιών και χλωριούχου αμμωνίου.

Ηπορούν, επιπροσθέτως, να περιέχουν καύσιμες ύλες (όπως ξυλάλευρον, ή άλλα φυτικά άλευρα ή υδρογονάνθρακες), ευαισθητοποιητικές ύλες (π.χ. λεπτή κόνις αλουμινίου), αρωματικές αζωτούχους-συνθέσεις, νιτρογλυκερίνην ή νιτρογλυκόλην ή μίγμα των δύο, και αδρανείς σταθεροποιητικές ή χρωστικές ύλες (βλέπε επίσης Προσθήκην Α.Ι., περιθώριο 3105).

(β)Εκρητικές ύλες μη περιέχουσες ανόργανα νιτρικά άλατα, υπό μορφήν πουρίτιδας, αποτελούμενες βασικώς εκ μίγματος αδρανών υλών (ως χλωριούχα άλκαλι) με νιτρογλυκερίνην ή νιτρογλυκόλην ή μίγμα των δύο.

Μπορούν να περιέχουν, επιπροσθέτως, αρωματικές αζωτούχους-συνθέσεις και ύλες με αποτέλεσμα αδρανοποιητικό, σταθεροποιητικό ή ζελατινώδες ή χρωστικό.

Βλέπε επίσης Προσθήκην Α.Ι., Περιθώριο 3105.

13° χλωρικές και υπερχλωρικές εκρητικές ύλες, τ.ε. μίγματα χλωριούχων ή υπερχλωριούχων άλκαλι ή μετάλλων αλκαλικών – γαιών με συνθέσεις πλούσιες εις άνθρακα. Βλέπε επίσης Προσθήκην Α.Ι., περιθώριο 3106.

14° – ο (α) Δυναμίτες με αδρανές απορροφητικόν, και εκρητικές ύλες όμοιες με δυναμίτη με αδρανές απορροφητικό·

(β) BLASTING GELATINE (εγκαιροφλεγής ζελατίνη) αποτελούμενη από βαμβακοπυρίτιδα και όχι άνω του 93 τα εκατό νιτρογλυκερίνην, και GELATINIZED DYNAMITES (ζελατινώδεις δυναμίτες) με περιεχόμενον νιτρογλυκερίνης ή υπερβαίνον το 85 στα εκατό·

(γ) ζελατινώδεις νιτρικές εκρηκτικές ύλες, αποτελούμενες βασικώς εκ νιτρικού αμμωνίου, ή εκ μίγματος νιτρικού αμμωνίου με νιτρικές ύλες άλκαλι ή μέταλλα αλκαλικών γαιών περιέχοντα όχι άνω του 40 τοις εκατόν ζελατινώδους νιτρογλυκερίνης ή ζελατινώδους νιτρογλυκερίνης ή μίγματος των δύο.

Μπορούν να περιέχουν, επιπροσθέτως, αζωτούχους – συνθέσεις ή καύσιμες ύλες (ως ξυλάλευρον ή έτερον φυτικόν άλευρον ή υδρογονάνθρακας) και, επιπροσθέτως άλλες αδρανείς ή χρωστικές ύλες.

Για τα (α), (β) και (γ), βλέπε επίσης Προσθήκη Α.Ι., περιθώριο 3107.

15° Κενά είδη συσκευασίας, ακαθάριστα, που περιείχαν επικίνδυνες ύλες της Κλάσεως Ια.

2. Διατάξεις

Α. Κόλα

Ι. Γενικοί όροι συσκευασίας

Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και στεγανά 2102
ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. Η χρήση μεταλλικών λωρίδων ή συρμάτων προς εξασφάλισιν του κλεισίματος απαγορεύεται εκτός εάν ο τρόπος τούτος ειδικώς επιτρέπεται εκ των ειδικών διατάξεων των σχετικών με την συσκευασίαν των στο θέμα υλών ή εμπορευμάτων (ειδών).

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και το κλείσιμο αυτών κατασκευάζονται δεν θα πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενον ή να σχηματίζουν βλαβείς ή επικινδύνους συνθέσεις.

(3) Τ είδη συσκευασίας, περιλαμβανομένων των κλεισιμάτων αυτών, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα τμήματά τους προς αποφυγήν οποιασδήποτε χαλαρώσεως διαρκούσης της μεταφοράς και για να πληρούν τους κανονικούς όρους μεταφοράς. Στερεές ύλες θα ασφαλίζονται καλώς στις συσκευασίες τους, και εσωτερικές συσκευασίες θα ασφαλίζονται σταθερά στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ορίζεται στη παράγραφο που τιτλοφορείται «Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους», τα εσωτερικά είδη συσκευασίας μπορούν να εγκλείονται στα εξωτερικά, είτε ένα ένα είτε σε ομάδες.

(4)Φιάλες και άλλα γυάλινα δοχεία (σκεύη) πρέπει να είναι απηλλαγμένα από βλάβες που κινδυνεύουν να εξασθενίζουν την αντοχή τους· ειδικώτερα, πρέπει να έχουν καταλλήλως απαλλαγεί από εσωτερικές τάσεις (θραύσεως, κλπ.). Το πάχος των τοιχωμάτων δεν πρέπει να είναι μικρότερο των 2 ΜΜ (χιλ.).

(5) Αποσβετικό (μαξιλάρια, κλπ.) υλικό θα πρέπει να ταιριάζει με τη φύση του περιεχομένου· ειδικώτερα, πρέπει να είναι απορροφητικό, εάν το περιεχόμενο είναι υγρόν ή μπορούσε να εξιδρώσει υγρό.

2. Συσκευασία μιάς ύλης ή εμπορευμάτων του αυτού είδους

(Ι) Οι ύλες της 1°και 2° θα συσκευάζονται:

(α)σε ξύλινα δοχεία ή βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα (ινοσανίδα)· αυτά τα δοχεία και βαρέλια θα είναι επιπροσθέτως εφοδιασμένα με αδιαπέραστη από τα υγρά που περιέχουν εσωτερική επένδυση· το κλείσιμό τους πρέπει νέα είναι στεγανό ή 2103

(β) σε αδιαπέραστους σάκκους (π.χ. κατασκευασμένους από ελαστικό ή κατάλληλη πλαστική ύλη όχι ευχερώς εύφλεκτη) τοποθετημένους σε ξύλινα κιβώτια· ή

(γ) σε σιδηρά βαρέλια επενδεδυμένα εσωτερικώς με ψευδάργυρον ή μόλυβδον· ή

(δ) σε δοχεία κατασκευασμένα από πλάκες κασσιτέρου, φύλλα ψευδαργύρου ή φύλλα αλουμινίου, τα οποία θα ασφαλίζονται με αποσβεστικό (μαξιλάρια, κλπ.) υλικό σε ξύλινα κιβώτια.

(2) Μεταλλικά δοχεία θα είναι εφοδιασμένα με κλείσιμον ή μηχανισμούς ασφαλείας που θα υποχωρούν όταν η εσωτερική πίεση φθάσει σε τιμή όχι μεγαλύτερη των $3KG/CM^2$ η παρουσία αυτών των κλεισιμάτων ή μηχανισμών ασφαλείας δενπρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμο αυτού.

(3) Η Νιτροκυτταρίνη της 1°, εάν υγροποιηθεί αποκλειστικά με νερό, μπορεί να συσκευασθεί σε βαρέλια από ινώδη σανίδα· η ινώδις σανίδα πρέπει να έχει υποστεί ειδική επεξεργασία ώστε να καταστεί τελείως αδιαπέραστη· τα κλεισίματα των βαρελιών πρέπει να είναι ύδατο - ατμοστεγανά.

(4)Κόλον περιέχον ύλες της 1° δεν πρέπει να ζυγίζει πάνω από 120 KG ή, εάν μπορεί να ρολαρισθεί, πάνω από 300 KG. Εν τούτοις, όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75kg.

Κόλον περιέχον ύλες της 2° δεν πρέπει να ζυγίζει πάνω από 75 KG.

(Ι) Ύλες της 3° (α) και 4° θα συσκευάζονται:

(α) εάν πρόκειται να μεταφερθούν σαν πλήρες φορτίο: 2104

(1) σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα· ή

2) σε συσκευασίες κατασκευασμένες από ξύλο ή μέταλλο εκτός από μελανόν έλασμα σιδήρου·

(β) εάν δεν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:

1. σε κυτία κατασκευασμένα από ινώδη σανίδα, πλάκες – κασσιτέρου, φύλλα ψευδαργύρου ή φύλλα αλουμινίου, ή από κατάλληλη πλαστική ύλη κατασκευασμένη έτσι ώστε να μην είναι ευχερώς εύφλεκτη, ή σε σάκκους κατασκευασμένους από ύφασμα με πυκνή ύφανση ή από γερό χαρτί τουλάχιστον δίφυλλο ή από γερό χαρτί ντυμένο με λεπτό φύλλο αλουμινίου ή με κατάλληλη πλαστική ύλη. Οι συσκευασίες αυτές θα τοποθετούνται σε ξύλινα κιβώτια· ή

2. χωρίς προκαταρκτική συσκευασία σε κιβώτια ή σάκκους:

α. σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα ή σε ξύλινα βυτία (CASKS) ή

β) σε ξύλινες συσκευασίες επενδεδυμένες με φύλλα ψευδαργύρου ή φύλλα αλουμινίου· ή

γ) σε δοχεία κατασκευασμένα από μέταλλο εκτός από μελανό έλασμα – σιδήρου.

(2) Εάν η πυρίτιδα είναι σε σωλήνες, ράβδους, νήματα, λωρίδες ή φύλλα, μπορεί επίσης να εγκλεισθεί [illegible]

ταρκτική συσκευασία σε κυτία ή σάκκους, μέσα σε ξύλινα κιβώτια.

(3) Μετταλικά δοχεία θα είναι εδοφιασμένα με μηχανισμούς ασφαλείας ή κλεισίματα που θα υποχωρούν όταν η εσωτερική πίεσις φθάσει τιμήν όχι μεγαλύτερη των P3 MPA (3 dar). Η παρουσία των μηχανισμών αυτών και κλεισιμάτων δεν πρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμό του.

(4) Το κλείσιμο των ξυλίνων κιβωτίων μπορεί να εξασφαλίζεται με λωρίδες (τσέρκια) ή σύρματα κατασκευασμένα από κατάλληλο μέταλλο στερεωμένο σφικτά γύρω από αυτά. Εάν οι λωρίδες ή τα σύρματα είναι κατασκευασμένα από σίδερο θα καλύπτονται με υλικό που δεν θα κινδυνεύει να παράγει σπινθήρες όταν υποστεί κρούση ή τριβή.

(5) Το κόλον δεν πρέπει να ζυγίζει πάνω από 120 KG όμως, όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(Ι) Ύλες της 3° (β) και 5° θα συσκευάζονται:

(α) εάν πρόκειται να μεταφερθούν σαν πλήρες φορτίο: 2105

1. σε βαρέλια κατασκευσμένα από αδιαπέραστη ινώδη σανίδα· ή

2. σε συσκευασίες κατασκευασμένες από ξύλο ή μέταλλο εκτός από μελανό έλασμα – σιδήρου·

(β) εάν δεν πρόκειται να μεταφερθούν σαν πλήρες φορτίο:

1. σε κυτία κατασκευασμένα από ινώδη σανίδα, πλάκες – κασσιτέρου ή φύλλα αλουμινίου. Το κυτίο δεν πρέπει να περιέχει πάνω από 1KG πυρίτιδα και πρέπει να είναι τυλιγμένο με χαρτί. Οι συσκευασίες αυτές θα τοποθετούνται σε ξύλινες συσκευασίες.

2. σε σάκκους κατασκευασμένους από ύφασμα με πυκνή ύφανση ή από γερό χαρτί τουλάχιστο δί-φυλλο ή από γερό χαρτί επενδεδυμένο με λεπτό φύλλο αλλουμινίου ή με κατάλληλη πλαστική ύλη. Οι σάκκοι αυτοί θα τοποθετούνται σε βαρέλια από ινώδη σανίδα ή σε ξύλινους κάδους (βυτία) ή σε ξύλινες συσκευασίες επενδεδυμένες με φύλλα ψευδαργύρου ή φύλλα αλουμινίου, ή σε δοχεία κατασκευασμένα από φύλλα ψευδαργύρου ή φύλλα αλουμινίου. Δοχεία κατασκευασμένα από φύλλα ψευδαργύρου ή φύλλα αλουμινίου θα είναι τελείως επενδεδυμένα με ξύλο ή ινώδη σανίδα.

(2) Μεταλλικά δοχεία θα είναι εφοδιασμένα με κλεισίματα ή μηχανισμούς ασφαλείας οι οποίοι θα υποχωρούν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγαλύτερη των 3 KG/CM². η παρουσία των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμον αυτών.

(3) Το κλείσιμο των ξυλίνων κιβωτίων μπορεί να εξασφαλισθεί με λωρίδες ή σύρματα κατασκευασμένα από κατάλληλο μέταλλο στερεωμένα σφικτά γύρω απ' αυτά. Εάν οι λωρίδες ή τα σύρματα είναι κατασκευασμένα από σίδερο θα καλύπτονται από υλικό που δεν κινδυνεύει να παράγει σπινθήρες όταν υποβληθεί σε κρούση ή τριβή.

(4) Κόλον της (Ι) (α) δεν πρέπει να ζυγίζει πάνω από 100KG όμως, όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. κόλον της (Ι) (β) δεν πρέπει να ζυγίζει πάνω από 75 KG. Δεν πρέπει να περιέχει πάνω από 30 KG πυρίτιδος νιτροκυτταρίνης.

(1) Ύλες της 6° θα συσκευάζονται:

σε ξύλινα δοχεία. Βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα θα γίνονται επίσης δεκτά για στερεά τρινιτροτολουόλη και για τρινιτροανιζόλη, και σιδερά δοχεία για μίγματα με την ονομασία υγρά τρινιτροτολουόλη. 2106

(2) Τα μεταλλικά δοχεία θα είναι εφοδιασμένα με κλεισίματα ή μηχανισμούς ασφαλείας που υποχωρούν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγαλύτερη των 3 KG/CM². ηύπαρξη των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δενπρέπει να εξασθενεί την αντοχήν του δοχείου ούτε να εξασθενεί το κλείσιμό του.

(3) Κόλον δεν πρέπει να ζυγίζει πάνω από 120 KG ή, εάν μπορεί να ρολλαρισθεί, πάνω από 300 KG· όμως, όταν χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(Ι) Ύλες της 7° θα συσκευάζονται:

(α) ύλες της 7° (α): σε ξύλινα δοχεία ή σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα. Μόλυβδος και 2107

υλικά περιέχοντα μόλυβδον (κράσματα ή συνθέσεις) δεν πρέπει να χρησιμοποιούνται στη συσκευασία HEXYL (Εξυλενίου) (Εξανιτροδιφαινυλαμίνης) και πικρικού οξέος.

Το πικρικό οξύ μπορεί επίσης να συσκευασθεί όχι πάνω από 500 γραμμάρια ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, κεραμεική ύλη (πηλός) ή παρόμοια υλικά ή από κατάλληλη πλαστική ύλη, ασφαλισμένα σε ξύλινο κιβώτιο με αποσβεστικό υλικό (π.χ. κυματοειδής ινώδης σανίδα). Τα δοχεία θα κλεινονται με βούλωμα, από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη, που θα κρατείται στη θέση του με πρόσθετο μηχανισμό (όπως πώμα, καπάκι, κορώνα, σφραγίδα ή δέσιμο) ικανόν να εμποδίσει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς·

(β) ύλες 7° (β) και (γ): όχι πάνω από 30 KG ανά σάκκον σε υφασματένιους σάκκους που δεν επιτρέπουν στο περιεχόμενο να διηθηθεί, ή σε σακκούλες κατασκευασμένες από γερό χαρτί ή κατάλληλη πλαστική ύλη, που θα τοποθετούνται σε ξύλινα στεγανά δοχεία ή βαρέλια κατασκευασμένα από σκληρή (κατόπιν βαφής) ινώδη σανίδα ικανά να κλείνουν έτσι ώστε να είναι στεγανά και των οποίων οι πυθμένες και τα καλύμματα θα είναι κατασκευασμένα από κόντρα πλακέ.

Τα καλύμματα των κιβωτίων θα ασφαλίζονται με βίδες και των βαρελιών με κολλάρο.

(2) Κόλον περιέχον ύλες της 7° (α) δεν πρέπει να ζυγίζει πάνω από 120 εάν είναι ξύλινο δοχείο· οσάκις χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Κόλα περιέχοντα πικρικόν οξύ συσκευασμένο σε εύθραυστα δοχεία ή σε δοχεία κατασκευασμένα από πλαστική ύλη δεν πρέπει να ζυγίζουν πάνω από 15 KG. Κόλον περιέχον ύλες της 7° (β) ή (γ) δεν πρέπει να ζυγίζει πάνω από 75 KG· κιβώτια των οποίων το περιεχόμενο ζυγίζει πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(Ι) Ύλεςκαι είδη της 8° θα συσκευάζονται:

(α) της 8° (α): σε δοχεία κατασκευασμένα από χάλυβα μη 2108
υποκείμενον σε σκουριά, ή από οποιουδήποτε άλλο κατάλληλο υλικό (το οποίο ειδικώτερα εξιδρώνει μόλυβδον και τα κράματα αυτού)· Νιτρικές – συνθέσεις θα έχουν ομοιόμορφα υγροποιηθεί (μουσκεφθεί) με αρκετό νερό για να εξασφαλίζεται ότι περιέχουν όχι λιγώτερο του 25 στα εκατό νερό καθ' όλο το ταξίδι, σε κάθε σημείο της ύλης. Τα μεταλλικά δοχεία θα είναι εφοδιασμένα με κλεισίματα ή μηχανισμούς ασφαλείας που υποχωρούν όταν η εσωτερική πίεση φθάσει τιμήν όχι μεγαλύτερη των 3KG/CM². Η ύπαρξη των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχή του δοχείου ούτε να εξασθενεί το κλείσιμό του. Δοχεία εκτός εκείνων που είναι κατασκευασμένα από χάλυβα μη υποκείμενον σε σκουριά, θα εξασφαλίζονται (στερεώνονται) με αποσβεστικό (μαξιλάρια, κλπ) υλικό σε ξύλινες συσκευασίες·

(β) ύλες της 8° (β): όχι πάνω από 15 KG ανά σάκκον, σε σάκκους κατασκευασμένους από ύφασμα ή κατάλληλο πλαστικό υλικό, τοποθετημένους σε ξύλινες συσκευασίες·

(γ) ύλες της 8° (α) και (β) μπορούν επίσης να συσκευάζονται, όχι πάνω από 500 γραμμάρια ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλο πλαστική ύλη, στερεωμένα με αποσβεστικό υλικό (π.χ. κυματοειδή ινώδη σανίδα) σε ξύλινο κιβώτιο. Το κόλον δεν πρέπει να περιέχει πάνω από 5KG αζωτούχων συνθέσεων. Τα δοχεία θα κλείσουν με αναστολέα (STOPER), κατασκευασμένον από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη, και θα κρατείται στη θέση του με πρόσθετο μηχανισμό (όπως καπάκι, κορώνα, σφραγίδα ή δέσιμο) ικανόν να εμποδίζει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς·

(δ) είδη (εμπορεύματα) της 8° (γ): χωριστά σε χονδρό χαρτί και τοποθετημένα, όχι πάνω από 100 ανά κυτίο, σε κυτία από μεταλλικά ελάσματα. Όχι περισσότερα των 100 τοιούτων κυτίων θα συσκευάζονται σε κιβώτιο ξύλινης συσκευασίας·

(2) Κόλον των παραγράφων (Ι) (α) ή (β) δεν πρέπει να ζυγίζει πάνω από 75 KG· δεν πρέπει να περιέχει πάνω από 25 KG ύλες της 8° (α) ή πάνω από 50 KG ύλες της 8° (β). Κό-

λον της παραγράφου (Ι) (γ) δεν πρέπει να ζυγίζει πάνω από 15 KG, ή κόλον της παραγράφου Ι(δ) πάνω από 40 KG.

(Ι) Ύλες και είδη της 9° θα συσκευάζονται:

α) ύλες της 9° (α) έως (γ): 2109

Ι. Όχι πάνω από 10 KG ανά σάκκον, σε σάκκους από ύφασμα ή από κατάλληλη πλαστική ύλη, τοποθετημένους σε κυτίο από αδιαπέραστη ινώδη σανίδα ή σε κυτίο κατασκευασμένο από πλάκες – κασσιτέρου ή φύλλα αλουμινίου ή φύλλα ψευδαργύρου· ή

2. Όχι πάνω από 10 KG ανά δοχείο, σε δοχεία κατασκευασμένα από ινώδη σανίδα καταλλήλου αντοχής, εμποτισμένη με κηρόν παραφίνης ή καταστάσα αδιαπέραστη με άλλα μέσα.

Κυτία κατασκευασμένα από πλάκες – κασσιτέρου ή φύλλα αλουμινίου ή φύλλα ψευδαργύρου και κυτία ή δοχεία από άλλα είδη θα τοποθετούνται σε ξύλινο κιβώτιο επενδεδυμένο με κυματοειδή ινώδη – σανίδα· μεταλλικά κυτία ούτω τοποθετημένα θα χωρίζονται το ένα από το άλλο με περιτύλιγμα από κυματοειδή ινώδη – σανίδα. Το κιβώτιο δεν πρέπει να περιέχει πάνω από τέσσερα κυτία ή δοχεία άλλων ειδών. Τα καλύμματα των κιβωτίων θα στερεώνονται με βίδες.

(β) πενθρίτης (9°(α)) μπορεί επίσης να συσκευάζεται είτε: (Ι) όχι πάνω από 5 KG ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, κλεισμένα με αναστολέα (βούλωμα) από φελλο ή ελαστικό ή από κατάλληλη πλαστική ύλη κάθε δοχείο θα τοποθετείται σε μεταλλικό δοχείο ερμητικώς κλεισμένο δια συγκολλήσεως ή μαλακής συγκολλήσεως και θα συγκρατείται από κτύπημα με υλικά που έχουν ελαστικότητα σε τρόπο ώστε να σφηνώνουν στερεά το εσωτερικό δοχείο χωρίς να αφήνουν άδειο χώρο. Όχι περισσότερα από 4 μεταλλικά δοχεία θα συσκευάζονται σε ξύλινο κιβώτιο επενδεδυμένο με κυματοειδή ινώδη – σανίδα και θα χωρίζονται το ένα από το άλλο με διάφορα πάχη κυματοειδούς ινώδους σανίδας· ή άλλο υλικό ικανό να εκτελέσει την ίδια λειτουργία· ή

(2) όχι πάνω από 500 γραμμάρια ξηρού βάρους ανά δοχείο, σε δοχεία κατασκευασμένα από γυαλί, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, ή από κατάλληλη πλαστική ύλη, κλεισμένα με αναστολέα (βούλωμα) από φελλό ή ελαστικό ή από κατάλληλη πλαστική ύλη. Τα δοχεία αυτά θα τοποθετούνται σε ξύλινο κιβώτιο. Θα χωρίζονται το ένα από το άλλο με περιτύλιγμα κυματοειδούς ινώδους σανίδας και από τα πλευρά του κιβωτίου σε απόσταση όχι μικρότερη των 3CM που θα γεμίζεται (ο κενός χώρος) με αποσβεστικό υλικό·

(γ) Το HEXOGEN (εξογόνον) (9°(α)) μπορεί επίσης να συσκευάζεται όπως προβλέπεται στην (β) 1, ανωτέρω, για τον πενθρίτη·

(δ) είδη της 9°(δ): πρώτα χωριστά σε γερό χαρτί και θα τοποθετούνται, όχι άνω των 3KG ανά κιβώτιο, σε κιβώτια από ινώδη σανίδα τα οποία θα στηρίζονται στη θέση τους με αποσβετικό υλικό· τα κιβώτια αυτά, όχι άνω των 10 ανά ξύλινο κιβώτιο, θα στερεώνονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο κλεισμένο με βίδες σε τρόπο ώστε όχι μικρότερος των 3 CM να γεμίζεται με αποσβεστικό υλικό σ' όλα τα σημεία μεταξύ των, εκ σανίδος ινώδους, κιβωτίων και του κιβωτίου συσκευασίας.

(2) Κόλον των (Ι) (α) ή (Ι) (β) Ι. δεν πρέπει να ζυγίζει πάνω από 75 KG· κόλον της Ι (γ) δεν πρέπει να ζυγίζει πάνω από 10 KG. Κόλον της (Ι) (β) 2, ή (Ι) (δ) δεν πρέπει να ζυγίζει πάνω από 25 KG. Κόλα τα οποία, με το περιεχόμενό τους, ζυγίζουν πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(1) Ύλες της 10° θα συσκευάζονται:

όχι άνω των 500 γραμμαρίων ανά σάκκον, σε στερεά δεμένους σάκκους από κατάλληλο εύκαμπο υλικό· κάθε σάκκος θα τοποθετείται σε κυτίο από μέταλλο, ινώδη – σανίδα ή χαρτόνι (χαρτοσανίδα)· αυτά τα κυτία, όχι περισσότερα από 30 ανά κιβώτιο συσκευασίας, θα στερεώνονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο συσκευασίας με πλήρεις πλευρές πάχους όχι μικροτέρου των 12MM (χιλιοστών). 2110

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 25 KG.

(Ι) Ύλες και είδη της 11° θα συσκευάζονται:

(α) ύλες της 11°(α) και (β): 2111

(1) όχι άνω των 2.5 KG ανά σάκκον, σε σάκκους τοποθετημένους σε κυτία κατασκευασμένα από ινώδη σανίδα, πλάκες κασσιτέρου ή από αλουμίνιο. Τα κυτία θα στερεώνονται με αποσβεστικό υλικό σε ξύλινα είδη συσκευασίας· ή

(2) σε σάκκους κατασκευασμένους από ύφασμα με πυκνή ύφανση, τοποθετημένους σε ξύλινα κιβώτια·

(3) είδη της 11°(γ): ρολλαρισμένα με γερό χαρτί· κάθε ρόλος δεν πρέπει να ζυγίζει πάνω από 300 γραμμάρια. Οι ρόλλοι θα τοποθετούνται σε ξύλινο κιβώτιο επενδεδυμένο με γερό χαρτί.

(2) Τα καλύμματα των ξυλίνων κιβωτίων θα στερεώνονται με βίδες· εάν οι βίδες είναι κατασκευασμένες από σίδερο θα επιχρίονται με υλικό που δεν θα παράγει σπινθήρες όταν υποστεί κρούση ή τριβή.

(3) Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 75KG εάν μεταφέρεται ως τμήμα πλήρους φορτίου, και όχι περισσότερο από 35 KG εάν δεν μεταφέρεται ως τμήμα πλήρους φορτίου.

(Ι) Ύλες της 12° θα φυσιγγιοποιούνται μέσα σε περιτυλίγματα κατασκευασμένα:

από κατάλληλη πλαστική ύλη ή χαρτί. Τα φυσίγγια θα βυθίζονται σε κηρό παραφίνης, κηροζίνης ή ρητίνη, ή θα τυλίζονται σε κατάλληλη πλαστική ύλη, ώστε να προστατεύονται από την υγρασία. Εκρηκτικά περιέχοντα πάνω από 6 στα εκατόν υγρούς νιτρικούς εστέρας θα φυσιγγιοποιούνται με χαρτί επενδεδυμένο με κηρόν παραφίνης ή κηροζίνη ή με αδιαπέραστη πλαστική ύλη όπως το πολυαιθυλένιο. Τα φυσίγγια θα τοποθετούνται σε ξύλινα είδη συσκευασίας.

(2) Φυσίγγια μη επενδεδυμένα με κηρόν παραφίνης ή κηροζίνην, ή φυσίγγια σε αδιαπέραστα περιτυλίγματα, θα γίνονται πακέτα που ζυγίζουν όχι άνω των 2.5 KG το καθένα. Έτσι κατασκευασμένα πακέτα, τα περιτυλίγματα των οποίων πρέπει να αποτελούνται τουλάχιστο από γερό χαρτί, θα βυθίζονται σε κηρό παραφίνης, κηροζίνη ή ρητίνη ή θα περιτυλίγονται με κατάλληλη πλαστική ύλη ώστε να προστατεύονται από την υγρασία. τα πακέτα θα τοποθετούνται σε ξύλινα είδη συσκευασίας.

(3) Τα κλεισίματα των ξυλίνων ειδών συσκευασίας μπορούν να ασφαλίζονται:

με μεταλλικές λωρίδες ή σύρματα δεμένα σφικτά γύρω τους. 2113

(4) Το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. Δεν πρέπει να περιέχει πάνω από 50KG εκρητικών.

(5) Αντί των ξυλίνων συσκευασιών των προβλεπομένων στις παραγράφους (1)και (2), επιτρέπεται επίσης να χρησιμοποιούνται κατάλληλα κιβώτια, κατασκευασμένα από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα, που είναι επαρκούς μηχανικής αντοχής και των οποίων τα πτερύγια (κλαπέτα) των καλυμμάτων και πυθμένων θα πρέπει να κλείνονται με κολλητικές ταινίες επαρκούς αντοχής. Το σχέδιο των κιβωτίων των κατασκευαζομένων από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα πρέπει να εγκριθεί από την αρμόδια αρχή της χώρας της αναχωρήσεως. Ένα τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 30 KG· δεν πρέπει να περιέχει πάνω από 25 KG εκρητικά.

(Ι) Οι Ύλες της 13° θα φυσιγγιοποιούνται χάρτινα περιτυλίγματα. Φυσίγγια μη επιχρισμένα με κηρόν παραφίνης ή κηροζίνην πρέπει αρχικά να γίνουν ρόλλοι με χαρτί το οποίον έχει καταστεί αδιαπέραστο. Θα κατασκευάζονται από χάρτινο περιτύλιγμα σε πακέτα ζυγίζοντα άνω των 2.5KG το καθένα, και θα στερεώνονται με αποσβεστικό υλικό σε ξύλινα είδη συσκευασίας των οποίων το κλείσιμο μπορεί να εξασφαλίζεται δια μεταλλικών ταινιών ή συρμάτων στερεωμένων σφικτά πέριξ αυτών.

(2)Το κόλον δεν πρέπει να ζυγίζει πάνω από 35 KG.

(Ι)Ύλες της 14° θα συσκευάζονται:

(α)ύλες της 14° (α): φυσιγγιοποιημένες σε περιτυλίγματα κατασκευασμένα από χαρτί το οποίο έχει καταστεί αδιαπέραστα. Τα φυσίγγια θα πακετάρονται με χάρτινο περιτύλιγμα ή, εάν χωρίς χάρτινο περιτύλιγμα, θα στερεώνονται με αδρανές αποσβεστικό υλικό σε ξύλινα είδη συσκευασίας των οποίων το κλείσιμο μπορεί να εξασφαλίζονται δια μεταλλικών ταινιών ή συρμάτων δεμένων (στερεωμένων) σφικτά γύρω τους. 2114

(β) ύλες της 14°(β): φυσιγγιοποιημένες σε περιτυλίγματα

κατασκευασμένα από χαρτί το οποίο έχει καταστεί αδιαπέραστο. Τα φυσίγγια θα τοποθετούνται σε κυτίο από ινώδη σανίδα. Τα κυτία από ινώδη σανίδα, περιτυλιγμένα με χαρτί το οποίο έχει καταστεί αδιαπέραστο, θα στερεώνονται, «χωρίς να αφήνουν κενά διαστήματα, σε ξύλινα είδη συσκευασίας των οποίων το κλείσιμο μπορεί να εξασφαλιστεί με μεταλλικές ταινίες ή σύρματα δεμένα (στερεωμένα) σφικτά γύρω τους.

(γ)Όλες της 14°(γ):

1. φυσιγγιοποιημένες σε περιτυλίγματα κατασκευασμένα από κατάλληλη πλαστική ύλη ή χαρτί. Τα φυσίγγια μπορούν να εμβυθίζονται σε κηρό παραφίνης, κηροζίνην ή ρητίνην ή να περιτυλίγονται με κατάλληλη πλαστική ύλη, ώστε να προφυλάσσονται από την υγρασία. Εκρητικά περιέχοντα άνω του 6 στα εκατόν υγρούς νιτρικούς εστέρες θα φυσιγγιοποιούνται με χαρτί επιχρισμένο με κηρόν παραφίνης ή κηροζίνην ή αδιαπέραστη πλαστική ύλη όπως το πολυαιθυλένιον. Τα φυσίγγια θα τοποθετούνται σε ξύλινα είδη συσκευασίας·

2. φυσίγγια μη επιχρισμένα με κηρο παραφίνης ή κηροζίνης, ή φυσίγγια σε αδιαπέραστα περιτυλίγματα, θα παρασκευάζονται σε πακέτα ζυγίζοντα όχι πάνω από 2.5. KG το καθένα. Τα πακέτα αυτά, των οποίων το περιτύλιγμα πρέπει να είναι τουλάχιστον από γερό χαρτί, θα εμβυθίζονται σε κηρό παραφίνης, κηροζίνη ή ρητίνη ή θα περιτυλίγονται με κατάλληλη πλαστική ύλη, ώστε να προστατεύονται από την υγρασία. Τα πακέτα θα τοποθετούνται σε ξύλινα είδη συσκευασίας.

3. Το κλείσιμο των ξυλίνων συσκευασιών μπορεί να εξασφαλίζεται δια μεταλλικών ταινιών ή συρμάτων δεμένων σφικτά γύρω τους·

4. αντί των ξυλίνων συσκευασιών των περιγραφομένων στις ανωτέρω παραγράφους 1 και 2, επιτρέπεται επίσης ή χρησιμοποίηση καταλλήλων κιβωτίων, κατασκευασμένων από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα που είναι επαρκούς μηχανικής αντοχής και των οποίων τα πτερύγια (κλαπέτα) των καλλυμμάτων και πυθμένων θα πρέπει να κλείνονται με κολλητικές ταινίες επαρκούς αντοχής. Το σχέδιο των κιβωτίων των κατασκευασμένων από στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα πρέπει να εγκρίνεται από την αρμόδια αρχή της χώρας της αναχωρήσεως.

(2) Κόλον περιέχον ύλες της 14°(α) ή (β) δεν πρέπει να ζυγίζει πάνω από 35KG. Κόλον περιέχον ύλες της 14° (γ) δεν πρέπει να ζυγίζει πάνω από 75 KG· δεν πρέπει να περιέχει εκρητικά πάνω από 50 KG. Στη περίπτωση συσκευασίας της παραγράφου Ι(γ) 4, το κόλον δεν πρέπει να ζυγίζει πάνω από 30 KG ούτε να περιέχει εκρητικά πάνω από 25 KG.

3. Μικτή συσκευασία

Ύλες αναγραφόμενες κάτω από αριθμόν είδους του περιθωρίου 2101 δεν πρέπει να συμπεριλαμβάνονται στο αυτό 2115 κόλον είτε με ύλες ομαδοποιημένες κάτω από τον αυτόν ή άλλον αριθμόν είδους του περιθωρίου αυτού, είτε με ύλες ή εμπορεύματα άλλων Κλάσεων, είτε με άλλα εμπορεύματα.

Σημείωση: Κόλα αναφερόμενα στο περιθώριο 2108 (1) (γ) μπορούν να περιέχουν οργανικάς αζωτούχους συνθέσεις εχούσας διαφορετικές συνθέσεις και ονομασίες.

4. Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκην Α. 9).

Κόλα περιέχοντα πικρικόν οξύ (70° (α)) θα μαρκάρονται 2116 με την ονομασία της ύλης με σαφείς, ευαναγνώστους και ανεξίτηλους ερυθρούς χαρακτήρες. Το μαρκάρισμα αυτό θα είναι στην επίσημη γλώσσα της χώρας της αναχωρήσεως και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν, τυχόν, δασμολόγια διεθνούς οδικής μεταφοράς, ή συμφωνίες συναφθείσες μεταξύ των ενδιαφερομένων για την επιχείρηση της μεταφοράς κρατών, προβλέπουν αλλιώς.

(1) Κόλα περιέχοντα ύλες και είδη της Κλάσεως 1α θα φέρουν 2117 ετικέτα σύμφωνον προς το μοντέλο No 1.

(2) Κόλα περιέχοντα εύθραστα δοχεία μη ορατά από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο No 12. Εάν τα εύθραστα δοχεία περιέχουν υγρά, τα κόλα οφείλουν επιπροσθέτως, εκτός προκειμένου περί αφραγισμένων αμπουλών, να φέρουν ετικέτες συμφώνως προς το μοντέλο No 11, οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά ισοδύναμον τρόπον οσάκις χρησιμοποιούνται άλλα είδη συσκευασίας.

Β. Λεπτομέρειες του εγγράφου της μεταφοράς.

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να είναι σύμφωνη προς μίαν των ονομασιών των υπογραμμισμένων στο περιθώριο 2101. Όταν η ονομασία της ύλης δεν καθορίζεται στη περίπτωση της 8°(α) και (β), θα πρέπει να χρησιμοποιείται η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται με κόκκινο και να ακολουθείται από λεπτομέρειες της Κλάσεως, του αριθμού του είδους (ομού με, το τυχόν, γράμμα), και τα αρχικά «ADR» ή «RID» (π.χ. 1α 3° (α) ADR)). 2119

(2) Τα παρακάτω πρέπει να βεβαιούνται στο έγγραφο της μεταφοράς: «Η φύσις των εμπορευμάτων, και το είδος της συσκευασίας, είναι σύμφωνα με τις διατάξεις της ADR».

(3) Για αποστολές οι οποίες, υπό περιθώριο Η105 του Παραρτήματος Β, πρόκειται να γίνουν δεκτές για μεταφορά ως πλήρες φορτίο και μόνον, το έγγραφο της μεταφοράς θα εικονίζει επίσης το βάρος κάθε κόλου και τον αριθμόν και την φύση των ειδών συσκευασίας.

2120

Γ. Κενά είδη συσκευασίας 2125

(1) Τα είδη συσκευασίας της 15° πρέπει να είναι ασφαλώς κλεισμένα και στεγανά στον ίδιο βαθμό, σαν να ήσαν γεμάτα.

(2) Άδειες συσκευασίες, ακαθάριστες, της παρ. 15° θα 2126 φέρουν τις ίδιες ετικέτες κινδύνου, σαν να ήσαν γεμάτες.

(3) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να είναι: «Κενόν κόλο, 1α, 15°, ADR (ή) RID». Η περιγραφή πρέπει να υπογραμμίζεται.

2127

ΚΛΑΣΗ Ιβ. - ΕΙΔΗ ΓΕΜΙΣΜΕΝΑ ΜΕ ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ 2129

1. Κατάλογος ειδών.

(1) Μεταξύ των ειδών που καλύπτονται από τον τίτλον 2130 της Κλάσεως Ιβ, μόνον τα αναγραφόμενα στο περιθώριο 2131 θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του παραρτήματος Β. Τα είδη αυτά τα οποία γίνονται δεκτά υπό ωρισμένους όρους θα θεωρούνται ως είδη της ADR.

(2) Εάν τα είδη τα αναγραφόμενα εις 7°, 10° ή 11° του περιθωρίου 2131 συντίθενται από, ή είναι γεμισμένα με, εκρηκτικές ύλες που αναγράφονται στο περιθώριο 2101, οι ύλες αυτές πρέπει να πληρούν τους αφορώντας αυτούς όρους αταθερότητας και ασφαλείας τους αναγραφομένους στη Προσθήκη Α.Ι.

1° Πυροσωλήνες με εμπυρευμένοι: 2131

(α) πυροσωλήνες ταχείας καύσεως (αναφλέξεως) (πυροσωλήνες αποτελούμενοι από χοντρό σωλήνα με πυρήνα (φυτίλλι) από μελανή πυρίτιδα, ή με φυτίλλι από νήματα εμποτισμένα με μελανή πυρίτιδα, ή με φυτίλλι από βαμβακό - νήματα εμπλουτισμένα με άζωτο)·

(β) εκρηκτικοί πυροσωλήνες υπό μορφήν μικράς τομής μεταλλικών σωλήνων με λεπτά τοιχώματα και με πυρήνα γεμισμένον με εκρηκτική ύλην· βλέπε επίσης Προσθήκην Α.Ι, περιθώριο 3108·

(γ) εύκαμπτοι εκρηκτικοί πυροσωλήνες τυλιγμένοι σε ύφασμα ή πλαστική ύλη, μικράς τομής και με πυρήνα (φυτίλλι) γεμισμένον με εκρηκτικήν ύλην· βλέπε επίσης Προσθήκην Α.Ι, περιθώριο 3109)·

(δ) εκρηκτικοί πυροσωλήνες ακαριαίας ενεργείας (μικράς - τομής υφασμένοι πυροσωλήνες με πυρήνα γεμισμένο με εκρηκτική ύλη πειό επικίνδυνη από τον πενθρίτη).

Για άλλους πυροσωλήνες, βλέπε Κλάσιν 1γ, 3° (περιθώριο 2171).

Μη - εκρηκτικά εμπύρια (εμπύρια τα οποία δεν παράγουν διαρρηκτικόν αποτέλεσμα είτε με τη βοήθεια πυροκροτητών είτε με άλλα μέσα):

(α) κρουσιφλεγή καψύλλια·

(β) 1. Εμπυρευμένοι θάλαμοι φυσιγγίων κεντρικής - κρούσεως μη γεμισμένοι με προωθητική πυρίτιδα, για πυροβόλα όπλα όλων των διαμετρημάτων·

2. εμπυρευμένοι θάλαμοι φυσιγγίων RIM - FIRE, μη γεμισμένοι με προωθητική πυρίτιδα, για όπλα FLOBERT και ατομικά όπλα ομοίων διαμετρημάτων·

(γ) φυτίλλια, ελικοειδή - εμπύρια και λοιπά όμοια εμπύρια περιέχοντα μικρό γέμισμα (μελανή πυρίτιδα ή άλλες εκρηκτικές ύλες), που ενεργοποιούνται με τη τριβή, κρούση ή τον ηλεκτρισμόν·

(δ) πυροσωλήνες άνευ οιουδήποτε μηχανισμού, π.χ. πυροκροτητού, δημιουργούντες διαρρηκτικόν αποτέλεσμα και χωρίς μεταδοτικόν (τροφοδοτικόν) γέμισμα (TRANSMISSION CHARGE).

3° Σιδηροδρομικά σήματα ομίχλης

4° Φυσίγγια φορητών (ατομικών) όπλων (με εξαίρεση τα περιέχοντα εκρηκτικό γέμισμα (βλέπε 11°):

(α) Φυσίγγια κυνηγίου·

(β) Φυσίγγια FLOBERT·

(γ) τροχιοδεικτικά φυσίγγια·

(δ) εμπρηστικά φυσίγγια·

(ε) λοιπά φυσίγγια κεντρικής - κρούσεως.

Σημείωση: Πλην των φυσιγγίων κηνυγίου με μολυβδένια σκάγια, μόνον τα φυσίγγια το διαμέτρημα των οπποίων δεν υπερβαίνει τα 13.2MM (χιλιοστά) θα θεωρούνται ως είδη της 4°.

5° Εκρηκτικοί πυροσωλήνες:

(α) πυροκροτητές μετά ή άνευ μηχανισμού βραδείας ενεργείας· βραδείας ενεργείας συνδετικά τεμάχια για εκρηκτικούς πυροσωλήνες·

(β) ηλεκτρικοί πυροκροτητές εφοδιασμένοι με πυροσωλήνες μετά ή άνευ μηχανισμών βραδείας ενεργείας·

(γ) πυροκροτητές με αναφλεκτικά εμπύρια (πυροκροτητές συνδυασμένοι με μεταδοτικόν (τροφοδοτικόν) γέμισμα αποτελούμενον από πεπιεσμένον εκρηκτικό)· βλέπε επίσης Προσθήκην A.1., περιθώριο 3110·

(ε) πυροσωλήνες με πυροκροτητές (FUSED DETONATORS) μετά ή άνευ μεταδοτικού (τροφοδοτικού) γεμίσματος·

(στ) πυροκροτητές με καψύλλιον κρούσεως («BOUCHONS ALLUMEURS») μετά ή άνευ μηχανισμού βραδείας ενεργείας, μετά ή άνευ μηχανισμού πυροδοτήσεως, και άνευ μεταδοτικού (τροφοδοτικού) γεμίσματος.

6° Ηχοβολιστικά καψύλλια (πυροκροτητές, μετά ή άνευ εμπυρίων, περιεχόμενοι σε μεταλλικούς σωλήνες).

7° Είδη με προωθητικόν γέμισμα, πλην των αναγραφομένων στή παράγραφο 8°· είδη με εκρηκτικό γέμισμα· είδη με προωθητικό και εκρηκτικό γέμισμα, υπό τον όρον ότι περιέχουν μόνον εκρηκτικές ύλες της Κλάσεως Ια, άπαντα χωρίς μηχανισμόν παράγοντα διαρρηκτικόν αποτέλεσμα (π.χ. πυροκροτητή). Το γέμισμα των ειδών αυτών μπορεί να περιλαμβάνει τροχιοδεικτικήν ύλην (βλέπε επίσης 8° και 11°).

Σημείωση: Μη - εκρηκτικά εμπύρια (2°) επιτρέπονται στα είδη αυτά.

8° Είδη γεμισμένα με τροχιοδεικτικές ύλες ή ύλες προοριζόμενες για σηματοδοσία, μετά ή άνευ προωθητικού γεμίσματος, μετά ή άνευ απορριπτικού γεμίσματος, και άνευ εκρηκτικού γεμίσματος, εις τα οποία η προωθητική ή τροχιοδεικτική ύλη συμπιέζεται κατά τέτοι τρόπο ώστε τα είδη να δύνανται να εκραγούν όταν αναφλεγούν.

9° Καπνογόνοι μηχανισμοί περιέχοντες χλωρικά (άλατα) ή μεταφέροντες εκρηκτικό γέμισμα ή εκρηκτικό αναφλεκτικό γέμισμα.

Για καπνογόνες ύλες για αγροτικούς και δασικούς σκοπούς, βλέπε Κλάση Ιγ, περιθώριο 2171 27°.

10° Διατρητικοί μηχανισμοί περιέχοντες γέμισμα από δυναμίτη ή απο εκρηκτική ύλη όμοια με δυναμίτη, μετά πυροσωλήνων και άνευ οιουδήποτε μηχανισμού παράγοντος διαρρηκτικόν αποτέλεσμα (π.χ. πυροκροτητή), μηχανισμοί κοίλου - γεμίσματος για βιομηχανικούς σκοπούς, περιέχοντες όχι άνω του 1Kg εκρηκτικής ύλης ασφαλισμένης εντός θήκης, και άνευ πυροκροτητή.

11° Είδη με εκρηκτικό γέμισμα, είδη με προωθητικό και εκρηκτικό γέμισμα, άπαντα εφοδιασμένα με μηχανισμό παράγοντα διαρρηκτικόν αποτέλεσμα (π.χ. πυροκροτητής), το σύνολο καλώς ασφαλισμένο. Το βάρος κάθε είδους δεν πρέπει να υπερβαίνει τα 25Kg.

2. Διατάξεις

Α. Κόλα.

1. Γενικοί όροι συσκευασίας:

2132 (1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και στεγανά ώστε να εμποδίζουν την απώλεια του περιεχομένου. Η χρήση μεταλλικών ταινιών ή συρμάτων δεμένων γύρω από τον κόλον για να εξασφαλίζουν το κλείσιμον τους επιτρέπεται· η χρήση των είναι υποχρεωτική σε κιβώτια που έχουν καλύμματα με μεντεσέδες εάν τα καλύμματα δεν είναι εφοδιασμένα με αποτελεσματικό μηχανισμό ώστε να αποφεύγεται οποιασήποτε χαλάρωση του κλεισίματος.

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματά των κατασκευάζονται πρέπει να μη κινδυνεύουν να προσβληθούν από το περιεχόμενό τους ή να σχηματίζουν με αυτό επιβλαβείς ή επικίνδυνες ενώσεις.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων και των καλυμμάτων, πρέπει να είναι, αρκετά σκληρά και στερεά σε όλα τα μέρη των για να αποφεύγονται τυχόν χαλάρωση κατά την μεταφορά και για να είναι σύμμορφα προς τις γενικές απαιτήσεις μεταφοράς. Τα διάφορα είδη πρέπει να είναι σωστά στερεωμένα στις συσκευασίες τους, οι δε εσωτερικές συσκευασίες πρέπει να είναι σωστά στερεωμένες στις εξωτερικές συσκευασίες. Άν δεν καθορίζεται άλλως στο άρθρο με τίτλο «Συσκευασία ομοειδών αντικειμένων», οι εσωτερικές συσκευασίες μπορούν να περιλαμβάνονται σε εξωτερικές συσκευασίες είτε καθεμία χωριστά είτε σε ομάδες.

(4) Το αποσβεστικό υλικό θα ταιριάζει στη φύση του περιεχομένου.

2. Συσκευασία εμπυρευμάτων του αυτού είδους.

Είδη της 1° θα συσκευάζονται ως εξής: 213

(α) είδη της 1° (α) και (β): σε ξύλινες συσκευασίες ή σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα. Το κόλον δεν πρέπει να ζυγίζει πάνω από 120 Kg εν τούτοις, βαρέλι από ινώδη σανίδα δεν πρέπει να ζυγίζει πάνω από 75Kg·

(β) είδη της 1° (γ): ρολλαρισμένα σε μήκη των 250μ. σε καρούλια από ξύλο ή ινώδη σανίδα. Τα καρούλια θα τοποθετούνται σε ξύλινα κιβώτια κατά τέτοιο τρόπο ώστε νε μη μπορούν να έρχονται σε επαφή είτε το ένα με το άλλο είτε με τις πλευρές των κιβωτίων. Το κιβώτιο δεν πρέπει να περιέχει πάνω από 1.000 μ. πυροσωλήνα·

(γ) είδη της 1° (δ): ρολλαρισμένα σε μήκη μέχρι 125μ. σε καρούλια από ξύλο ή ινώδη σανίδα τα οποία θα συσκευάζονται σε ξύλινα κιβώτια, κλεισμένο με βίδες, και έχον πλευρές πάχους όχι λιγώτερο των 18MM (χιλ.), κατά τέτοιο τρόπο ώστε τα καρούλια να μη μπορούν να έλθουν σε επαφή είτε το ένα με το άλλο είτε μετις πλευρές του κιβωτίου. Το κιβώτιο δεν πρέπει να περιέχει πάνω από 1.000 μ. εκρηκτικού πυροσωλήνος στιγμιαίας ενεργείας.

(1) Είδη της 2° θα συσκευάζονται ως εξής: 213

(α) είδη της 2° (α): καψύλλια με ακάλυπτο εκρηκτικό γέμισμα, όχι πάνω από 500 ανά κυτίο ή μικρό κιβώτιο, και καψύλλια με καλυπτομένη εκρηκτική γόμωση, όχι πάνω από 5.000 ανά κυτίο ή μικρό κιβώτιο, σε μεταλλικά κυτία από ινώδη σανίδα ή μικρά ξύλινα κιβώτια. Οι συσκευασίες αυτές θα τοποθετούνται σε ξύλινο ή μεταλλικό κιβώτιο συσκευασίας·

(β) είδη της 2° (β) 1: εμπυρευμένοι θάλαμοι φυσιγγίων κεντρικής κρούσεως, μη γεμισμένοι με προωθητική πυρίτιδα, για πυροβόλα όπλα όλων των διαμετρημάτων, σε κιβώτια από ξύλο ή ινώδη σανίδα ή σε υφασματένιους σάκκους·

(γ) είδη της 2° (β) 2: εμπυρευμένοι θάλαμοι φυσιγγίων RIM - FIRE, μη γεμισμένοι με προωθητική πυρίτιδα, για όπλα FLOBERT και πυροβόλα όπλα ομοίων διαμετρημάτων, όχι πάνω από 5000 ανά κυτίο, σε κυτία κατασκευασμένα από μεταλλικό έλασμα ή ινώδη σανίδα τα οποία θα τοποθετούνται σε κιβώτιο συσκευασίας κατασκευασμένο από ξύλο ή μεταλλικό έλασμα· όμως, οι εμπυρευμένοι αυτοί θάλαμοι φυσιγγίων RIM - FIRE μπορούν επίσης να συσκευάζονται, όχι πάνω από 25.000 ανά σάκκον, σε σάκκο ο οποίος θα ασφαλίζεται με κυματοειδή ινώδη σανίδα σε κιβώτιο συσκευασίας κατασκευασμένο από ξύλο ή σίδερο·

(δ) είδη της 2° (γ) και (δ): σε κυτία από ινώδη σανίδα, ξύλο ή μεταλλικό έλασμα τα οποία θα τοποθετούνται σε είδη συσκευασίας κατασκευασμένα από ξύλο ή μέταλλο.

(2) Κόλον περιέχον είδη ης 2° (α), (γ) ή (δ) δεν πρέπει να ζυγίζει πάνω από 100 Kg.

2135 (1) Είδη της 3° θα συσκευάζονται σε κιβώτια κατασκευασμένα από σανίδες πάχους όχι μικροτέρου των 18MM (χιλ.), με γλωσσίδι και αυλάκια και συναρμολογούμενα με ξύλινες βίδες. Τα σήματα ομίχλης θα ασφαλίζονται σε κιβώτια με αποσβεστικό υλικό κατά τέτοιο τρόπο ώστε να μη μπο-

ρούν να έρχονται σε επαφή είτε το ένα με το άλλο είτε με τις πλευρές του κιβωτίου.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 50Kg.

2136 (1) Είδη της 4° (α), (β) και (ε) θα τοποθετούνται σφικτά σε σταθερά κλεισμένα κυτία κατασκευασμένα από έλασμα, ξύλο ή ινώδη σανίδα· τα κυτία αυτά θα τοποθετούνται, χωρίς κενά διαστήματα, σε κιβώτια συσκευασίας κατασκευασμένα από μέταλλο, ξύλο, σκληρή σανίδα, στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα· η ινώδης σανίδα πρέπει να έχει γίνει αδιαπέραστη δι' εμποτισμού και να είναι επαρκούς μηχανικής αντοχής.

Κιβώτια από ινώδη σανίδα θα κλείονται με κολλητικές ταινίες επαρκούς αντοχής. Το μοντέλο παραγωγής κιβωτίων κατασκευαζομένων στερεά ινώδη σανίδα ή κυματοειδή ινώδη σανίδα πρέπει να εγκριθεί από την αρμόδια αρχή της χώρας της αναχωρήσεως.

(2) Είδη της 4° (γ) και (δ) θα τοποθετούνται, όχι άνω των 400 ανά κυτίο, σε κυτία κατασκευασμένα από μεταλλικό φύλλο (έλασμα), ξύλο ή ινώδη σανίδα· τα κυτία αυτά θα συσκευάζονται ασφαλώς σε κιβώτια συσκευασίας κατασκευασμένα από μέταλλο ή ξύλο.

(3) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 Kg όμως, όπου χρησιμοποιούνται κιβώτια από Χάρντμπόρντ (HARDBOARD) ή ινοσανίδα, το κόλον το περιέχον είδη της 4(α) (β) ή (ε) δεν πρέπει να ζυγίζει πάνω από 40Kg.

2137 (1) Είδη της 5° θα συσκευάζονται ως κάτωθι:

(α) είδη της 5° (α): όχι άνω των 100 ανά δοχείον προκειμένου περί πυροκροτητών και όχι άνω των 50 ανά δοχείον προκειμένου περί συνδετικών τεμαχίων, σε δοχεία, κατασκευασμένα από έλασμα ή αδιαπέραστη ινοσανίδα, όπου και θα προστατεύονται καλώς κατά της αναφλέξεως και θα ασφαλίζονται με αποσβεστικό υλικό. Δοχεία από έλασμα (φύλλο - μετάλλου) θα επενδύονται με εύκαμπο υλικό. Τα καλύμματα θα ασφαλίζονται γύρω - γύρω με κολλητικές ταινίες. Τα δοχεία, όχι άνω των 5 ανά πακέτο ή κυτίο προκειμένου περί πυροκροτητών και όχι άνω των 10 ανά πακέτο ή κυτίο προκειμένου περί συνδετικών τεμαχίων, θα κλείονται σε πακέτο ή τοποθετούνται σε κυτίο από ινοσανίδα. Τα πακέτα ή κυτία θα συσκευάζονται σε ξύλινο κιβώτιο κλεισμένο με βίδες και με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.). ή σε είδος συσκευασίας από φύλλο - μετάλλου, του είδους τούτου συσκευασίας ή του κιβωτίου ασφαλιζομένων με αποσβεστικό υλικό σε κιβώτιο συσκευασίας με πλευρές όχι μικροτέρου πάχους των 18MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει διάστημα όχι μικρότερο των 3CM γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ του ξυλίνου κιβωτίου ή της συσκευασίας εκ φύλλου - μετάλλου και του κιβωτίου συσκευασίας·

(β) είδη της 5° (β) όχι άνω των 100 ανά πακέτο, σε πακέτα με εναλλάξ πυροκροτητές κείμενους προς τα αντίθετα άκρα του πακέτου. Όχι περισσότερα των 10 τούτων θα δένονται μαζί για να σχηματίζουν ένα συλλογικό πακέτο. Όχι περισσότερα των πέντε συλλογικών τούτων πακέτων θα ασφαλίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.), ή σε συσκευασία από φύλλο - μετάλλου κατά τέτοιο τρόπο ώστε να περιέχεται ένα διάστημα όχι μικρότερο των 3 CM γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ των συλλογικών πακέτων και του κιβωτίου συσκευασίας ή της συσκευασίας από φύλλο - μετάλλου·

(γ) είδη της 5° (γ): πυροσωλήνες εφοδιασμένοι με πυροκροτητήρες, ρολλαρισμένοι σε πηνία· όχι άνω των 10 πηνίων θα γίνονται ρολλό το οποίο θα τυλίγεται με χαρτί. Όχι περισσότεροι των 10 ρόλλοι θα ασφαλίζονται με αποσβεστικό υλικό ε μικρό ξύλινο κιβώτιο κλεισμένο με βίδες και με πλευρές πάχους όχι μικροτέρου των 12 χστ.

Σε κιβώτιο συσκευασίας με πλευρές πάχους τουλάχιστον 18 χστ. δεν πρέπει να ασφαλίζονται με αποσβεστικά υλικά περισσότερα από 10 μικρά κιβώτια κατά τρόπο ώστε θα μείνει διάστημα τουλάχιστον 3 εκ. σε όλα τα διάκενα μεταξύ των μικρών κιβωτίων, γεμισμένα με αποσβεστικό υλικό.

(δ) είδη της 5° (δ):

1. όχι άνω των 100 πυροκροτητών ανά κιβώτιο, σε ξύλινα κιβώτια με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.). κατά τέτοιο τρόπο ώστε οι πυροκροτητές να χωρίζονται μεταξύ τους όχι λιγώτερο από 1 CM καθώς και από τις πλευρές του κιβωτίου. Οι αναφερόμενες πλευρές θα είναι ματισμένες και ο πυθμένας το κάλυμμα θα ασφαλίζονται με βίδες. Εάν το κιβώτιο είναι επενδεδυμένο με φύλλο ψευδαργύρου ή φύλλο αλουμινίου, πλευρικό πάχος 16MM (χιλ.) είναι επαρκές. Το κιβώτιο θα ασφαλίζεται με αποσβεστικό υλικό σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει ένα διάστημα όχι μικρότερο των 3 CM γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ αυτού και του κιβωτίου συσκευασίας·ή

2. όχι άνω των 5 πυροκροτητών ανά κυτίον, σε κυτία από φύλλο - μετάλου, των πυροκροτητών τοποθετημένων εις αυτά εντός ξυλίνων πλαισίων από λεπτές λωρίδες ξύλου ή εντός διατρήτων τεμαχίων ξύλου. Το κάλυμμα θα ασφαλίζεται γύρω - γύρω με κολλητικές ταινίες. Όχι περισσότερα των 20 κυτίων από φύλλο μετάλλου θα τοποθετούνται σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18MM (χιλ.)·

(3) είδη της 5° (ε): όχι των 50 ανά κιβώτιο, σε ξύλινα κιβώτια με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.). Τα είδη θα ασφαλίζονται εντός των κιβωτίων δια ξυλίνου κατασκευάσματος κατά τέτοιο τρόπο ώστε να χωρίζονται όχι λιγώτερο του 1CM μεταξύ των και από τις πλευρές του κιβωτίου. Οι πλευρές του κιβωτίου θα είναι ματισμένες και ο πυθμήνας και το κάλυμμα θα ασφαλίζονται με βίδες και με αποσβεστικό υλικό σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει ένα διάστημα όχι μικρότερο των 3CM(εκ.) γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ των κιβωτίων και του κιβωτίου συσκευασίας. Το διάστημα μπορεί να μειωθεί όχι λιγώτερο του 1CM(εκ) εάν γεμισθεί με πλάκες από πορώδη ξύλινη ίνα. Εάν τα είδη συσκευασθούν επί μέρους (ατομικά) και έχουν σταθερά στερεωθεί σε ερμητικώς κλείνοντα κυτία κατασκευασμένα από φύλλο μετάλλου ή πλαστική ύλη, μπορούν να τοποθετηθούν σε ξύλινο κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18MM (χιλ.). Τα είδη πρέπει να χωρίζονται μεταξύ των και να έχουν σταθερά ασφαλισθεί με πλάκες από ινώδη σανίδα ή ξύλινη ίνα·

(στ) είδη της 5° (στ):

1. όχι άνω των 50 ανά κιβώτιο, σε ξύλινα ή μεταλλικά κιβώτια· στα κιβώτια αυτά κάθε εκρηκτικό τμήμα του «BOUCHON ALLUMEUR» (πυροκροτητού με καψύλλιο κρούσεως) θα έχουν έτσι τακτοποιηθεί σε ξύλινο με εγκοπές υποστήριγμα ώστε η απόστασις μεταξύ των γειτνιαζόντων πυροκροτητών και μεταξύ των εξωπυροκροτητών «BOUCHONS ALLUMEURS» και της πλευράς του κιβωτίου δεν είναι μικρότερη των 2CM(εκ)· κλείνοντας το κάλυμμα του κιβωτίου θα εξασφαλίζεται πλήρης ακινησία του συνόλου· όχι περισσότερα των 3 κιβωτίων θα τοποθετούνται, μη αφήνοντας κενά διαστήματα, σε ξύλινο κιβώτιο συσκευασίας με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.) ή

2. σε κυτία κατασκευασμένα από ξύλο ή μέταλλο· στα κυτία αυτά κάθε «BOUCHON ALLUMEUR» θα υποστηρίζεται από πλαίσιο κατά τρόπο ώστε η απόσταση μεταξύ δύο «BOUCHON ALLUMEURS» και μεταξύ ενός «BOUCHON ALLUMEUR» και της πλευράς του κυτίου να μην είναι μικρότερ των 2CM (εκ.) και να εξασφαλίζεται η ακινησία του συνόλου· τα κυτία αυτά θα τοποθετούνται σε κιβώτιο συσκευασίας με πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.) κατά τέτοιο τρόπο ώστε να υπάρχει διάστημα όχι μικρότερο των 3 CM (εκ.) γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ των κυτίων και μεταξύ των κυτίων και του κιβωτίου συσκευασίας· το κόλον δεν πρέπει να περιέχει περισσότερα από 150 «BOUCHON ALLUMEURS».

(2) Το κάλυμμα του κιβωτίου συσκευασίας θα κλείνει με βίδες ή μεντεσέδες και πτυσσόμενες ράβδους/μπάρες.

(3) Κάθε κόλον περιέχον είδη της 5° θα είναι εφοδιασμένο με κλείσιμο προστατευόμενο είτε από μολυβδένιες είτε άλλες σφραγίδες επί δύο κεφαλών κοχλίου εις τα άκρα του κυρίου άξονος του καλύμματος ή των πτυσσομένων ράβδων, είτε από λωρίδα, φέρουσα το εμπορικό σήμα, κολλημένη με γόμα στο κάλυμμα και στις δύο αντίθετες πλευρές του κιβωτίου.

(4) Το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG κόλα

ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(1) Είδη της 6° θα ρολλαρισθούν χωριστά σε χαρτί και θα τοποθετηθούν σε περιτυλίγματα κυματοειδούς ινοσανίδας. Θα συσκευασθούν όχι περισσότερα των 25 ανά κυτίο, σε κυτία από ισοσάνιδα ή φύλλο μετάλλου. Τα καλύμματα θα ασφαλίζονται γύρω - γύρω με κολλητικές ταινίες. Όχι πάνω από 20 κυτία θα τοποθετούνται σε ξύλινο κιβώτιο συσκευασίας.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 50KG. Κόλα ζυγίζοντα άνω των 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(1)Είδη της 7° θα συσκευάζονται σε ξύλινα κιβώτια κλεισμένα με βίδες ή μεντεσέδες και πτυσσόμενες ράβδους (μπάρες) και με πλευρές πάχους όχι μικρότερου των 16 MM (χιλ.), ή σε δοχεία κατασκευασμένα από μέταλλο ή κατάλληση πλαστική ύλη επαρκούς αντοχής. Τα καλύμματα και οι πυθμένες των ξυλίνων κιβωτίων μπορούν επίσης να κατασκευάζονται από πολύ πεπιεσμένη χαρτοσανίδα με πλευρές ίσης αντοχής. Είδη ζυγίζονται άνω των 20 KG μπορούν επίσης να προωθούνται σε σκελετοκιβώτια ή χωρίς συσκευασία.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG εάν περιέχει είδη καθένα των οποίων το περιεζόμενον ζυγίζει πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(1) Είδη της 8° θα συσκευάζονται σε ξύλινα κιβώτια, σε βαρέλια από ινοσανίδα ή οποία έχει καταστεί αδιαπέραστη, ή σε δοχεία μεταλλικά ή από κατάλληλη πλαστική ύλη επαρκούς αντοχής. Η κεφαλή αναφλέξεως θα προστατεύεται κατά τέτοιο τρόπο ώστε να αποφεύγεται οποιαδήποτε διασπορά του γεμίσματος από το είδος.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· ομως, όταν χρησιμοποιούνται βαρέλια από ινοσανίδα, το κόλον δεν θα ζυγίζει πάνω από 75 KG. Κιβώτια των οποίων το περιεχόμενον ζυγίζει πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

Είδη της 9° θα κλείνονται σε ξύλινα είδη συσκευασίας. Το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG. κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

Είδη της 10° θα συσκευάζονται σε ξύλινα κιβώτια. Κόλα ζυγίζονται πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

Είδη της 11° θα συσκευάζονται ως εξής:

(α) είδη διαμέτρου μικροτέρας των 13,2MM (χιλ.): όχι περισσότερα των 25 ανά κυτίο, συσκευασμένα σφικτά σε κυτία από ισοσάνιδα κλείνοντα σταθερά σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη επαρκούς αντοχής· τα κυτία αυτά ή δοχεία θα τοποθετούνται, χωρίς άδεια διαστήματα, σε ξύλινο κιβώτιο, με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.), το οποίο μπορεί να έχει επενδυθεί με πλάκες - κασσιτέρου, φύλλο ψευδαργύρου ή φύλλο αλουμινίου, ή με κατάλληλη πλαστική ύλη επαρκούς αντοχής.

Το κόλον δεν πρέπει να ζυγίζει πάνω από 60 KG. Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

(β) είδη διαμέτρου από 13.2 MM (χιλ.) μέχρι 57 MM (χιλ.):

1. Χωριστά

σε σωλήνα κατασκευασμένο από ινοσανίδα ή από κατάλληλη πλαστική ύλη, γερόν, εφαρμοστόν, κλείνοντα γερά και στα δύο άκρα· ή

σε σωλήνα κατασκευασμένον από ινοσανίδα ή κατάλληλη πλαστική ύλη, γερόν, εφαρμοστόν, κλεισμένον στο ένα άκρο και ανοικτόν στο άλλο· ή

σε σωλήνα κατασκευασμένον από ινοσανίδα ή κατάλληλη πλαστική ύλη, ανοικτόν και στα δύο άκρα αλλά με εσωτερική προεξοχή ή άλλον κατάλληλον εσωτερικόν μηχανισμόν ώστε να αποφεύγεται η μετακίνηση του είδους.

Συσκευασμένα κατά τον τρόπο αυτόν, όχι περισσότερα από:

300 είδη διαμέτρου όχι μικρότερης των 13.2 MM (χιλ.) και όχι μεγαλύτερης των 21 MM (χιλ.)· ή

60 είδη διαμέτρου άνω των 21 MM (χιλ.), αλλά όχι άνω των 37 MM (χιλ.)· ή

25 είδη διαμέτρου μεγαλύτερης των 37MM (χιλ.) και όχι μεγαλύτερης των 57 MM (χιλ.) θα τοποθετούνται σε στρώματα σε ξύλινο κιβώτιο με πλευρές πάχους όχι μικρότερον των 18 MM (χιλ.), το δε ξύλινο κιβώτιο θα είναι επενδεδυ- 2138
μένο με πλάκα κασσιτέρου, φύλλο ψευδαργύρου, ή φύλλο αλουμινίου.

Προκειμένου περί ειδών συσκευασμένων σε σωλήνες ανοικτές και στα δύο άκρα ή στο ένα, το κιβώτιο της συσκεαυσίας θα είναι επενδεδυμένο στη πλευρά ή στις πλευρές που γειτνιάζουν με τα ανοικτά άκρα των σωλήνων με φύλλα πιλήματος πάχους όχι μικροτέρου των 7 μμ (χιλ.) ή με φύλλο τού αυτού πάχους διπλής όψεως κυματοειδούς ινοσανίδας ή ομοίου υλικού.

το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG. Κόλα 2139
ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

2. Είδη διαμέτρου 20 MM (χιλ.) μπορούν επίσης να συσκευάζονται, όχι περισσότερα των 10 ανά κυτίον, σε γερά κυτία από ινοσανίδα επενδεδυμένα με κηρόν παραφίνης και εφοδιασμένα με κυψελοειδές κάτω παρέμβλημα και με χωρίσματα από ινοσανίδα επιχρισμένην μη κηρόν παραφίνης. Τα κυτία θα κλείνονται με κομμιωμένη δικλείδα (κλαπέτο). Όχι περισσότερα των 30 Κυτίων θα συσκεαύζονται σφικτά σε ξύλινο κιβώτιο με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.), το δε ξύλινο κιβώτιο θα είναι επενδεδυμένο με φύλλο ψευδαργύρου, πλάκα κασσιτέρου ή φύλλο αλουμινίου.

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG· 2140
Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές.

3. Είδη διαμέτρου όχι μεγαλύτερας των 30 MM (χιλ.) μπορούν, σε αριθμό μη υπερβαίνοντα τον αναφερόμενον υπό στοιχίον 1, ανωτέρω, να τοποθετούνται επίσης σε ταινίες και συσκευάζονται σε γερό χαλύβδινο δοχείο. Το δοχείο αυτό μπορεί να είναι κυλινδρικό.

Τα είδη αυτά τοποθετούνται σε ταινίες θα περιβάλλονται από κατάλληλο μηχανισμό ώστε να αποτελούν συμπαγή μονάδα και να αποφεύγεται η απόσταση του καθενός των ει- 2141
δών. Μία ή περισσότερες μονάδες θα στερεώνονται στο δοχείο κατά τέτοιο τρόπο ώστε να μη μετατοπίζονται.

Τα άκρα των ειδών των τοποθετημένων σε ταινίες θα 2142
ακουμπούν πάνω σε αντικραδατικά μη μεταλλικά υποστηρίγματα.

Το κάλυμμα του δοχείου πρέπει να κλείνει κατά τρόπον 2143
στεγανόν και να ασφαλίζεται με μηχανισμόν ασφαλίσεως δυνάμενον να σφραγισθεί ώστε τα είδη να μη μπορούν να πέσουν.

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG·

Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβές. Υποδοχείς ικανοί να ρολλαρισθούν θα έχουν τα καπάκια τους εφοδιασμένα με γερή χειρολαβή ώστε να μπορούν να μεταφερθούν·

4. είδη διαμέτρου όχι μικροτέρας των 30 M (χιλ.) και όχι μεγαλυτέρας των 57 MM (χιλ.) μπορούν επίσης να συσκευάζονται χωριστά σε γερό, εφαρμοστό, ερμητικά - κλεισμένο κυλινδρικό κυτίο κατασκευασμένο από ινώδη σανίδα, ίνα ή κατάλληλη πλαστική ύλη. Όχι περισσότερα των 40 των κυτίων αυτών θα τοποθετούνται σε στρώματα σε ξύλινο κιβώτιο με πλευρές πάχους όχι μικρότερου των 18 MM (χιλ.).

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 kg. Κόλα ζυγίζοντα πάνω από 30 kg θα είναι εφοδιασμένα με χειρολαβές.

(γ) λοιπα είδη της 11°: σύμφωνα με τις διατάξεις του περιθωρίου 2139(1). Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 kg. Κόλα ζυγίζοντα πάνω από 30 kh πρέπει να είναι εφοδιασμένα με χειρολαβές.

Σημείωση: Προκειμένου πεί ειδών περιεχόντων τόσον προωθητικόν όσον και εκρηκτικόν γέμισμα, η διάμετρος εις την οποίαν αναφερόμεθα είναι εκείνη του κυλινδικού τμήματος του περιέχοντος το εκρηκτικό γέμισμα.

Μικτή συσκευασία

(1) Είδη αναφερόμενα υπό αριθμόν είδους του περιθωρίου 2144
2131 μπορούν να μη συμπεριλαμβάνονται στο αυτό κόλον είτε με είδη διαφόρου είδους αλλά του αυτού αριθμού είδους, είτε με είδη άλλου αριθμού είδους του ανωτέρω περιθωρίου, είτε με ύλες ή είδη ανήκοντα σε άλλες Κλάσεις, είτε με άλλα εμπορεύματα.

(2) Τα παρακάτω, όμως είδη μπορούν να συμπεριλαμβάνονται στο αυτό κόλον:

(α) είδη της 1°, μεταξύ των.

Όταν είδη της 1° (α) και (β) συμπεριληφθούν στο αυτό κόλον, θα συσκευάζονται σύμφωνα με το περιθώριο 2133(α).

Όταν είδη της 1° (γ) συμπεριληφθούν στο αυτό κόλον με είδη της 1° (α) ή (β) ή αμφότερα, τα είδη της 1° (γ) θα συσκευάζονται σύμφωνα με τις διατάξεις τις ισχύουσες γι' αυτά και η εξωτερική συσκευασία θα είναι προβλεπομένη για είδη της 1° (α) ή (β). Το κόλον δεν πρέπει να ζυγίζει πάνω από 120 kg.

(β) είδη της 2° (α) με εκείνα της 2° (β), υπό τον όρον ότι αμφότερα περιέχοντα σε εσωτερικά είδη συσκευασίας αποτελούμενα εκ κυτίων τοποθετημένων σε ξύλινα κιβώτια. Το κόλον δεν πρέπει να ζυγίζει πάρα πάνω από 100 kg?

(γ) είδη της 4°, μεταξύ των, λαμβανομένων υπόψει των διατάξεων για εσωτερικά είδη συσκευασίας, εντός ξυλίνου εσωτερικής συσκευασίας. Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 kg?

(δ) είδη της 7° με εκείνα της 5° (α), (δ), (ε) και (στ), υπό τον όρον ότι η συσκευασία των τελευταίων τούτων εμποδίζει την μετάδοσιν πιθανής εκπυρσοκροτήσεως στα είδη της 7°. Σε ένα κόλον, ο αριθμός των ειδών 5° (α), (δ), (ε) και (στ) πρέπει να είναι ο αυτός με εκείνον των ειδών 7°. Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 kg.

4. Μαρκάρισμα και ετικέτες κινδύνου πάνω στα κόλα (βλέπε Προσθήκην A.9).

Κόλα περιέχοντα είδη της Κλάσεως Ιβ θα φέρουν ετικέτα σύμφωνον με το μοντέλο No 1. Όμως κόλα περιέχοντα είδη της 1° (δ), 5° και 6° θα φέρουν δύο ετικέτες σύμφωνες προς το μοντέλο No 1.

Β. Λεπτομέρειες (στοιχεία) του εγγράφου της μεταφοράς. 2146

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με μίαν των ονομασιών των υπογραμμισμένων στο περιθώριο 2131· πρέπει να επχει υπογράμμιση και να ακολουθείται από λεπτομέρειες (στοιχεία) της Κλάσεως, τον αριθμό του είδους, μαζί με το , τυχόν, γράμμα, και τα αρχικά «ADR» ή «RID» (π.χ. 1β 2° (α), ADR). 2147

(2) Τα παρακάτω πρέπει να βεβαιώνονται στο έγγραφο της μεταφοράς:

«Η φύση των εμπορευμάτων, και το είδος συσκευασίας συμφωνούν με τις διατάξεις της ADR».

Γ. Κενά είδη συσκευασίας
Καμμία διάταξη

ΚΛΑΣΗ Ιγ. – ΑΝΑΦΛΕΚΤΗΡΕΣ, ΠΥΡΟΤΕΧΝΗΜΑΤΑ ΚΑΙ ΠΑΡΟΜΟΙΑ ΕΜΠΟΡΕΥΜΑΤΑ

1. Κατάλογος εμπορευμάτων

(1) Μεταξύ των υλών και των ειδών των καλυπτομένων υπό τον τίτλον της Κλάσεως Ιγ, μόνον τα αναγραφόμενα στο περιθώριο 2171 θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Αυτές οι ύλες και είδη που πρόκειται να γίνουν δεκτά για μεταφορά υπό ωρισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR. 2170

(2) Τα είδη που πρόκειται να γίνουν δεκτά πρέπει να πληρούν τους παρακάτω όρους:

(α) Το εκρηκτικό γέμισμα θα συγκροτείται, τακτοποιείται και διανέμεται κατά τοιούτον τρόπον ώστε ούτε η τριβή, το κούνημα ή κρούση, ακόμη και η ανάφλεξη των συσκευασμένων ειδών να μπορούν να οδηγήσουν σε μία έκρηξη του όλου περιεχομένου του κόλου·

(β) λευκός ή κίτρινος φωσφόρος μπορεί να μη χρησιμοποιείται εκτός με είδη της 2° και 20°.

(γ) η εκρηκτική σύνθεση των πυροτεχνημάτων (21° - 24°), μαγνησίου (26°) και οι καπνογόνες συνθέσεις των παρασιτοκτόνων (27°), δεν πρέπει να περιέχουν χλωρικά άλατα·

(δ) το εκρηκτικό γέμισμα πρέπει να πληροί τους όρους σταθερότητας της Προσθήκης A.I. περιθώριο 3111,

Α. Αναφλεκτήρες:

1° (α) Πυρεία ασφαλείας (με βάσιν χλωρικού καλίου και θείου· 2171

(β) πυρεία με βάσιν χλωρικού καλίου και υποθειούχου φωσφόρου (σεσκισουλφίδιο του φωσφόρου), ως και αναφλεκτήρες τριβής.

2° Ταινίες εμπυρίων για φανούς ασφαλείας και ταινίες εμποτισμένων σε κηρό παραφίνης εμπυρίων για φανούς ασφαλείας. 1.000 εμπύρια δεν πρέπει να περιέχουν εκρητικό πάνω από 7.5 γραμμάρια.

Για ταινίες καψυλλίων, βλέπε 15°.

3° Πυροσωλήνες βραδείας - καύσεως (πυροσωλήνες αποτελούμενοι από λεπτό αδιαπέραστο σωλήνα με στενό τμήμα πυρήνος μελανής πυρίτιδος).

Για άλλους πυροσωλήνες, βλέπε Κλάσιν 1β, 1° (περιθώριο 2131).

4° Νήμα πυροκυλίνης (PYROXILIN THREAD) (βαμβακόνημα εμπλουτισμένο με άζωτο). Βλέπε επίσης Προσθήκην A1 περιθώριο 3101.

5° Σωληνωτοί αναφλεκτήρες («LANCES D' ALLUMAGE») (σωλήνες από ινοσανίδα, περιέχοντες μικρή ποσότητα συνθέσεως πυροσωλήνος εξ οξογονοποιημένων υλών και οργανικών υλών και, πιθανόν, εξ αρωματικών συνθέσεων εμπλουτισμένων με άζωτο) και καψύλλια θερμίτη με δισκία αναφλεκτήρων.

6° Αναφλεκτήρες ασφαλείας για πυροσωλήνες (φυσίγγια από χαρτί περιέχοντα εμπύριον διαπερασμένον με νήμα (φυτίλι) προοριζόμενον να προκαλέσει τριβήν, ή σχάση, ή παρόμοιους μηχανισμούς).

7° (α) Ηλεκτρικά εμπύρια χωρίς πυροκροτητή·

(β) δισκία για ηλεκτρικά εμπύρια.

8° Ηλεκτρικοί αναφλεκτήρες (π.χ. αναφλεκτήρες προοριζόμενοι για ανάφλεξη φωτογραφικού μαγνησίου). Το γέμισμα του καθενός τούτων δεν πρέπει να υπερβαίνει τα 30 γρ. ούτε να περιέχει πάνω από 10ό στα εκατό βροντώδη υδράργυρο.

Σημείωση: Συσκευές τύπου ηλεκτρικού λαμπτήρος παράγουσαι ξαφνικό φως και περιέχουσαι γέμισμα αναφλέξεως όμοιο με εκείνο των ηλεκτρικών αναφλεκτήρων δεν υπόκεινται στις διατάξεις της ADR.

Β. Πυροτεχνικά είδη κάι παιγνίδια: καψύλλια και (ταινίες) καψυλλίων: εκρηκτικά είδη·

9° Πυροτεχνικά είδη εσωτερικού (π.χ. Κύλινδροι BOSCO, βόμβες κοφετί, κοτιγιόν). Είδη με βάσιν εμπλουτισμένο με άζωτο βάμβακα (κολλοδιοβάμβακας) δεν πρέπει να περιέχουν περισσότερο από 1 γραμμάριο ανά είδος.

10° Εκρηγνυόμενα κουφέτα (μπομπόνια), λουλουδο - κροτίδες, ταινίες εμπλουτισμένες με αζωτούχο χαρτί (κολλοδιόχαρτο).

11° (α) Εκρυγνυόμενα μπιζέλια, εκρυγνυόμενες βομβίδες και λοιπά όμοια πυροτεχνικά παιγνίδια περιέζοντα βροντώδη άργυρο·

(β) εκρηγνυόμενα πυρεία (σπίρτα)·

(γ) εξαρτήματα με βροντώδη άργυρο.

προστίθεται ότι: στα ανωτέρω (α), (β) και (γ): 1.000 είδη δεν πρέπει να περιέχουν πάνω από 2,5 γραμμάρια βροντώδη άργυρο.

12° Εκρηκτικά χαλίκια, το καθένα μεταφέρον, εξωτερικά, γέμισμα εκρηκτικής ύλης πλην κροτικού άλατος όχι πάνω από 3 γραμμάρια.

13° Πυροτεχνικά πυρεία (π.χ. Βεγγαλικά πυρεία, πυρεία χρυσής βροχής, ή πυρεία CASCADE - OF - FLOWERS).

14° Μαγικά κεριά χωρίς κεφαλές αναφλέξεως.

15° Καψύλλια για παιδικά παιγνίδια, ταινίες καψυλλίων και ελατήρια καψυλλίων.

1.000 καψύλλια δεν πρέπει να περιέχουν πάνω από 7.5 γραμμάρια εκρηκτικής ύλης ελευθέρας από κροτικό άλας.

Για ταινίες καψυλλίων για φανούς ασφαλείας, βλέπε 2°.

16° Εκρηκτικοί φελλοί με εκρηκτικό γέμισμα έχον βάση φωσφόρου και χλωρικού άλατος ή με γέμισμα κροτικού άλατος ή ομοίας συνθέσεως πεπιεσμένο σε φυσίγγια κάρντ - μπορντ. 1.000 φελλοί εν πρέπει να περιέχουν περισσότερο

από 60 γραμμάρια εκρηκτικής ύλης εκ χλωρικού άλατος ούτε περισσότερο από 10 γραμμάρια κροτικού άλατος συνθέσεως με βάσιν κροτικού άλατος.

17° Στρόγγυλα βαρελότα με εκρηκτικό γέμισμα έχον βάση φωσφόρου και χλωρικού άλατος. 1.000 βαρελότα δεν πρέπει να περιέχουν πάνω από 45 γραμμάρια εκρηκτικής ύλης.

18° Καψύλλια από κάρτν - μπόρντ (πυρομαχικά παιγνιδιών) με εκρηκτικό γέμισμα έχον βάση φωσφόρου και χλωρικού άλατος ή με γέμισμα κροτικού άλατος ή ομοίας συνθέσεως. 1.000 καψύλλια δεν πρέπει να περιέχουν πάνω από 25 γραμμάρια εκρηκτικής ύλης.

10° Καψύλλια από κάρντ - μπόρντ εκρηγνυόμενα κάτω από το πόδι, με προστατευμένο γέμισμα έχον βάση φωσφόρου και χλωρικού άλατος. 1.000 καψύλια δεν πρέπει να περιέχουν περισσότερα από 30γραμμάρια εκρηκτικής ύλης.

20° (α) Εκρηκτικά φύλλα (DETONATING SHEETS)·

(β) MARTINIKAS (έτσι καλούνται τα Ισπανικά πυροτεχνήματα.

Αμφότερα περιλαμβάνουν ένα μίγμα από λευκό (κίτρινο) και ερυθρό φωσφόρο με χλωρικό κάλιο και όχι λιγώτερο του 50 στα, εκατόν αδρανών υλών που δεν συμμετέχουν στην αποσύνθεση του μίγματος φωσφόρου και χλωρικού άλατος. Ένα φύλλο δεν πρέπει να ζυγίζει πάνω από 2,5 γραμμάρια και ένα MARTINIKA πάνω από 0,1 γραμμάρια.

Γ. Πυροτεχνήματα

21° Πύραυλοι (ρουκέτες) ANTI - HAIL χωρίς πυροκροτητή, βόμβες και εσχάρες (όλμοι) (FIREPOTS).

Το γέμισμα, συμπεριλαμβανομένου του προωθητικού γεμίσματος, δεν πρέπει να ζυγίζει πάνω από 14 KG ανά είδος, ή βόμβα ή όλμος (FIREPOT) όχι πάνω από 18 KG συνολικά.

22° Εμπρηστικές βόμβες, ρουκέτες, Ρωμαϊκά κεριά, πηγές (πίδακες), τροχοί και παρόμοια πυροτεχνήματα, με γέμισμα μη ζυγίζον πάνω από 1.200 γραμμάρια ανά είδος.

23° CANNON SHOTS (Βλήματα Πυροβόλου), ζυγίζον το καθένα όχι πάνω από 600 γρμμάρια κοκκώδους μελανής πυρίτιδας ή 220 γραμμάρια εκρηκτικής ύλης όχι περισσότερον επικίνδυνης της πυρίτιδας αλουμινίου με υπερχλωρικόν κάλιον, RIRIE SHOTS (Βλήματα Τυφεκίου) (κροτικά) το καθένα περιέχον όχι πάνω από 20 γραμμ. κοκκώδη πυρίτιδα, άπαντα εφοδιασμένα με πυροσωλήνες με καλυμμένα άκρα· και παρόμοια είδη παράγοντα δυνατή εκπυρσοκρότηση (κρότο).

Για σιδηροδρομικά σήματα ομίχλης, βλέπε Κλάση 1β, 3° (περιθώριο 2131).

24° Μικρά πυροτεχνήματα (π.χ. στρακαστρούκες, οφείδια, χρυσή βροχή, αργυρή βροχή, εάν περιέχουν όχι πάρα πάνω από 1.000 γραμμάρια κοκκώδη μελανή πυρίτιδα ανά 144 είδη. υφαίστεια και κομήτες χειρός, εάν περιέχουν όχι παρά πάνω από 30 γραμμάρια κοκκώδους μελανής πυρίτιδος το καθένα).

25° Βεγγαλικά χωρίς κεφαλές αναφλέξεως (π.χ. Βεγγαλικές δάδες, φώτα, φλόγες).

26° MAGNESIUM FLASH - POWDERS (Μαγνήσιο για φλάς φωτογραφικών μηχανών), όχι πάρα πάνω από 5 γραμμάρια ανά σακκούλα ή σωλήνα, σε χάρτινες σακκούλες ή μικρούς γυάλινους σωλήνες.

4. παρασιτοκτόνα (ύλες και είδη):

27° Καπνογόνες ύλες για γεωργικούς και δασικούς σκοπούς, και καπνογόνα φυσίγγια προς χρήσιν ως παρασιτοκτόνα.

Για καπνογόνους μηχανισμούς περιέχοντας χλωρικά άλατα ή μεταφέροντα εκρηκτικό γέμισμα ή εκρηκτικό αναφλεκτικό γέμισμα, βλέπε Κλάσιν 1β, 9° (περιθώριο 2131).

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και σταγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. 2172

(2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Τα είδη θα πρέπει να ασφαλίζονται σταθερά, και οι εσωτερικές συσκευασίες σταθερά ασφαλισμένες στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ειδικώς ορίζεται στο άρθρο υπό τον τίτλον «Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους», τα εσωτερικά είδη συσκευασίας μπορούν να εσωκλείονται σε εξωτερικά είδη συσκευασίας, είτε ένα - ένα είτε ομαδικά.

(3) Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου.

2. Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους.

(1) Είδη της 1° (α) θα συσκευάζονται σε κυτία ή βιβλία. Τα κυτία αυτά ή βιβλία θα τυλίγονται με χοντρό χαρτί ώστε να αποτελούν ένα συλλογικό κόλον, όλες οι πτυχές του οποίου θα κολλούνται. Τα βιβλία μπορούν επίσης να τοποθετούνται σε κυτία κατασκευασμένα από ινώδη σανίδα ή από υλικό όχι ευχερώς εύφλεκτο (π.χ. ακετυλοκυτταρίνη). 2173

Τα από ινώδη σανίδα κυτία ή τα συλλογικά κόλα θα τοποθετούνται σε γερό κιβώτιο κατασκευασμένο από ξύλο, μέταλλο, σανίδα πεπιεσμένου ξύλου, γερή στερεά ινώδη σανίδα ή διπλή όψεως κυματοειδούς ινώδους σανίδας.

Όλες οι ενώσεις των μεταλλικών κιβωτίων θα κλείνονται με μαλακή κόλαση ή με διπλή - ραφή.

Τα κιβώτια από ινώδη σανίδα θα κλείνονται με ενωμένα πτερύγια (κλαπέτα). Τα άκρα των εξωτερικών πτερυγίων, και όλες οι ενώσεις, είτε θα κολλούνται είτε θα κλείνουν σταθερά δι' άλλου καταλλήλου μέσου.

Εάν τα από ινώδη σανίδα κυτία ή τα συλλογικά πακέτα συσκευάζονται σε κιβώτια από ινώδη σανίδα, το βάρος του κόλου δεν θα υπερβαίνει τα 20 KG.

(2) Είδη της 1° (β) θα είναι έτσι συσκευασμένα σε κυτία ώστε να προφεύγεται κάθε μετακίνησις. Όχι περισσότερα από 12 από αυτά τα κυτία θα εγκλείονται σε πακέτο, όλες οι πτυχές του οποίου θα καλλούνται.

Όχι περισσότερα από 12 από αυτά τα πακέτα θα τυλίγονται με γερό χαρτί ώστε να αποτελούν ένα συλλογικό πακέτο, όλες οι πτυχές του οποίου θα κολλούνται. Τα συλλογικά πακέτα θα τοποθετούνται σε γερό κιβώτιο κατασκευασμένο από ξύλο, μέταλλο, χάρντ - μπορντ πεπιεσμένου ξύλου, γερή στερεά ινώδη σανίδα ή διπλής όψεως κυματοειδή ινώδη σανίδα.

Όλες οι ενώσεις των μεταλλικών κιβωτίων θα ασφαλίζονται με μαλακή συγκόλληση ή διπλή ραφή.

Κιβώτια από ινώδη σανίδα θα κλείνονται με ενωμένα πτερύγια (κλαπέτα). Τα άκρα των εξωτερικών πτερυγίων και όλες οι ενώσεις, πρέπει είτε να κολλούνται είτε να κλείνονται σταθερά δι' άλλου καταλλήλου μέσου.

Εάν τα συλλογικά πακέτα συσκευάζονται σε κιβώτια από ινώδη σανίδα, το βάρος του κόλου δεν πρέπει να υπερβαίνει τα 20 KG.

(1) Είδη της 2° θα συσκευάζονται σε κυτία κατασκευασμένα από φύλλο μετάλλου ή ινώδη σανίδα. Όχι περισσότερα από 30 κιβώτια από φύλλο μετάλλου ή 144 κιβώτια από ινώδη σανίδα θα κλείνονται σε ένα πακέτο το οποίο δεν πρέπει να περιέχει περισσότερο από 90 γραμμάρια εκρηκτικής ύλης. Τα πακέτα αυτά θα τοποθετούνται σε κιβώτιο συσκευασίας, με καλώς ενωμένες πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.), επενδεδυμένο με γερό χαρτί ή με λεπτό φύλλο φευδαργύρου ή αλουμινίου ή με φύλλο από πλαστικήν ύλην όχι ευχερώς εύφλεκτη. Πλευρικόν πάχος 11 MM (χιλ.) αρκεί για κόλον που ζυγίζει όχι πάνω από 35 KG εάν το κιβώτιο περιβληθεί με σιδερένια ταινία.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(1) Είδη της 3° θα συσκευάζονται σε ξύλινα κιβώτια επενδεδυμένα με γερό χαρτί ή λεπτό φύλλο φευδαργύρου ή αλουμινίου, ή σε βαρέλια αδιαβρόχου ινώδους σανίδος.

Μικρές αποστολές που ζυγίζουν όχι πάνω από 20 KG, περιτυλιγμένες με κυματοειδή ινώδη σανίδα, μπορούν επίσης να γίνονται πακέτα με γερό δι - φυλλο χαρτί συσκευασίας ασφαλώς δεμένα με σπάγγο.

(2) Οσάκις χρησιμοποιούνται βαρέλια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω από 75 KG.

(1) Νήμα πυροκυλίνης (PYROXYLIN THREAD) (4°) θα ρολλάρεται, σε μήκη όχι υπερβαίνοντα τα 30 μ. ανά ρόλλον, ή ρόλλους ινώδους σανίδας. ο κάθε ρόλλος θα τυλίγεται σε χαρτί. Όχι περισσότεροι από 10 από αυτούς τους ρόλλους 2176

θα τυλίγονται σε χαρτί συσκευασίας ώστε να αποτελούν πακέτα τα οποία θα ασφαλίζονται με αποσβεστικό υλικό σε μικρά ξύλινα κιβώτια. Τα κιβώτια θα τοποθετούνται σε ξύλινο κιβώτιο συσκευασίας.

(2) Το κόλον δεν πρέπει να περιέχει πάνω από 6.000 μ. νήματος πυροκυλίνης (PYROXYLIN THREAD).

(1) Είδη της 5° θα συσκευάζονται, όχι περισσότερα των 25 ανά κυτίον, σε κυτία κατασκευασμένα από πλάκα κασσιτέρου ή ινώδη σανίδα εν τούτοις, καφύλλια θερμίτη μπορούν να συσκευάζονται, όχι περισσότερα από 100 ανά κυτίον, σε κυτία από ινώδη σανίδα. Όχι περισσότερα από 40 από αυτά τα κυτία θα ασφαλίζονται με αποσβεστικό υλικό σε ξύλινο κιβώτιο κατά τέτοιο τρόπο ώστε να μη μπορούν να έλθουν σε επαφή είτε μεταξύ των είτε με τις πλευρές του κιβωτίου.

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(1) Είδη των 6° - 8° θα συσκευάζονται: 2178

(α) είδη της 6°: σε ξύλινα κιβώτια·

(β) είδη της 7°(α): σε ξύλινα κιβώτια ή σε ξύλινα βυτία ή σε βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα·

(γ) είδη της 7° (β): όχι περισσότερα των 1.000 ανά κυτίο, ασφαλιζόμενα με αποσβεστικό υλικό από πριονόσκονη (πριονίδια) σε κυτία από ινώδη σανίδα διηρημένα σε όχι λιγώτερο από τρία διαμερίσματα περιέχοντα το καθένα περίπου τον αυτόν αριθμόν ειδών και διαχωριζόμενα με τιθέμενα μεταξύ αυτών φύλλα από ινώδη σανίδα. Τα καλύμματα των κυτίων θα ασφαλίζονται με κομμιωμένες γύρω - γύρω ταινίες. Όχι περισσότερα από 100 από τα κυτία αυτά από ινώδη σανίδα θα τοποθετούνται σε διάτρητο δοχείο από φύλλο - σιδήρου. Το δοχείο τούτο θα ασφαλίζεται με αποσβεστικό υλικό σε κιβώτιο συσκευασίας ξύλινο το οποίο θα κλείνει με βίδες και του οποίου οι πλευρές θα έχουν πάχος όχι μικρότερο των 18 MM (χιλ.) κατά τοιούτο τρόπο ώστε να υπάρχει διάστημα όχι λιγότερο των 3 CM (εκ.) γεμισμένο με αποσβεστικό υλικό σε όλα τα σημεία μεταξύ του δοχείου από φύλλο - σιδήρου και του κιβωτίου συσκευασίας·

(δ) είδη της 8°: σε κυτία από ινώδη σανίδα. Τα κυτία θα γίνονται πακέτο το οποίο θα περιέχει όχι περισσότερους από 1.000 ηλεκτρικούς αναφλεκτήρες. Το πακέτο θα τοποθετείται σε ξύλινο κιβώτιο συσκευασίας.

(2) Προκειμένου περί βαρελίων από ινώδη σανίδα, το κόλον που περιέχει είδη της 7° (α) δεν πρέπει να ζυγίζει περισσότερο από 75 KG. Κόλον που περιέχει είδη της 7°(β) δεν πρέπει να ζυγίζει περισσότερο από 50 KG εάν ζυγίζει περισσότερο από 30KG θα είναι εφοδιασμένο με χειρολαβές.

(1) Είδη των 9° - 26° θα εγκλείονται (εσωτερική συ- 2179
σκευασία):

(α) είδη των 9° και 10°: σε χάρτινα είδη συσκευασίας ή σε κυτία·

(β) είδη της 11° (α): όχι περισσότερα των 500 ανά κυτίο από ινώδη σανίδα ή ανά μικρό ξύλινο κιβώτιο, ασφαλιζόμενα με αποσβεστικό υλικό από πριονίδια:

1. σε κυτία από ινώδη σανίδα τα οποία θα τυλίγονται με χαρτί· ή

2. σε μικρά ξύλινα κιβώτια·

(γ) είδη της 11° (β) όχι περισσότερα των 10 ανά βιβλίο, σε βιβλία· όχι περισσότερα των 100 βιβλίων μαζί θα συσκευάζονται σε κυτίο από ινώδη σανίδα ή τυλίγονται με γερό χαρτί·

(δ) είδη της 11° (γ): όχι περισσότερα από 10 ανά σακκούλα, σε σακκούλες χάρτινες ή από κατάλληλη πλαστική ύλη· όχι περισσότερες από 100 σακκούλες μαζί θα συσκευάζονται σε κυτίο από ινώδη σανίδα·

(ε) είδη της 12°: όχι περισσότερα από 25 ανά κυτίο, σε κυτία από ινώδη σανίδα·

(στ) είδη της 13°: κυτία τυλιγμένα σε χαρτί ώστε να αποτελούν πακέτα περιέχοντα το καθένα όχι περισσότερα από 12 κυτία·

(ζ) είδη της 14°: σε κυτία ή σακκούλες από χαρτί ή κατάλληλη πλαστική ύλη. Οι συσκευασίες αυτές θα τυλίγονται σε χαρτί ώστε να αποτελούν πακέτα περιέχοντα το καθένα όχι περισσότερα των 144 των ειδών αυτών·

(η) είδη της 15°: σε κυτία από ινώδη σανίδα περιέζοντα το καθένα:

όχι περισσότερα των 100 καφυλλίων, το καθένα, γεμισμένο με όχι περισσότερα των 5 MGεκρηκτικής ύλης·

ή

όχι περισσότερα των 50 καφυλλίων το καθένα γεμισμένο με όχι περισσότερα των 7,5 MC εκρηκτικής ύλης.

Όχι περισσότερα των 12 από τα κυτία αυτά θα γίνονται χάρτινος ρόλλος, και όχι περισσότεροι από 12 ρόλλοι θα τυλίγονται σε χαρτί συσκευασίας ώστε να αποτελούν πακέτο.

Ταινίες των 50 καφυλλίων, το καθένα καφύλλιο γεμισμένο με όχι περισσότερα των 5MG εκρηκτικής ύλης μπορούν να συσκευάζονται κατά τον ακόλουθο τρόπο:

5 ταινίες ανά κυτίο, σε κυτία από ινώδη σανίδα τυλιγμένα 6 μαζί σε χαρτί ισοδύναμο σε αντοχή με χαρτί KRAFT (χοντρό χαρτί συσκευασίας) κατωτάτου βάρους 40 MG/$μ^2$. 12 μικρά θα τυλίγονται μαζί σε χαρτί της αυτής ποιότητος ώστε να αποτελέσουν ένα μεγάλο πακέτο·

(θ) είδη της 16°: ασφαλίζονται με αποσβεστικό υλικό, όχι περισσότερα των 50 ανά κυτίο, σε κυτία από ινώδη σανίδα. Οι φελλοί θα καολούνται στον πυθμένα των κυτίων ή θα τοποθετούνται στη θέση τους με κάποια ισοδύναμο μέθοδο. Το κάθε κυτίο θα τυλίγεται με χαρτί και όχι περισσότερα από 10 κυτία θα τυλίγονται σε χαρτί συσκευασίας ώστε να αποτελούν πακέτο·

(ι) είδη της 17°: όχι περισσότερα των 5 ανά κυτίο, σε κυτία από ινώδη σανίδα. Όχι περισσότερα των 200 κυτίων, τακτοποιημένων σε ρόλλους θα τοποθετούνται μαζί σε συλλογικό κυτίο από ινώδη σανίδα·

(κ) είδη της 18°: ασφαλιζόμενα με αποσβεστικό υλικό, όχι περισσότερα των 10 ανά κυτίο, σε κυτία από ινώδη σανίδα. Όχι περισσότερα των 100 κυτίων, τακτοποιουμένων σε ρόλλους, θα τυλίγονται με χαρτί ώστε να αποτελέσουν πακέτο·

(λ) είδη της 19°: ασφαλιζόμενα με αποσβεστικό υλικό, όχι περισσότερα των 15 ανά κυτίο, σε κυτία από ινώδη σανίδα. Όχι περισσότερα των 144 κυτίων, τακτοποιημένων σε ρόλλους, θα συσκευάζονται σε δεύτερο κυτίο από ινώδη σανίδα·

(μ) είδη της 20° (α): ασφαλιζόμενα με αποσβεστικό υλικό, όχι περισσότερα των 144 ανά κιβώτιο, σε κιβώτια από ινώδη σανίδα·

(ν) είδη της 20° (β) όχι περισσότερα των 75 ανά κυτίο, σε κυτία από ινώδη σανίδα· όχι περισσότερα των 72 κυτίων θα τυλίγονται με ινώδη σανίδα ώστε να αποτελέσουν ένα πακέτο·

(ξ) είδη της 21°: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί. Εάν το σημείο αναφλέξεως των ειδών δεν καλύπτεται από προστατευτικό κάλυμα, το καθένα είδος πρέπει πρώτα να τυλιχθεί χωριστά με χαρτί. Το προωθητικό γέμισμα των βομβών που ζυγίζουν πάνω από 5 KG θα προστατεύονται από χάρτινο κιβώτιο καλύπτουν το κάτω μέρος της βόμβας·

(ο) είδη της 22°: σε κυτία από ινώδη σανίδα ή σε χονδρό χαρτί. Όμως, μεγάλα πυροτεχνήματα δεν χρειάζεται να έχουν εσωτερική συσκευασία εάν το σημείο αναφλέξεώς τους καλύπτεται από προστατευτικό κάλυμμα·

(π) είδη της 23°: ασφαλιζόμενα με αποσβεστικό υλικό σε κυτία κατασκευασμένα από ξύλο ή ινώδη σανίδα. Οι κεφαλές αναφλέξεως θα προστατεύονται από προστατευτικό κάλυμμα·

(ρ) είδη της 24°: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί·

(σ) είδη της 25°: σε κυτία από ινώδη σανίδα ή σε γερό χαρτί. Εν τούτοις, μεγάλα πυροτεχνήματα δεν χρειάζεται να έχουν εσωτερική συσκευασία εάν το σημείο αναφλέξεώς τους έχει καλυφθεί με προστατευτικό κάλυμμα·

(τ) είδη της 26°: σε κυτία από ινώδη σανίδα. Το κυτίο δεν πρέπει να περιέχει περισσοτέρους από 3 γυάλινους σωλήνες.

(2) Οι εσωτερικές συσκευασίες οι αναφερόμενες στο (1) θα συσκευάζονται:

(α) συσκευασίες περιέχουσες είδη των 10°. 13° και 14°, σε ξύλινα κιβώτια συσκευασίας·

(β) συσκευασίες περιέχουσες ύλες ή είδη των 9°. 11°, 12°. και 15° - 26°. σε ξύλινα κιβώτια συσκευασίας με καλά ενωμένες πλευρές πάχους όχι μικροτέρου των 18 MM (χιλ.), επενδεδυμένα με γερό χαρτί ή λεπτό φύλλο ψευδαργύρου ή φύλλο αλουμινίου. Πλευρικό πάχος 11MM (χιλ.) αρκεί για κόλον που ζυγίζει όχι πάνω από 35 KG εάν το κιβώτιο περιβάλλεται από σιδερή ταινία.

Το περιεχόμενον του κιβωτίου συσκευασίας περιορίζεται ως κάτωθι:

προκειμένου για είδη της 17°, σε 50 εξωτερικά κυτία από ινώδη σανίδα·

προκειμένου για είδη της 18°, σε 25 πακέτα·

προκειμένου για είδη της 20° (α), σε 50 κιβώτια από ινώδη σανίδα·

προκειμένου για είδη της 20° (β), σε 50 πακέτα, το κάθενα των 72 κυτίων από ινώδη σανίδα· και προκειμένου για είδη της 21°, σε αριθμό ειδών τέτοιο ώστε το βάρος του ολικού γεμίσματος να μην υπερβαίνει τα 56 KG·

(γ) συσκευασία περιέχουσα MAGNESIUM FLASH - POWDERS(Μαγνήσιον Φωτογραφιών) (26°), είτε σύμφωνα με την (β) ανωτέρω, είτε σε ξύλινα κιβώτια συσκευασίας, το καθένα ζυγίζον όχι πάνω από 5KG, ή προκειμένου για συσκευασίες χαρτίνων σακκουλών, σε γερά κιβώτια αποινώδη σανίδα το καθένα ζυγίζον όχι πάνω από 5KG.

(3) Ξύλινα κιβώτια περιέχοντα είδη με εκρηκτικό γέμισμα με βάσιν φωσφόρου και χλωρικού άλατος πρέπει να κλείνονται με βίδες.

(4) Κόλον περιέχον είδη των 9°, 11°, 12°, 15° - 22°, ή 24° - 26° δεν πρέπει να ζυγίζει πάνω από 100 KG δεν πρέπει να ζυγίζει πάνω από 50 KG εάν περιέχει είδη της 23° ή πάνω από 35 KG εάν οι πλευρές του κιβωτίου είναι πάχους μόνον 11MM (χιλ.) και το κιβώτιο περιβάλεται από σιδερένια ταινία.

(1) Ύλες των ειδών της 27° θα συσκευάζονται σε ξύλινα κιβώτια επενδεδυμένα με χαρτί συσκευασίας, λαδόχαρτο ή κυματοειδή ινώδη σανίδα. Ουδεμία επένδυση απαιτείται εάν οι ύλες αυτές και τα είδη τυλιχθούν με χαρτί ή ινώδη σανίδα. 2180

(2) Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG.

(3) Καπνογόνα φυσίγγια προς χρήσιν ως παρασιτοκτόνα μπορούν, εάν είναι τυλιγμένα με χαρτί ή ινώδη σανίδα να συσκευασθούν επίσης:

(α) σε κυτία από κυματοειδή ινώδη σανίδα ή σε γερά κιβώτια από ινώδη σανίδα· τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 20 KG· ή

(β) σε συνήθη κιβώτια από ινώδη σανίδα· τέτοιο κόλον δεν πρέπει να ζυγίζει πάνω από 5KG.

Μικτή Συσκευασία

(1) Ύλες και είδη ομαδοποιημένα υπό τον αυτόν αριθμόν είδους μπορούν να συμπεριλαμβάνονται στο ίδιο κόλον. Οι εσωτερικές συσκευασίες θα είναι σύμφωνες με όσα έχουν καταχωρηθεί για κάθε επικίνδυνη ύλη και η εξωτερική συσκευασία θα είναι εκείνη που έχει καταχωρηθεί για τις επικίνδυνες ύλες του στο θέμα αριθμού είδους. Εν προκειμένω κιβώτιο από ινώδη σανίδα περιέχον είδη της 20°(α) θα θεωρείται ισοδύναμο με πακέτο περιέχον είδη 20°(β). 2181

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται υπό του άρθρου του φέροντος τον τίτλον «Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους», οι επικίνδυνες ύλες της Κλάσεως αυτής, σε ποσότητες μη υπερβαίνουσες τα 6 KG για όλες τις επικίνδυνες ύλες τις αναφερόμενες υπό τον αυτόν αριθμόν είδους ή υπό το αυτό γράμμα, μπορούν να εγκλείονται στο ίδιο κόλον είτε με επικίνδυνες ύλες άλλου αριθμού είδους ή άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται επίσης προκειμένου για τέτοιες ύλες), ή με άλλα εμπορεύματα υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Τα εσωτερικά είδη συσκευασίας πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως πρέπει να τηρούνται οι γενικές διατάξεις οι περιεχόμενες στα περιθώρια 2001(5) και 2002(6) και (7).

Το κόλον δεν πρέπει να ζυγίζει πάνω από 100 KG ή πάνω από 50 KG εάν περιέχει είδη της 25°.

Ειδικοί Όροι

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότητα ανά δοχείο	ανά κόλον	Ειδικές Διατάξεις
1°	Πυρεία	5KG	5KG	Δεν πρέπει να συσκευάζονται μαζί με ύλες των Κλάσεων 3, 4.1 και 4.2
2° & 3°	Ταινίες εμπυρίων και πυροσωλήνες βραδείας καύσεως	Μικτή συσκευασία απαγορεύεται		
4°	Νήμα Πυροκυλίνης	1.500 μ. νήματος πυροκυλίνης		
5° – 8°	Όλα τα είδη	Μικτή συσκευασία απαγορεύεται		
9° – 20°	Όλα τα είδη			Μικτή συσκευασία επιτρέπεται μόνον με μικρά είδη ή μη πυροτεχνικά παιγνίδια, από τα οποία πρέπει να τηρούνται χωριστά. Το συλλογικό κιβώτιο πρέπει να πληροί τις προβλεπόμενες προϋποθέσεις για τα περιεχόμενα εις αυτά είδη για τα οποία το περιθώριο 2179(2) και (3) επιβάλλει τους πιο αυστηρούς όρους.
21° – 25°	Όλα τα είδη			Μικτή συσκευασία επιτρέπεται μόνο μεταξύ των. Το συλλογικό κιβώτιο πρέπει να πληροί τους προβλεπόμενους για τα περιεχόμενα εις αυτά είδη για τα οποία το περιθώριο 2179(2) και (3) επιβάλλει τους πιο αυστηρούς όρους
26° – 27°	Όλα τα είδη			Μικτή συσκευασία απαγορεύεται

4. Μαρκάρισμα και ετικέτες κινδύνου επί των κόλων. (βλέπε προσθήκην Α.9)

(1) Κόλα περιέχοντα είδη της Κλάσεως 1γ, 16° ή 21° έως 23°, θα φέρουν ετικέτα σύμφωνον με το μοντέλο No.1. 2182

(2) Κόλα περιέχοντα εύθραστα δοχεία μη ορατά από έξω θα φέρουν ετικέτα σύμφωνον με το μοντέλο No.12. 2183

Β. Λεπτομέρειες του εγγράφου της μεταφοράς.

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο της μεταφοράς πρέπει να συμφωνεί με μία των ονομασιών των υπογραμμιζομένων στο περιθώριο 2171· πρέπει να έχει υπογράμμιση και να ακολουθείται από τις λεπτομέρειες της Κλάσεως, τον αριθμό του είδους (μαζί με το τυχόν γράμμα), και τα αρχικά της «ADR» ή της «RID» (π.χ. 1γ, 1°(α), ADR). Η διατύπωση «Πυροτεχνήματα της ADR, 1γ, αριθμός είδους . . .», με λεπτομέρειες των αριθμών του είδους υπό τους οποίους αι μεταφερόμενες ύλες ή είδη αναγράφονται, επιτρέπεται επίσης στο έγγραφο μεταφοράς. 2184

(2) Προκειμένου περί υλών και ειδών των 2°, 4°, 5°, 8°, 9°, 11° και 15° - 27°, τα παρακάτω πρέπει να βεβαιώνονται στο έγγραφο της μεταφοράς: «Η φύση των εμπορευμάτων και η συσκευασία, συμφωνούν με τις διατάξεις της ADR».

Γ. Κενά Είδη Συσκευασίας 2185-2189

Καμμία διάταξη 2190

2191-2199

ΚΛΑΣΗ 2. ΑΕΡΙΑ: ΠΕΠΙΕΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ Η ΔΙΑΛΥΟΜΕΝΑ ΥΠΟ ΠΙΕΣΗ

1. Κατάλογος υλών

(1) Μεταξύ των υλών και ειδών που καλύπτονται από τον τίτλον της Κλάσεως 2, μόνον τα απαριθμούμενα στο περιθώριο 2201 θα γίνονται δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και των διατάξεων του Παραρτήματος Β. Οι ύλες και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR. 2200

(2) Οι ύλες που έχουν κρίσιμη θερμοκρασία κατωτέρα των 50^0 C ή, εις 50^0 C, πίεση ατμού μεγαλυτέραν των 300KPa (3 BAR)θεωρούνται ως ύλες της Κλάσεως 2.

(3) Οι ύλες και τα είδη της Κλάσεως 2 ταξινομούνται ως κάτωθι:

Α: Πεπιεσμένα αέρια έχοντα κρίσιμη θερμοκρασία κάτω των -10^0 C.

Β: Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία -10^0 C ή άνω!

(α) Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία 70^0 C ή άνω·

(β) Υγροποιημένα άερια έχοντα κρίσιμη θερμοκρασία -10^0 C ή άνω, αλλά κάτω των 70^0 C·

Γ: Βαθειά - κατεψυγμένα (DEEPLY-REFRIGIRATED) υγροποιημένα άεριαι·

Δ: Αέρια διαλυόμενα υπό πίεση·

Ε: Διαμενητές Αεροζόλ και μή - ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση·

ΣΤ: Αέρια υποκείμενα σε ειδικούς όρους· και

Ζ: Κενά δοχεία και κενές δεξαμενές.

Οι ύλες και τα είδη της Κλάσεως 2 υποδιαιρούνται συμφώνως προς τις χημικές τους ιδιότητες, ως κάτωθι:

(α) άφλεκτα·

(α Τ) άφλεκτα, τοξικά·

(β) εύφλεκτα·

(β Τ) εύφλεκτα, τοξικά·

(γ) χημικώς ασταθή·

(γ Τ) χημικώς ασταθή, τοξικά.

Εκτός εάν αλλιώς ορίζεται, οι χημικώς ασταθείς ύλες θα θεωρούνται ότι είναι εύφλεκτες.

Τις ονομασίες των διαβρωτικών αερίων και ειδών που περιέχουν τέτοια αέρια θα ακολουθεί η λέξη «διαβρωτικόν» σε εισαγωγικά.

(4) Οι ύλες της Κλάσεως 2 που απαριθμούνται μεταξύ των χημικών ασταθών αερίων θα γίνονται δεκτές για μεταφορά μόνον εάν τα απαραίτητα μέτρα έχουν παρθεί ώστε να αποφεύγεται η επικίνδυνη αποσύνθεσή τους, αυτοξειδοαναγωγή ή πολυμερισμός διαρκούσης της μεταφοράς.

Προς τον σκοπόν αυτόν, πρέπει να λαμβάνεται ειδικότερη μέριμνα να εξασφαλίζεται ότι τα δοχεία και οι δεξαμενές δεν περιέχουν ύλες που θα μπορούσαν να προαγάγουν αυτές τις αντιδράσεις.

Α. Πεπιεσμένα αέρια (βλέπε επίσης περιθώριο 2201α υπό 2201 στοιχείο (α). Για αέρια της 1^0 (α) και (β) και 2^0(α) μέσα σε διανεμητές αεροζόλ ή σε μη-ξαναγεμιζόμενα δοχεία CONTAINERS) για αέρια υπό πίεση, βλέπε υπό στοιχεία 10^0 και 11^0). 2201

Αέρια έχοντα κριτικήν θερμοκρασίαν κάτω των -10^0 C θεωρούνται ότι είναι πεπιεσμένα αέρια για τους σκοπούς της ADR.

1° Καθαρά αέρια και τεχνικώς - καθαρά αέρια

(α) Άφλεκτα

ΑΡΓΟΝ· ήλιον· κρυπτόν· νέον· άζωτον· οξυγόνον· τετραφθοριομεθάνιο (R 14).

(α Τ) Άφλεκτα, τοξικά

Τριφθοριούχο βόριο· φθόριο (διαβρωτικόν)· τετραφθοριούχο πυρίτιο (διαβρωτικόν).

(β) Εύφλεκτα

Δευτέριο· υδρογόνο· μεθάνιο.

(β Τ) Εύφλεκτα, τοξικά

Μονοξείδιο του άνθρακος

(γ Τ) Χημικώς ασταθή, τοξικά

Μονοξείδιο του αζώτου NO (άφλεκτο).

2° Μίγματα αερίων

(α) Άφλεκτα

Μίγματα δύο ή περισσοτέρων των παρακάτω αερίων: σπάνια αέρια (περιέχοντα όχι περισσότερο του 10%, ξένον (XENON) κατ' όγκον), άζωτον, οξυγόνον, διοξείδιο του άνθρακος (όχι περισσότερο του 30% κατ' όγκον)· άφλεκτα μίγματα των δύο ή περισσοτέρων των παρακάτω αερίων: υδρογόνου, μεθανίου, αζώτου, σπανίων αερίων (περιεχόντων όχι περισσότερον του 10% Ξένον κατ' όγκον), όχι περισσότερον του 30% διοξειδίου του άνθρακος κατ' όγκον· άζωτον περιέχον όχι άνω του 6% αιθυλενίου κατ' όγκον· αήρ.

(β) Εύφλεκτα

Μίγματα όχι λιγότερο του 90% μεθανίου κατ' όγκον με υδρογονάνθρακες των 3^0 (β) και 5^0 (β)· εύφλεκτα μίγματα δύο ή περισσοτέρων των παρακάτω αερίων: υδρογόνου, μεθανίου, αζώτου, σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον), όχι άνω του 30% διοξειδίου του άνθρακος κατ' όγκον) φυσικόν άεριον.

(β Τ) Εύφλεκτα, τοξικά

Αέριο Πόλεως (Δήμου): μίγματα υδρογόνου με όχι άνω του 10% σεληνιούχον υδρογόνον (HYDROGEN SELENIDE) ή φωσφίνην ή σιλάνιον ή γερμάνιο κατ' όγκον ή με όχι άνω του 15% αρσίνην κατ' όγκον· μίγματα αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% σεληνιούχου υδρογόνου ή φωσφίνην ή σιλάνιον ή γερμάνιο κατ' όγκον ή με όχι άνω του 15% αρσίνην κατ' όγκον·

υδραέριο· αέριο χημικής συνθέσεως (π.χ. εκ της μεθόδου FISCHER-TROPSCH)· μίγματα μονοξειδίου του άνθρακος με υδρογόνο ή με μεθάνιο.

(γ Τ) Χημικώς ασταθή, τοξικά

Μίγματα υδρογόνου με όχι άνω του 10% διβοράνιο κατ' όγκον· μίγματα αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% διβοράνιο κατ' όγκον.

Β. Υγροποιημένα αέρια (βλέπε επίσης περιθώριο 2201α υπό στοιχεία (β) και (ε). Για αέρια των 3^0 έως 6^0 μέσα σε διανεμητές αεροζόλ ή μέσα σε μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέρια υπό πίεση, βλέπε υπό στοιχεία 10^0 και 11^0):

Αέρια έχοντα κριτικήν θερμοκρασίαν -10^0 C ή άνω θεωρούνται ότι είναι υγροποιημένα αέρια για τους σκοπούς της ADR.

(α) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν 70^0 ή άνω:

3° Καθαρά αέρια και τεχνικώς - καθαρά αέρια

(α) Άφλεκτα

Βρωμοχλωριοδιφθοριομεθάνιον (R 12 B 1)· χλωριοδιφθοριομεθάνιο (R 22)· χλωριοπενταφθοριοαιθάνιο (R 115)· 1-χλωριο-2,2,2-τριφθοριοαιθάνιο (R 133α) διχλωριοδιεφθοριομεθάνιο (R 12)· διχλωριοφθοριομεθάνιο (R 21)· 1,2-διχλωριο-1,1,2,2,-τετραφθοριοαιθάνιο (R 114)· οκτωφθοριοκυκλοβουτάνιο (RC 318).

(α Τ) Άφλεκτα, τοξικά

Αμμωνία· χλωριούχο βόριον (διαβρωτικόν)· χλώριον (διαβρωτικόν)· τριφθοριούχον χλώριον (διαβρωτικόν)· εξαφθοριοπροπυλένιον (R 216)· υδροβρώμιο (διαβρωτικόν)· μεθυλοβρωμίδιο· νιτροζυχλωρίδιο (διαβρωτικόν)· διοξείδιον του αζώτου NO_2 (υπεροξείδιον αζώτου, τετροξείδιο του αζώτου N_2O_4) (διαβρωτικόν)· φωσγένιον (διαβρωτικόν)· διοξείδιον του θείου· φθοριούχο SULPHURYL· εξαφθοριούχο βολφράμιο.

(β) Εύφλεκτα

Βουτάνιο· 1-Βουτυλένιο (1-βουτένιο)· 1-χλωριο-1,1-διφθοριοαιθάνιο (R 142β)· CIS-2-βουτυλένιο (CIS-2-βουτένιο)· κυκλοπροπάνιο·

1,1,- διφθοριοαιθάνιο (R 152α)· διμεθυλαιθήρ· ισοβουτάνιο· ισοβουτυλένιο (ισοβουτένιο)· μεθυλσιλάνιο· προπάνιο· προπυλένιο· TRANS-2-βουτυλένιο (TRANS-2-βουτένιο)· 1,1 1-τριφθοριοαιθάνιο.

(β Τ) Εύφλεκτα, τοξικά

Αρσίνη· διχλωροσιλάνιο· διμεθυλαμίνη· διμεθυλσιλάνιο· αιθυλαμίνη· αιθυλοχλωρίδιο· σεληνιούχο υδρογόνο· υδρό-

θειο· μεθυλαμίνη· μεθυλοχλωρίδιο· μεθυλική μερκαπτάνη· τριμεθυλαμίνη· τριμεθυλσιλάνιο.

(γ) Χημικώς ασταθή

1,2-βουταδιένιο, 1,3-Βουταδιένιο, χλωριούχο βινύλιο.

Παρατήρηση: Σε δοχεία περιέχοντα 1,2-Βουταδιένιο, η συμπύκνωση οξυγόνου στην αέριο φάση δεν θα πρέπει να υπερβαίνει τα 50 χατλ/$μ^3$.

(γ Τ) Χημικώς ασταθή, τοξικά

Κυανογόνο· χλωροκυανίδιο (άφλεκτον) (διαβρωτικόν)· οξείδιο αιθυλενίου· μεθυλοβινυλοαιθέρας· τριφθοριοχλωροαιθυλένιο (R 1113)· βινυλοβρωμίδιο.

Σημείωσις: Στην περίπτωση των αλογόνων υδρογονανθράκων, η χρήση ονομασιών συνήθων στο εμπόριο, όπως οι παρακάτω, επιτρέπεται: ALGOFRENE, ARCTON, EDIFREN, FLUGENE, FORANE, FREON, FRESANE, FRIGEN, ISCEON, KALTRON, ακολουθούμενες από τον αριθμόν αναγνωρίσεως της ύλης χωρίς το γράμμα R.

4ο. Μίγματα αερίων

(α) Άφλεκτα

Μίγματα υλών της 3ο (α) μετά ή άνευ εξαφθοριοπροπυλενίου της 3ο (α Τ), τα οποία ως:

μίγμα F 1 έχουν πίεση ατμού εις 70° μη υπερβαίνουσαν τα 1.3 MPα/13 BAR και πυκνότητα εις 50° C όχι μικροτέραν της πυκνότητας του διχλωροφθοριομεθανίου (1.30)·

μίγμα F 2 έχουν πίεση ατμού εις 70° C μη υπερβαίνουσαν τα 1.9 MPα/19 BAR και πυκνότητας εις 50° C όχι μικροτέραν της πυκνότητας του διχλωροδιφθοριομεθανίου (1.21)·

μίγμα F 3 έχουν πίεση ατμού εις 70° C μη υπερβαίνουσαν τα 3 MPα/30 BAR και πυκνότητα εις 50° C όχι μικροτέραν της πυκνότητα του χλωροδιφθοριομεθανίου (1.09)·

Σημείωσις: 1. Τριχλωροφθοριομεθάνιον (R 11), τριχλωροτριφθοριομεθάνιον (R 113) και χλωροτριφθοριομεθάνιο (R 133) δεν είναι υγροποιημένα αέρια εντός της εννοίας της ADR και επομένως δεν υπόκεινται στους όρους της ADR. Μπορούν εν τούτοις να συμπεριλήφθούν εις την σύνθεση των μιγμάτων F 1 έως F 3.

2. Βλέπε Σημείωσιν υπό στοιχείον 3ο.

Το αζεοτροπικόν μίγμα του διχλωροδιφθοριομεθανίου (R 12) και 1,1-διφθοριοαιθανίου (R 152α), γνωστόν ως R 500·

Το αζεοτροπικόν μίγμα του χλωροπενταφθοριομεθανίου (R 115) και χλωροδιφθοριομεθανίου (R 22), γνωστόν ως R 502.

Το μίγμα του 19 έως 21 τοις εκατόν κατά βάρος διχλωροδιφθοριομεθανίου (R 12) και 79 έως 81 στα εκατόν κατά βάρος βρωμοχλωροδιφθοριομεθανίου (R 12 BI).

(α Τ) Άφλεκτα, τοξικά.

Μίγματα μεθυλοβρωμιδίου και χλωροπικρίνης έχοντα πίεση ατμού άνω των 300 KPα/3 (BAR) εις 50° C.

(β) Εύφλεκτα

Μίγματα υδρογονανθράκων της 3ο (β) και αιθανίου και αιθυλενίου της 5ο (β), τα οποία ως:

μίγμα Α έχουν πίεση ατμού εις 70° C μη υπερβαίνουσαν τα 1,1 MPα/(11 BAR) και πυκνότητα εις 50° C όχι κάτω των 0.525·

μίγμα Α Ο έχουν πίεση ατμού εις τους 70° C μη υπερβαίνουσαν τα 1.6 MPα/(16 BAR) και πυκνότητα εις 50° C όχι κάτω των 0.495·

μίγμα Α Ι έχουν πίεση ατμού εις 70° C υπερβαίνουσαν τα 2,1 MPα/(21 BAR) και πυκνότητα εις 50° C όχι κάτω των 0.485·

μίγμα Β έχουν πίεση ατμού εις 70° C μη υπερβαίνουσαν τα 26 KG/CM^2 και πυκνότητα εις 50° C όχι κάτω των 0.450·

μίγμα Γ έχουν πίεση ατμού εις 70° C μη υπερβαίνουσαν τα 3,1 MPα/(31 BAR) και πυκνότητα εις 50° C όχι κάτω των 0.440.

Σημείωσις: Στην περίπτωση των ανωτέρω μιγμάτων επιτρέπεται η χρήση των παρακάτω συνήθων στο εμπόριο ονομασιών για τη περιγραφή των υλών αυτών:

Ονομασία υπό στοιχείον 4ο (β)	Ονομασία συνήθης στο εμπόριο
Μίγμα Α, μίγμα Α Ο	βουτάνιον
Μίγμα Γ	προπάνιον

Μίγματα υδρογονανθράκων των 3ο (β) και 5ο (β) περιέχοντα μεθάνιον.

(β Τ) Εύφλεκτα, τοξικά

Μίγματα δύο ή περισσοτέρων των παρακάτω αερίων: μεθυλσιλανίου, διμεθυλσιλανίου, τριμεθυλσιλανίου· μεθυλοχλωριδίου και μεθυλενοχλωριδίου σε μίγματα έχοντα πίεση ατμού άνω των 300 KPα/(3 BAR) εις 50° C·

Μίγματα μαθυλοχλωριδίου και χλωροπικρίνης και μίγματα μεθυλοβρωμιδίου και αιθυλενιοβρωμιδίου έχοντα σε κάθε περίπτωση πίεση ατμού άνω των 300 KPA/(3 BAR).

(γ) Χημικώς ασταθή

Μίγματα 1,3 βουταδιενίου και υδρογονανθράκων της 3ο (β) με πίεση ατμών σε 70° C όχι πάνω από 1,1 MPα(11 BAR) και πυκνότητα σε 50° C όχι κάτω των 0,525.

Μίγματα μεθυλακετυλίνης και προπαδιενίου με υδρογονάνθρακες της 3ο (β), τα οποία ως:

μίγμα P 1 περιέχουν όχι άνω του 63% μεθυλακετυλενίου και προπαδιενίου κατ' όγκον και το πολύ 24% προπανίου και προπυλενίου κατ' όγκον, του ποσοστού των C_4 - κεκορεσμένων υδρογονανθράκων όντος όχι κάτω των 14% κατ' όγκον· και ως

μίγμα P 2 περιέχουν όχι άνω του 48% μεθυλακετυλενίου και προπαδιενίου κατ' όγκον και το πολύ 50% προπανίου και προπυλενίου κατ' όγκον, του ποσοστού των C_4 - κεκορεσμένων υδρογονανθράκων όντος όχι κάτω του 5% κατ' όγκον.

(γ Τ) Χημικώς ασταθή, τοξικά

Αιθυλενοξείδιο περιέχον όχι άνω του 10% διοξειδίου του άνθρακος κατ' όγκον· αιθυλενοξείδιο περιέχον το πολύ 50% μεθυλικού άλατος μυρμηκικού οξέος κατ' όγκον, με άζωτο συνολικής πιέσεως έως 1 MPα (10 BAR) σε θερμοκρασία 50° C· διχλωρο-διφθοριομεθάνιο περιέχον 12% αιθυλενοξείδιο κατά βάρος.

(β) Υγροποιημένα αέρια έχοντα κριτικήν θερμοκρασίαν −10° C ως άνω, αλλά κάτω των 70° C:

5ο Καθαρά αέρια και τεχνικώς - καθαρά αέρια

(α) Άφλεκτα

Βρωμοτριφθοριομεθάνιο (R 13 B I)· διοξείδιο του άνθρακος · χλωροτριφθοριομεθάνιο (R 13)· εξαφθοριοαιθάνιο (R 116)· νιτρώδες οξύ N_2O· εξαφθοριούχο θείον· τριφθοριομεθάνιο (R 23)· ξένον. 2.201

Αναφορικά με το διοξείδιο του άνθρακος, βλέπε επίσης περιθώριο 2201α υπό στοιχείον (γ).

Σημείωσις: 1. Το νιτρώδες οξύ θα γίνεται δεκτό για μεταφορά μόνον εάν δεν είναι κάτω του 99% καθαρόν.

2. Βλέπε Σημείωσιν υπό στοιχείον 3ο.

(α Τ) Άφλεκτα, τοξικά

Υδροχλώριο (διαβρωτικόν).

(β) Εύφλεκτα

Αιθάνιο· αιθυλένιο· σιλάνιο.

(β Τ) Εύφλεκτα, τοξικά

Γερμάνιο, φωσφίνη.

(γ) Χημικώς ασταθή

1,1-διφθοριοαιθυλένιο· φθοριούχο βινύλιο.

(γ Τ) Χημικώς ασταθή, τοξικά

Διβοράνιο.

6ο Μίγματα αερίων

(α) Άφλεκτα

Διοξείδιο του άνθρακος περιέχον όχι κάτω του 1% και όχι άνω του 10% άζωτον, οξυγόνον, αέρα ή σπάνια αέρια κατά βάρος· το αζεοτροπικόν μίγμα του χλωροτριφθοριομεθανίου (R 13) και τριφθοριομεθανίου (R 23), γνωστόν ως R 503.

Σημείωσις: Διοξείδιο του άνθρακος περιέχον όχι κάτω του 1% άζωτον, οξυγόνον, αέρα ή σπάνια αέρια κατά βάρος είναι ύλη της 5ο (α).

(γ) Χημικώς ασταθή

Διοξείδιο του άνθρακος περιέχον όχι άνω του 35% αιθυλενοξειδίου κατά βαρος.

(γ Τ) Χημικώς ασταθή, τοξικά

Αιθυλενοξείδιο περιέχον άνω του 10% αλλά όχι άνω του 50% διοξείδιο του άνθρακος κατά βάρος.

Γ. Βαθειά - κατεψυγμένα (DEEPLY-REFRIGERATED) υγροποιημένα αέρια

7ο Καθαρά αέρια και τεχνικώς - καθαρά αέρια

(α) Άφλεκτα
Αργόν· διοξείδιο του άνθρακος· ήλιον· κρυπτόν· νέον· άζωτον· νιτρώδες οξύ N_2O· οξυγόνον· ξένον.
(β) Εύφλεκτα
αιθάνιο· αιθυλένιο· υδρογόνο· μεθάνιο.
8ο. Μίγματα αερίων.
(α) Άφλεκτα
Αήρ· μίγματα υλών της 7ο (α)
(β) Εύφλεκτα
Μίγματα υλών της 7ο (β)· φυσικόν άεριον.

Δ. Αέρια διαλυόμενα υπό πίεση
Καθαρά αέρια και τεχνικώς - καθαρά αέρια
(α Τ) Άφλεκτα, τοξικά
Αμμωνία διαλυομένη στο νερό με άνω του 35% αλλά όχι άνω του 40% αμμωνία κατά βάρος·
αμμωνία διαλυομένη στο νερό με άνω του 40% αλλά όχι άνω του 50% αμμωνία κατά βάρος.
Σημείωσις: Διάλυμα αμμωνίας με περιεχόμενο σε αμμωνία τουλάχιστον 10% αλλά το πολύ 35% αμμωνία, είναι ουσία της Κλάσεως 8.
(γ) Χημικώς ασταθή
Ακετυλένιο διαλυόμενο σε διαλύτη (π.χ. ακετόνη) απορροφούμενο απο πορώδεις ύλες.

Ε. Διανεμητές αεροζόλ και μη - ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπο πίεση (βλέπε επίσης περιθώριο 2201α υπό στοιχείο (δ)):

Σημείωσις: 1. Οι διανεμητές αεροζόλ είναι δοχεία που μπορούν να χρησιμοποιηθούν μία μόνο φορά, είναι εφοδιασμένα με βαλβίδα αφέσεως ή μηχανισμόν διασποράς, και περιέχουν, υπό πίεση, αέριον ή μίγμα αερίων του περιθωρίου 2208 (2) ή περιέχουν ενεργόν ύλην (εντομοκτόνον, κοσμητικήν (καλλυντικήν) κλπ.)) μαζί με αέριο ή μίγμα αερίων σαν προώθητική γόμωση.

2.Μη - ξαναγεμιζόμενα δοχεία (ONTAINERS) αερίων υπό πίεση είναι δοχεία που μπορούν να χρησιμοποιηθούν μόνο μια φορά και περιέχουν αέριο ή μίγμα αερίων του περιθωρίου 2208 (2) και (3) (π.χ. βουτάνιο για μαγειρεία - καταυλισμών, ψυκτικά αέρια· κλπ.). αλλά δεν είναι εφοδιασμένα με βαλβίδα αφέσεως.

3. Ο όρος «εύφλεκτες ύλες» σημαίνει:
(Ι) αέρια (προωθητική γόμωση διανεμητών αεροζόλ· περιεχόμενο μη - ξαναγεμιζομένων δοχείων (CONTAINERS) αερίου υπό πίεση) των οποίων τα μίγματα με αέρα μπορούν να αναφλεγούν και έχουν κατώτερο και ανώτερο όριο αναφλέξεως·
(ΙΙ) υγρά (ενεργείς ύλες διανεμητών αεροζόλ) της Κλάσεως 3.

4. Ο όρος «χημικώς ασταθή» εφαρμόζεται σε περιεχόμενο το οποίο ελλείψει ειδικών προφυλάξεων υφίσταται επικίνδυνον αποσύνθεση ή αυτο-πολυμερισμόν εις θερμοκρασίαν όχι άνω των 70° C.

10° Διανεμητές Λεροζόλ
(α) Άφλεκτοι
Με όχι εύφλεκτον περιεχόμενον.
(α Τ) Άφλεκτοι, τοξικοί
Με άφλεκτο τοξικό περιεχόμενο.
(β) Εύφλεκτοι
1. Με όχι άνω του 45% εύφλεκτο περιεχόμενο κατά βάρος.
2. Με άνω του 45% εύφλεκτο περιεχόμενο κατά βάρος.
(β Τ) Εύφλεκτες, τοξικές
1. Με τοξικό περιεχόμενο και όχι άνω του 45% εύφλεκτο περιεχόμενο κατά βαρος.
2. Με τοξικό περιεχόμενο και άνω του 45% εύφλεκτο περιεχόμενο κατά βάρος.
(γ) Χημικώς ασταθείς
Με χημικώς - ασταθές περιεχόμενο.
(γ Τ) Χημικώς ασταθείς, τοξικοί
Με χημικώς - ασταθές τοξικό περιεχόμενο.
11°. Μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση
(α) Άφλεκτα
(α τ) Άφλεκτα τοξικά:
Με άφλεκτα περιεχόμενα.
(β) Εύφλεκτα
Με εύφλεκτο περιεχόμενο.
(β Τ) Εύφλεκτα, τοξικά
Με εύφλεκτο τοξικό περιεχόμενο.
(γ) Χημικώς ασταθή
Με χημικώς - ασταθές περιεχόμενο
(γ Τ) Χημικώς ασταθή, τοξικά
Με χημικώς - ασταθές τοξικό περιεχόμενο.
ΣΤ. Αέρια υποκείμενα σε ειδικούς όρους
12° Διάφορα μείγματα αερίων
Μίγματα περιέχοντα αέρια αναφερόμενα σε άλλους αριθμούς είδους της παρούσης Κλάσεως, και μίγματα ενός ή περισσοτέρων αερίων αναφερομένων υπό άλλους αριθμούς είδους της παρούσης Κλάσεως με έναν η περισσότερους ατμούς υλών δεν εξαιρούνται της μεταφοράς συμφώνως προς της ADR, υπό τον όρον ότι κατά την μεταφορά:
1. το μίγμα παραμένει εξ ολοκλήρου αεριώδες· και
2. αποκλείεται κάθε δυνατότης επικινδύνου αντιδράσεως.
13° Αέρια Δοκιμών
Αέρια και μίγματα αερίων μη αναφερόμενα υπό άλλους αριθμούς της παρούσης Κλάσεως και χρησιμοποιούμενα μόνον για εργαστηριακές δοκιμές, υπό τον όρον ότι κατά τη μεταφορά:
(α) το αέριο ή μίγμα αερίων παραμένει εξ ολοκλήρου αεριώδες· και
(β) αποκλείεται κάθε δυνατότης επικινδύνου αντιδράσεως.

Ζ. Άδεια δοχεία και άδειες δεξαμενές
14° Κενά δοχεία και κενές δεξαμενές, ακαθάριστα, που περιείχαν τετραφθοριομεθάνιο της 1° (α), ύλες της 1°, (α Τ) - (γ Τ)· 2°, (β) (γ Τ)· 3° - 6°· διοξείδιο του άνθρακος και νιτρώδες οξύ της 7° (α)· ή ύλες των 7° (β), 8° (β), 9°, 12° ή 13°.

Σημείωσις: 1. Δοχεία και δεξαμενές που μετά το άδειασμα των υλών της 14° εξακολουθούν να περιέχουν μικρά κατάλοιπα θεωρούνται ως κενά ακαθάριστα δοχεία ή δεξαμενές.

2. Ακαθάριστα κενά δοχεία ή κενές δεξαμενές που περιείχαν αέρια της 1° (α) πλην του τετραφθοριομεθανίου (R 14), ή αέρια της 2° (α), 7° (α) πλην του διοξειδίου του άνθρακος και νιτρώδους οξέος, ή της 8° (α), δεν υπόκεινται στους όρους της ADR.

2201a Λέρια και είδη παραδιδόμενα για μεταφορά σύμφωνα προς τις παρακάτω διατάξεις δεν υπόκεινται στους όρους ή τις διατάξεις τις σχετικές με την παρούσα Κλάση που διαλαμβάνονται αλλού στο παρόν Παράρτημα ή το Παράρτημα Β:

(α) πεπιεσμένα αέρια τα οποία δεν είναι ούτε εύφλεκτα ούτε τοξικά ούτε διαβρωτικά και η πίεση των οποίων στο δοχείο, αναφερομένη σε θερμοκρασία 15° C, δεν υπερβαίνει τα 200 KPα (2 BAR)· ο αυτός κανόνας ισχύει για μίγματα αερίων περιέχοντα όχι άνω του 2% εύφλεκτα συστατικά μέρη·

(β) υγροποιημένα αέρια περιεχόμενα σε ποσότητες μη υπερβαίνουσες τα 60 L, ή σε ποσότητες μικρότερες των 5 L με όχι άνω των 25 γραμμαρίων υδρογόνου, μέσα σε φυκτικές συσκευές (ψυγεία, μηχανές πάγου, κλπ.) και απαραίτητα για τη λειτουργία τους·

(γ) διοξείδιο άνθρακος (5° (α)) σε μεταλλικά καψύλλια (SODORS, SPARKLETS) εάν το διοξείδιο του άνθρακος σε αεριώδη κατάσταση δεν περιέχει άνω του 0.5% αέρα και τα καψύλλια περιέχουν όχι άνω των 25 γραμμαρίων διοξειδίου του άνθρακος και όχι άνω των 0.75 γραμμαρίων ανά CM^3 χωρητικότητος·

(δ) είδη των 10° και 11° χωρητικότητος μή υπερβαινούσης τα 50 CM^3. Κόλον με τέτοια είδη δεν θα ζυγίζει άνω των 10 KG·

(ε) υγροποιημένα αέρια πετρελαίου περιεχόμενα σε δεξαμενές αυτοκινήτων σταθερά στερεωμένες στα οχήματα· η στρόφιγγα του καυσίμου μεταξύ των δεξαμενής και της μηχανής πρέπει να είναι κλειστή και η ηλεκτρική επαφή ανοικτή.

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας 2202

(1) Τα υλικά από τα οποία τα δοχεία και τα κλεισίματά τους κατασκευάζονται δεν πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν επιβλαβείς ή επικινδύνους συνθέσεις (ενώσεις).

Σημείωσις: Μέριμνα πρέπει να λαμβάνεται ώστε να μην επιτραπεί οποιαδήποτε υγρασία να εισέλθει στα δοχεία όταν γεμίζονται, και να ξηραίνονται τα δοχεία πλήρως μετά τις δοκιμές υδραυλικής πιέσεως (βλέπε περιθώριο 2216) τις διεξαγόμενες με νερό ή με υδατώδη διαλύματα.

(2) Οι συσκευασίες, συμπεριλαμβανομένων των κλεισιμάτων των, θα είναι επαρκώς άκαμπτες και γερές σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να τηρούνται οι κανονικοί όροι της μεταφοράς. Όταν προβλέπονται εξωτερικές συσκευασίες, τα δοχεία θα στερεώνονται στερεά σ' αυτές. Εκτός εάν άλλως ορίζεται στο άρθρο το τιτλοφορούμενο «Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους», οι εσωτερικές συσκευασίες μπορούν να εγκλείονται στις εξωτερικές συσκευασίες, είτε μία-μία είτε ομαδικά.

(3) Μεταλλικά δοχεία προοριζόμενα για τη μεταφορά αερίων των 1° έως 6° και 9° θα περιέχουν μόνον το αέριο για το οποίο δοκιμάσθηκαν και του οποίου η ονομασία έχει γραφεία πάνω στο δοχείο (βλέπε περιθώριο 2218 (1) (α)).

Ανακλήσεις επιτρέπονται: 2203

(1) για μεταλλικά δοχεία δοκιμασθέντα για μία των υλών των 3° (α) ή 4° (α) για βρωμοτριφθοριομεθάνιο, χλωροτρι - ή τριφθοριομεθάνιο της 5° (α). Τα δοχεία αυτά μπορούν επίσης να γεμισθούν με κάποια άλλη ύλη των προαναφερθέντων ειδών υπό τον όρον ότι: η προβλεπομένη για την ύλη αυτή κατωτάτη πίεση δοκιμής δεν υπερβαίνει την πίεση δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν ανώτατο βάρος γεμίσματος αναγράφονται επί του δοχείου·

2. για μεταλλικά δοχεία δοκιμασθέντα για υδρογονάνθρακες των 3° (β) ή 4° (β). Τα δοχεία αυτά μπορούν επίσης να γεμισθούν με κάποιον άλλον υδρογονάνθρακα υπό τον όρον ότι η προβλεπομένη για την ύλη αυτή κατωτάτη πίεση δοκιμής δεν υπερβαίνει τη πίεση δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν ανώτατο βάρος γεμίσματος αναγράφονται επί του δοχείου.

Για 1 και 2, βλέπε επίσης περιθώρια 2215, 2218 (Γ) (α) και 2220, (1) έως (3).

(4) Αλλαγή της ορισθείσης για ένα δοχείο χρήσεως επιτρέπεται κατ' αρχήν εάν δεν αντιβαίνει στους εθνικούς κανονισμούς· χρειάζεται όμως η έγκριση της αρμόδιας αρχής και η αντικατάσταση των αρχικών ενδείξεων (μαρκαρισμάτων) με τις ενδείξεις (μαρκαρίσματα) τις σχετικές με τη νέα χρήση.

2. Συσκευασία μιας ύλης ή εμπορευμάτων του αυτού είδους

Σημείωσις: Το διοξείδιο του άνθρακος και νιτρώδες οξύ (7ο (α)) και μίγματα των δύο αυτών αερίων της 8ο (α) καθώς και τα αέρια 7 (β) και 8 (β) (όρα Παράρτημα Β, περιθώριο 21 105).

α. Φύσις δοχείων

(1) Τα δοχεία τα προοριζόμενα για τη μεταφορά αερίων των 1° έως 6°, 9°, 12° και 13° θα είναι έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε διαρροή των αερίων.

(2) Τα δοχεία αυτά θα είναι κατασκευασμένα από ανθρακούχο χάλυβα ή κράμα χάλυβος (ειδικοί χάλυβες).

Τα κατωτέρω μπορούν εν τούτοις να χρησιμοποιούνται:

(α) χάλκινα δοχεία για:

1. πεπιεσμένα αέρια της 1°, (α), (β) και (β Τ), και 2°, (α) και (β), των οποίων η πίεση πληρώσεως (γεμίσματος) η αναφερομένη σε θερμοκρασία 15° C δεν υπερβαίνει τα 20 bar (2Mpa) και

2. πεπιεσμένα αέρια της 3° (α)· διοξείδιο του θείου της 3° (α Τ)· διμεθυλαιθέρας, αιθυλοχλωρίδιο και μεθυλενοχλωρίδιο της 3° (β Τ)· βινυχλωρίδιο της 3° (γ)· βινυβρωμίδιο της 3° (γ Τ)· μίγματα F 1, F2 και F 3 της 4° (α), και αιθυλενοξείδιο περιέχον όχι άνω του 10% διοξείδιο του άνθρακος κατά βάρος, της 4° (γ Τ)·

(β) δοχεία από κράμα-αλουμινίου (βλέπε Προσθήκην Α.2) για:

1. πεπιεσμένα αέρια της 1°, (α), (β) και (β Τ)· νιτρώδες οξύ (μονοξείδιο αζώτου) NO της 1° (γ Τ)· και πεπιεσμένα αέρια της 2°, (α), (β) και (β Τ)·

2. υγροποιημένα αέρια της 3° (α)· διοξείδιο του θείου της 3° (α Τ)· υγροποιημένα αέρια της 3° (β) πλην μεθυλοσιλανίου· σεληνούχο υδρογόνο, και μεθυλική μερκαπτάνη της 3° (β Τ)· αιθυλενοξείδιο της 3° (γ Τ)· υγροποιημένα αέρια της 4°, (α) και (β)· αιθυλενοξείδιο περιέχον όχι άνω του 10% διοξειδίου του άνθρακος και βάρος, της 4° (γ Τ)· και υγροποιημένα αέρια της 5°, (α) και (β), και 6°, (α) και (γ). Διοξείδιο του θείου της 3° (α Τ) και ύλες της 3° (α) και 4° (α) θα είναι ξηρές· και

3. διαλυόμενο ακετυλένιο της 9° (γ).

Όλα τα αέρια τα οποία πρόκειται να μεταφερθούν μέσα σε δοχεία από κράμα αλουμινίου θα είναι απαλλαγμένα από αλκαλικές ακαθαρσίες.

(1) Τα δοχεία για διαλυόμενο ακετυλένιο (9ο (γ)) θα πληρούνται εξ ολοκλήρου με πορρώδες υλικό, ομοιόμορφα κατανεμημένο, τύπου εγκεκριμένου από την αρμόδια αρχή και το οποίο 2.204

(α) δεν προσβάλλει τα δοχεία ή σχηματίζει επιβλαβείς ή επικίνδυνες ενώσεις είτε με το ακετυλένιο είτε με τον διαλύτη·

(β) δεν εκτινάσσεται, ακόμη και μετά από παρατεταμένη χρήση ή από τράνταγμα, σε θερμοκρασίες μέχρι 60° C·

(γ) είναι ικανό να εμποδίσει την εξάπλωση της αποσυνθέσεως του ακετυλενίου στη μάζα.

(2) Το διαλυτικό δεν πρέπει να προσβάλει τα δοχεία.

(1) Τα παρακάτω υγροποιημένα αέρια μπορούν, επιπροσθέτως, να μεταφέρονται μέσα σε γυάλινους σωλήνες με χονδρά τοιχώματα υπό τον όρον ότι η ποσότης της ύλης σε κάθε σωλήνα και ο βαθμός πληρώσεως των σωλήνων δεν υπερβαίνουν τους παρακάτω σημειουμένους αριθμούς: 2205

Ονομασία Αερίων	Ποσότης Ύλης	Βαθμός πληρώσεως του σωλήνος
Διοξείδιο του άνθρακος, υποξείδιο του αζώτου N_2O (5° (α)), αιθάνιο, αιθυλένιο (5° (β))	3 Γραμμ.	ήμισυ της χωρητικότητος
Αμμωνία, χλώριον, μεθυλοβρωμίδιο (3° (α Τ)), κυκλοπροπάνιο (3° (β)), αιθυλενοχλωρίδιο (3° (β Τ)	20 Γραμμ.	δύο-τρίτα της χωρητικότητας
Φωσγένιο, διοξείδιο του θείου (3° (α Τ)	100 Γραμμ.	τρία-τέταρτα της χωρητικότητας

(2) Οι γυάλινοι σωλήνες στεγανοί κατά της φλόγας και ασφαλισμένοι χωριστά με γη-διατόμων σε κλειστά καφύλλια από έλασμα τα οποία θα τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλης αντοχής (βλέπε επίσης περιθώριο 2222).

(3) Για διοξείδιο του θείου της 3° (α Τ) γερά γυάλινα σιφόνια περιέχονται όχι άνω των 1.5 KG ύλης και γεμάτα όχι άνω του 88 στα εκατόν της χωρητικότητός των επιτρέπονται επίσης. Τα σιφόνια θα ασφαλίζονται με γη-διατόμων, πριονίδιο ή κονιοποιημένο ανθρακικό ασβέστιο, ή με μίγμα από τα δύο τελευταία, μέσα σε ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Το κόλον δεν θα ζυγίζει άνω των 100 KG. Εάν ζυγίζει άνω των 30 KG θα είναι εφοδιασμένο με χειρολαβές.

(1) Αέρια της 3° (α)· 3° (β) πλην μεθυλοδιλανίου· 3° (β Τ) πλην αρσίνης, διχλωροσιλανίου, διμεθυλοσιλανίου, σεληνούχου υδρογόνου και τριμεθυλοσιλανίου· 3° (γ)· 3° (γ Τ) πλην χλωροκυανιδίου· και μίγματα της 4° (α) και 4° (β), μπορούν επίσης, υπό τον όρον ότι το βάρος του περιεχομένου ανά λίτρον υγρού δεν υπερβαίνει είτε το ανώτατο βάρος του περιεχομένου του οριζομένου στο περιθώριο 2220 είτε 150 γραμμ. ανά σωλήνα, να περιληφθούν σε γυάλινους σωλήνες με χονδρό τοίχωμα, ή σε μεταλλικούς σωλήνες με χονδρό 2206

τοίχωμα κατασκευασμένους από μέταλλο επιτρεπόμενο υπό του περιθωρίου 2203 (2). Οι σωλήνες θα είναι απαλλαγμένοι από βλάβες δυνάμενες να εξασθενήσουν την αντοχήν τους· ειδικότερα, οι εσωτερικές τάσεις των γυάλινων σωλήνων θα έχουν καταλλήλως ελαττωθεί και το πάχος των τοιχωμάτων του σωλήνος δε θα είναι μικρότερο των 2 ΜΜ (χιλ.). Η στεγανότητα του συστήματος κλεισίματος θα εξασφαλίζεται με πρόσθετο μηχανισμό (κάλυμμα, κορώνα, σφραγίδα, δέσιμο, κλπ.) ικανόν να εμποδίζει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς. Οι σωλήνες θα ασφαλίζονται με αποσβεστικό υλικό σε μικρά κυτία κατασκευασμένα από ξύλο ή ινώδη σανίδα, του αριθμού των σωλήνων ανά κυτίον όντος τοιούτου ώστε το βάρος του υγρού του περιεχομένου στο κυτίο να μην υπερβαίνει τα 600 γραμμάρια. Τα μικρά αυτά κυτία θα τοποθετούνται σε ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής· εάν το εις υγρόν περιεχόμενον του κιβωτίου ζυγίζει περισσότερον των 5 KG το κιβώτιο θα επενδύεται με έλασμα μαλακής συγκολλήσεως.

(2) Το κόλον δεν θα ζυγίζει άνω των 75 KG .

2207 (1) Τα αέρια της 7° (α) πλην του διοξειδίου του άνθρακος και του υποξειδίου του αζώτου, και της 8° (α) πλην των μιγμάτων των περιεχόντων διοξείδιο του άνθρακος και υποξείδιο του αζώτου, θα εγκλείονται σε κλειστά, μεταλλικά με διπλό τοίχωμα δοχεία που είναι έτσι μονωμένα ώστε να μη μπορούν να επικαλυφθούν από δρόσον ή παγετόν και τα οποία είναι εφοδιασμένα με βαλβίδες ασφαλείας.

(2) Τα αέρια της 7° (α) πλην του διοξειδίου του άνθρακος και του υποξειδίου του αζώτου, και της 8° (α) πλην των μιγμάτων των περιεχόντων διοξείδιο του άνθρακος και υποξειδίου του αζώτου, μπορούν επίσης να εγκλείονται σε δοχεία τα οποία είναι ερμητικώς κλεισμένα και τα οποία:

(α) είναι γυάλινα δοχεία διπλού τοιχώματος περιβεβλημένα δια κενού (VACUUM - JACKETED) ως και δια μιάς απορροφητικής μονωτικής ύλης· τα δοχεία αυτά θα προστατεύονται με συρμάτινους κάλαθους και θα τοποθετούνται σε μεταλλικά κιβώτια· ή

(β) είναι μεταλλικά δοχεία προστατευόμενα κατά της μεταδόσεως της θερμότητας κατά τέτοιο τρόπο ώστε να μη μπορούν να επικαλυφθούν με δρόσον ή παγετόν· η χωρητικότητα των δοχείων αυτών δε θα υπερβαίνει τα 100 λίτρα.

(3) Τα μεταλλικά κιβώτια τα αναφερόμενα στο εδάφιο (2) (α) και τα δοχειά τα αναφερόμενα στο εδάφιο (2) (β) ανωτέρω θα είναι εφοδιασμένα με χειρολαβές. Τα ανοίγματα των δοχείων των αναφερομένων στα εδάφια (2) (α) και (β) θα είναι εφοδιασμένα με μηχανισμούς επιτρέποντας τα αέρια να διαφεύγουν, εμοδίζοντας πιταίλισμα του υγρού και έτσι στερεωμένους ώστε να μη πέσουν. Στην περίπτωση του οξυγόνου 7° (α) και μιγμάτων περιεχόντων οξυγόνον της 8° (α), οι ανωτέρω αναφερόμενοι μηχανισμοί και η απορροφητική μονωτική ύλη η περιβάλλουσα τα δοχεία η αναφερομένη στο εδάφιο (2)(α) θα είναι από άκαυστο υλικό.

2208 (1) Οι διανεμητές αεροζόλ (10ο) και τα μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση (11°) θα πληρούν τους παρακάτω όρους:-

(α) οι διανεμητές αεροζόλ περιέχουν μόνον αέριον ή μίγμα αερίων, και τα μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση, θα είναι από μέταλλο. Ο όρος αυτός δε θα ισχύει για μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση με ανώτατη χωρητικότητα 100 ML για βουτάνιο. Άλλοι διανεμητές αεροζόλ θα είναι κατασκευασμένοι από μέταλλο, πλαστική ύλη ή γυαλί. Δοχεία κατασκευασμένα από μέταλλο και έχοντα εξωτερική διάμετρο όχι μικρότερη των 40 ΜΜ (χιλ.) θα έχουν κοίλο πυθμένα·

(β) δοχεία κατασκευασμένα από υλικά υποκείμενα σε θρυμματισμό, όπως το γυαλί ή ωρισμένες πλαστικές ύλες, θα εγκλείονται σε συσκευή (στενά - πλεγμένο συρμάτινο δίκτυ, εύκαμπτο κάλυμμα κατασκευασμένο από πλαστική ύλη, κλπ.) παρέχουσα προστασίαν για θραύσματα και διασποράν αυτών. Δοχεία των οποίων η χωρητικότητα δεν υπερβαίνει τα 150 CM^3 και των οποίων η εσωτερική πίεση στους 20ο C είναι κάτω των 0,15 MPa εξαιρούνται από τον όρον αυτόν.

(γ) Η χωρητικότητα των δοχείων των κατασκευασμένων από μέταλλο δε θα υπερβαίνει τα 1.000 CM^3· των δοχείων των κατασκευασμένων από πλαστικήν ύλην ή ύαλον δε θα υπερβαίνει τα 500 CM^3·

(δ) κάθε μοντέλο δοχείου, προτού τεθεί σε υπηρεσία, θα ικανοποιεί δοκιμήν υδραυλικής πιέσεως διεξαγομένην συμφώνως προς την Προσθήκην Α.2, περιθώριο 3291. Η εσωτερική πίεση που πρόκειται να εφαρμοσθεί (πίεση δοκιμής) θα είναι 1.5 φορά την εσωτερική πίεση στους 50° με κατωτάτη πίεση 1 MPa (10 bar).

(ε) οι βαλβίδες αφέσεως των διανεμητών αεροζόλ, και οι μηχανισμοί διασποράς (διανομής) αυτών, θα εξασφαλίζουν οι διανεμητές να είναι έτσι κλεισμένοι ώστε να είναι στεγανοί και θα προστατεύονται από τυχαίο άνοιγμα. Οι βαλβίδες και οι μηχανισμοί διασποράς (διανομής) που κλείνουν μόνον δι' εσωτερικής πιέσεως δε θα γίνονται δεκτοί.

(2) Τα παρακάτω αέρια θα γίνονται δεκτά ως προωθηταί, ή ως αέρια πληρώσεως, για διενεμητές αεροζόλ: -
αέρια της 1°, (α) και (β)· 2°, (α) και (β)· 3°, (α) και (β) πλην μεθυλοσιλανίου· αιθυλοχλωρίδιο και διμεθυλαιθέρας της 3° (β Τ)· 1,3 - βουταδιένιο της 3° (γ)· τριφθοριοχλωροαιθυλένιο της 3 (γ Τ)· αέρια της 4, (α) και (β)· αέρια της 5°, (α) και (β) πλην του σιλανίου· αέρια της 5° (γ) και 6 (α) και (γ).

(3) Όλα τα αέρια της (2) και, επιπροσθέτως, τα παρακάτω αέρια θα γίνονται δεκτά ως αέρια πληρώσεως (γεμίσματος) για μη-ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση· μεθυλοβρωμίδιο της 3 (α Τ)· διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη, μεθυλική μερκαπτάνη και τριμεθυλαμίνη της 3° (β Τ)· αιθυλονοξείδιο, μεθυλοβινυλαιθέρας και βινυβρωμίδιο της 3° (γ Τ)· αιθυλενοξείδιο περιέχον όχι άνω του 10% διοξείδιον του άνθρακος κατά βάρος, της 4° (γ Τ).

2209 (1) Η εσωτερική πίεση στους 50° C των διανεμητών αεροζόλ και των μη - ξαναγεμιζομένων δοχείων αερίου υπό πίεση δεν θα υπερβαίνει ούτε τα δύο - τρίτα της πιέσεως δοκιμής του δοχείου ούτε τα 1.2 MPa (12 bar).

(2) Οι διανεμητές αερίου και τα μη - ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση θα είναι έτσι γεμισμένα ώστε στους 50° C η φάση του υγρού να μην υπερβαίνει το 95% της χωρητικότητάς των. Η χωρητικότητα των διανεμητών αεροζόλ είναι ο διαθέσιμος όγκος σε κλειστό διανεμητή εφοδιασμένο με το υποστήριγμα της βαλβίδας, την βαλβίδα και το σωλήνα εμβυθίσεως.

(3) Όλοι οι διανεμητές αεροζόλ και τα μη - ξαναγεμιζόμενα δοχεία (CONTAINERS) για αέριο υπό πίεση θα ικανοποιούν δοκιμήν στεγανότητας σύμφωνα με την Προσθήκη Α.2, περιθώριο 3292.

2210 (1) Οι διανεμητές αεροζόλ και τα μη - ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση θα τοποθετούνται σε ξύλινα κιβώτια ή γερά από ινώδη σανίδα ή μέταλλο κυτία· οι διανεμητές αεροζόλ οι κατασκευασμένοι από γυαλί ή πλαστική ύλη και υποκείμενοι σε θρυμματισμό θα διαχωρίζονται ο ένας από τον άλλον δι' ενδιαμέσου τοποθετήσεως φύλλων από ινώδη σανίδα ή άλλη κατάλληλη ύλη.

(2) Το κόλον δε θα ζυγίζει άνω των 50 KG εάν χρησιμοποιούνται κυτία από ινώδη σανίδα ή άνω των 75 KG εάν χρησιμοποιούνται άλλα μέσα συσκευασίας.

(3) Όταν η μεταφορά είναι μεταφορά πλήρους φορτίου, εκάστου φορτίου περιλαμβάνοντος μόνον διανεμητάς αεροζόλ κατασκευασμένους από μέταλλο, οι διανεμητές μπορούν να ομαδοποιηθούν και στερεωθούν σε δίσκους με τη βοήθεια κατάλληλης πλαστικής ύλης, μέσω μεθόδου συρρικνώσεως και θερμο-στεγανότητας, υπό τον όρον ότι οι ομάδες των διανεμητών θα στοιβαχθούν και καταλλήλως ασφαλισθούν πάνω σε παλλέτες.

β. Όροι διέποντες τα μεταλλικά δοχεία

(Οι όροι αυτοί δεν έχουν εφαρμογή για μεταλλικούς σωλήνες αναφερόμενους στο περιθώριο 2206, για δοχεία αναφερόμενα στο περιθώριο 2207 (2) (β), ή για διανεμητές αεροζόλ ή μη-ξαναγεμιζόμενα μεταλλικά δοχεία (CONTAINERS) για αέριο υπό πίεση, αναφερόμενα στο περιθώριο 2208).

1. - Κατασκευή και εφαρμογές (βλέπε επίσης περιθώριο 2238).

2211 (1) Στην πίεση δοκιμής, η τάση του μετάλλου στο σημείο της μεγαλύτερης τάσεως του δοχείου (περιθώρια 2215, 2219 και 2220) δεν πρέπει να υπερβαίνει τα τρία - τέταρτα

της εγγυημένης κατωτάτης τάσεως αποδόσεως (Re). Με τον όρο «τάσις αποδόσεως» νοείται ή τάση που παρήχθη η μόνιμη επιμήκυνση εκ 2‰ (τ.έ. 0.2 στοχ. εκατόν) ή, για χάλυβες μετά ωστενίτου, 1% του μήκους του πιεζομέτρου επί του τεμαχίου - δοκιμής.

Σημείωσις: - Στην περίπτωση φύλλου - μετάλλου (ελάσματος) ο άξων του τεμαχίου - δοκιμής αντοχής εις εφελκυσμόν θα είναι σε ορθές γωνίες προς τη κατεύθυνση της ελάσεως. Η μόνιμη επιμήκυνση του θραύσματος (L=5δ) θα μετράται επί τεμαχίου - δοκιμής κυκλικής διατομής ένθα το μήκος του πιεζομέτρου L ισούται προς πέντε φορές τη διάμετρο δ· εάν τεμάχια - δοκιμής ορθογωνίου διατομής χρησιμοποιηθούν, το μήκος του πιεζομέτρου θα υπολογίζεται με τον τύπο $L=5.65/\sqrt{F_o}$, όπου F_o δεικνύει την αρχική περιοχή (εμβαδόν) διατομής του δοχείου - δοκιμής.

(2) (α) Χαλύβδινα δοχεία των οποίων η πίεση δοκιμής υπερβαίνει τα 60 MPa (6 bar) πρέπει να είναι κατασκευής άνευ ραφών ή συγκολλημένα. Για συγκολλημένα δοχεία, χάλυβες (ανθρακούχοι ή κράματα) πλήρως ικανοποιητικής ικανότητας συγκολλήσεως πρέπει να χρησιμοποιούνται.

(β) Δοχεία των οποίων η πίεση - δοκιμής δεν υπερβαίνει τα 60KG/CM^2 είτε θα είναι σύμφωνα προς τις διατάξεις του ανωτέρω εδαφίου (α), είτε θα είναι πριτσινωμένα είτε θα υποστούν σκληρή συγκόλληση υπό τον όρον ότι ο κατασκευαστής εγγυάται την εργασία του πριτσινώματος και της σκληρής συγκολλήσεως και ότι οι αρμόδιες αρχές της χώρας προελεύσεως έχουν δώσει την έγκρισή τους.

(3) Τα εκ κράματος αργυλλίου (αλουμινίου) δοχεία πρέπει να είναι χωρίς ραφές ή συγκολλημένα.

(4) Συγκολλημένα δοχεία γίνονται δεκτά μόνον υπό τον όρον ότι ο κατασκευαστής εγγυάται την ποιότητα της εργασίας της συγκολλήσεως και ότι οι αρμόδιες αρχές της χώρας προελεύσεως έχουν δώσει την έγκρισή τους.

(1) Διάκριση γίνεται μεταξύ των παρακάτω τύπων δο- 2212
χείων:-

(α) κύλινδροι με χωρητικότητα μη υπερβαίνουσα τα 150 λίτρα·

(β) δοχεία με χωρητικότητα όχι μικρότερη των 100 λιτρών (εξαιρέσει κυλίνδρων συμμορφουμένων προς το εδάφιο (α)) και όχι μεγαλύτερη των 1.00 λιτρών (π.χ. κυλινδρικά δοχεία εφοδιασμένα με τσέρκια (στεφάνες) σπειροειδείς, και δοχεία επί πελμάτων (SKIDS)·

(γ) δεξαμενές (βλέπε Παράρτημα Β)·

(δ) συγκροτήματα, γνωστά ως «πλαίσια», κυλίνδρων, συμμορφούμενα προς το εδαφιο (1) (α), των κυλίνδρων συνδεομένων μεταξύ των δια σωληνώσεως και συγκρατουμένων σταθερά μεταξύ των δια μεταλλικού εξαρτήματος·

(2) (α) Εάν, συμφώνως προς τους κανονισμούς της χώρας αναχωρήσεως, οι κύλινδροι οι αναφερόμενοι στο εδάφιο (1) (α) υποχρεούνται να είναι εφοδιασμένοι με μηχανισμό προλήψεως του κυλίσματος, ο μηχανισμός αυτός δε θα πρέπει να είναι τμήμα του πώματος της βαλβίδας (περιθώριο 2213 (2)).

(β) Δοχεία συμφώνως προς το εδαφιο (1) (β) τα οποία είναι ικανά να κυλιθούν πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (ROLLING HOOPS) ή αλλιώς να προστατεύονται από ζημιές οφειλόμενες στο κύλισμα (π.χ. δια μετάλλου ανθεκτικού στη διάβρωση ψεκασμένου επί της εξωτερικής επιφανείας του δοχείου).

Δοχεία συμφώνως προς το εδάφιο (1) (β) και (1) (γ) που είναι ικανά να κυλιθούν πρέπει να είναι εφοδιασμένα με μηχανισμούς (πέλματα, δακτύλιοι, ταινίες) που να εξασφαλίζουν ότι μπορούν ασφαλώς να χειρισθούν δια μηχανικού μέσου και να είναι έτσι διευθετημένοι ώστε να μην εξασθενείται η αντοχή και να μη προκαλούνται αδικαιολόγητοι τάσεις στο τοίχωμα του δοχείου.

(γ) Πλαίσια κυλίνδρων, συμφώνως προς το εδάφιο (1) (δ) πρέπει να είναι εφοδιασμένα με μηχανισμούς εξασφαλίζοντας ότι μπορούν να χειρισθούν ασφαλώς. Η σωλήνωσις και ο κύριος κρουνός πρέπει να ευρίσκονται εντός του πλαισίου και να είναι έτσι στερεωμένα ώστε να προστατεύονται κατά οποιασδήποτε ζημίας.

(3) (α) Εξαιρέσει των αερίων των 7° και 8°, τα αέρια της Κλάσεως 2 μπορούν να μεταφέρονται σε κυλίνδρους συμφώνως προς το εδάφιο (1) (α).

Σημείωσις: - Για πιθανούς περιορισμούς αναφορικά με τη χωρητικότητα κυλίνδρων για ωρισμένα αέρια, βλέπε περιθώριο 2219.

(β) Εξαιρέσει των φθορίου και τετραφθοριούχου πυριτίου (1° (α Τ))· μονοξειδίου του αζώτου (NO) (1° (γ Τ)· μιγμάτων υδρογόνου με όχι άνω του 10% σεληνούχου υδρογόνου ή φωσφίνης ή σιλανίου ή γερμανίου κατ' όγκον ή με όχι άνω του 15% αρσίνης κατ' όγκον· μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% σεληνούχο υδρογόνο ή φωσφίνη ή σιλάνιο ή γερμάνιο κατ' όγκον ή με όχι άνω του 15% αρσίνη κατ' όγκον (2° (β Τ))· μιγμάτων υδρογόνου με όχι άνω του 10% διβοράνιο κατ' όγκον· μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% διβοράνιο κατ' όγκον (2° (γ Τ))· χλωριούχου βορίου, τριφθοριούχου χλωρίου, χλωριούχου νιτριζύλ (NITROSYL), φθοριούχου SULPHURYL και εξαφθοριούχου βολφραμίου (3° (α Τ))· μεθυλοσιλανίου (3° (β)), αρσίνης, διχλωροσιλανίου, διμεθυλοσιλανίου, σεληνούχου υδρογόνου και τριμεθυλοσιλανίου (3° (β Τ))· χλωροκυανιδίου, κυανογόνου και αιθυλενοξειδίου (3° (γ Τ))· μιγμάτων μεθυλοσιλανίων (4° (β Τ))· οξειδίου αιθυλενίου περιέχοντος το πολύ 50% METHYLFORMATE (μεθυλικού μυρμηγκικού άλατος) κατά μάζα της 4° (γ Τ)) υποξειδίου του αζώτου (5° (α))· σιλανίου (5° (β))· και υλών της 5° (β Τ)), 5° (γ Τ), 7°, 8°, 12° και 13°, αέρια της Κλάσεως 2 μπορούν να μεταφέρονται σε δοχεία συμφώνως προς το εδάφιον (1) (β).

(γ) Εξαιρέσει των τετραφθοριούχου πυριτίου (1° (α Τ))· μονοξειδίου του αζώτου (1° (γ Τ))· μιγμάτων υδρογόνου με όχι άνω του 10% σεληνούχο υδρογόνο ή φωσφίνη ή σιλάνιο ή γερμάνιο κατ' όγκον ή με όχι άνω του 15% αρσίνη κατ' όγκον· μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% σεληνούχο υδρογόνο ή φωσφίνη ή σιλάνιο ή γερμάνιο κατ' όγκον ή με όχι άνω του 15% αρσίνη κατ' όγκον (2° (β Τ))· μιγμάτων υδρογόνου με όχι άνω του 10% διβοράνιο κατ' όγκον· μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10% Ξένον κατ' όγκον) με όχι άνω του 10% διβοράνιο κατ' όγκον (2° (γ Τ))· χλωριούχου βορίου, τριφθοριούχου χλωρίου, χλωριούχου NITROSYL, φθοριούχου SULPHURYL και εξαφθοριούχου βολφραμίου (3° (α Τ))· μεθυλοσιλανίου, σεληνούχου υδρογόνου και τριμεθυλοσιλανίου (3° (β Τ))· χλωροκυανιδίου, κυανογόνου και αιθυλενοξειδίου (3° (γ Τ))· μιγμάτων μεθυλοσιλανίων (4° (β Τ))· υλών της 4° (γ) και 4° (γ Τ)) πλην διχλωρο - διφθοριο - μεθανίου περιέχοντος 12% οξειδίου αιθυλενίου κατά μάζα, υποξειδίου του αζώτου (5° (α))· σιλανίου (5° (β))· και υλών της 5° (β Τ), 5° (γ Τ), 7°, 8°, 12° και 13°, αέρια της Κλάσεως 2 μπορούν να μεταφέρονται σε πλαίσια κυλίνδρων συμφώνως προς το εδάφιο (1) (δ). Ο καθένας των κυλίνδρων σε πλαίσιο κυλίνδρων θα περιέχει μόνο ένα και το αυτό πεπιεσμένο αέριο, υγροποιημένο αέριο ή αέριο διαλυμένο υπό πίεση. Κάθε κύλινδρος σε πλαίσιο κυλίνδρων για φθόριο (1° (α Τ)) ή διαλυμένο ακετυλένιο (9° (γ)) θα είναι εν τούτοις εφοδιασμένος με κρουνόν. Οι κύλινδροι σε πλαίσιο κυλίνδρων για ακετυλένιο πρέπει όλοι να περιέχουν το αυτό πορρώδες υλικό (περιθώρια 2204).

(1) Τα ανοίγματα για γέμισμα και άδειασμα δοχείων θα 2213
είναι εφοδιασμένα με βαλβίδες τύπου θυρίδας ή βελονειδείς βαλβίδες. Βαλβίδες άλλων τύπων μπορούν να γίνουν, όμως, δεκτές εάν παρέχουν ίδιες εγγυήσεις ασφαλείας και έχουν την έγκριση της χώρας προελεύσεως. Παρ' όλο τούτο, οποιοσδήποτε τύπος βαλβίδος υιοθετηθεί, το σύστημα προσαρτήσεώς της πρέπει να είναι γερό και τέτοιο ώστε η ικανοποιητική της κατάσταση να επαληθεύεται εύκολα προτού από κάθε γέμισμα.

Εκτός από ανθρωποθυρίδα, η οποία εάν παρέχεται θα είναι κλειστή με αποτελεσματικό κλείσιμο (κάλυμμα), και από τις απαραίτητες οπές για την αφαίρεση των ιζημάτων, τα δοχεία και οι δεξαμενές συμφώνως προς το περιθώριο 2212 (1) (β) και (γ) θα είναι εφοδιασμένα με άνω των δύο ανοιγμάτων, για γέμισμα και άνοιγμα αντιστοίχως. Εν τούτοις, χωρητικότητας όχι μικροτέρας των 100 L προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου (9° (γ)) μπορούν να έχουν άνω των δύο ανοιγμάτων (οπών) για γέμισμα και άδειασμα.

Ομοίως, δοχεία και δεξαμενές συμφώνως προς περιθώριον 2212 (1), (β) και (γ), προοριζόμενα για τη μεταφορά των υλών της 3° (β) και 4° (β) μπορούν να διαθέτουν και άλλα ανοίγματα (υπάς, στόμια) προοριζόμενα ειδικότερα για την επαλήθευση της στάθμης του υγρού και της πιέσεως του πιεζομέτρου.

(2) Οι βαλβίδες (κρουνοί) θα προστατεύονται αποτελεσματικά με πώματα ή μόνιμες φλάντζες. Τα πώματα θα διαθέτουν οπάς αερισμού καταλλήλου διατομής για να εκκενώνουν τα αέρια εάν προκύψει διαρροή στις βαλβίδες. Τα πώματα ή οι φλάντζες θα προστατεύουν καταλλήλως τη βαλβίδα εάν ο κύλινδρος πέσει και διαρκούσης της μεταφοράς και στοιβασίας. Βαλβίδες τοποθετημένες εσωτερικά του λαιμού των δοχείων και προστατευόμενες από κοχλιωτό πώμα, και δοχεία που μεταφέρονται συσκευασμένα σε προστατευτικά κιβώτια, δε θα χρειάζονται πώμα. Ομοίως, προστατευτικό πώμα δε θα χρειασθεί για βαλβίδες (κρουνούς) επί πλαισίων κυλίνδρων.

(3) Δοχεία περιέχοντα φθόριο (1° (α Τ)) τριφθοριούχο χλώριο (3° (α Τ)) ή χλωροκυανίδιο 3° (γ Τ), ανεξαρτήτως εάν μεταφέρονται ή όχι συσκευασμένα σε προστατευτικά κιβώτια, θα είναι εφοδιασμένα με πώματα από χάλυβα. Τα πώματα αυτά δε θα έχουν ανοίγματα και, καθ' όλη τη μεταφορά, θα είναι εφοδιασμένα με παρέμβυσμα εξασφαλίζον αερο - στεγανότητα και κατασκευασμένο από υλικό που δεν κινδυνεύει να προσβληθεί από το περιεχόμενο του δοχείου.

(1) Προκειμένου περί δοχείων περιεχόντων τριφθοριούχο βόριον ή φθόριον (1° (α Τ)) τριφθοριούχο χλώριο ή υγροποιημένη αμμωνία (3° (α Τ)) αμμωνία διαλυμένη στο νερό (9° (α Τ)) χλωριούχο NITROSUL (3° (α Τ)) ή διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη ή τριμεθυλαμίνη (3° (β Τ)), βαλβίδες κατασκευασμένες από χαλκό ή οποιοδήποτε άλλο μέταλλο κινδυνεύον να προσβληθεί από τα αέρια αυτά δε θα γίνονται δεκτές. 2214

(2) Η χρήση υλικών περιεχόντων λίπος ή έλαιον προς εξασφάλιση της στεγανότητας των ενώσεων (ραφών) ή προς συντήρηση των μηχανισμών κλεισίματος των δοχείων των χρησιμοποιημένων για οξυγόνο (1° (α)) φθόριο (1° (α Τ)) μίγματα με οξυγόνο (2° (α)) διοξείδιο του αζώτου, τριφθοριούχο χλώριο (3° (αΤ)) υποξείδιο του αζώτου (5° (α)) ή μίγματα της 12° περιέχοντα άνω του 10% οξυγόνον κατ' όγκον απαγορεύεται.

(3) Οι παρακάτω όροι θα ισχύουν για την κατασκευή των δοχείων των αναφερομένων στο περιθώριο 2207 (1): -

(α) Τα υλικά και η κατασκευή των δοχείων θα είναι σύμφωνα προς τους όρους της Προσθήκης Α.2, Β, περιθώρια 3250 έως 3254. Όλα τα μηχανικά και τεχνολογικά χαρακτηριστικά του χρησιμοποιηθέντος υλικού θα καθιερούνται για κάθε δοχείο κατά την πρώτη δοκιμή αναφορικά με την αντοχήν εις κρούσιν και το συντελεστήν κάμψεως, βλέπε Προσθήκην Α.2, Β, περιθώρια 3265 έως 3285.

(β) Τα δοχεία θα είναι εφοδιασμένα με βαλβίδα ασφαλείας η οποία θα είναι ικανή να ανοίγει στη καθωρισμένη πίεση που εικονίζεται στο δοχείο. Οι βαλβίδες θα είναι έτσι κατασκευασμένες ώστε να λειτουργούν άριστα ακόμη και στη πιό χαμηλή πίεση λειτουργίας. Το ασφαλές της λειτουργίας των στη θερμοκρασία αυτή θα καθιερούται και ελέγχεται με δοκιμή κάθε βαλβίδας ή δείγματος βαλβίδων του αυτού τύπου κατασκευής.

(γ) Οι οπές αερισμού και βαλβίδες ασφαλείας των δοχείων θα έχουν έτσι σχεδιασθεί ώστε να εμποδίζουν το πιτσίλισμα του υγρού.

(δ) Οι μηχανισμοί κλεισίματος θα είναι έτσι ρυθμισμένοι ώστε να μη μπορούν να ανοίγουν από αναρμόδια πρόσωπα.

(ε) Δοχεία των οποίων το γέμισμα μετράται κατ' όγκον θα διαθέτουν δείκτην στάθμης.

(στ) Τα δοχεία θα είναι θερμικώς μονωμένα. Η θερμική μόνωση θα προστατεύται κατά της κρούσεως δια συνεχούς μεταλλικής επενδύσεως. Εάν ο χώρος μεταξύ του δοχείου και της μεταλλικής επενδύσεως είναι χωρίς αέρα (μόνωση δια κενού), η προστατευτική επένδυση θα σχεδιάζεται να αντέχει χωρίς παραμόρφωση σε εξωτερική πίεση τουλάχιστον 100 KPa (1 bar). Εάν η επένδυση έχει έτσι κλεισθεί ώστε να είναι αερο - στεγής (π.χ. στη περίπτωση της μονώσεως δια κενού), θα διατίθεται μηχανισμός εμποδίζων οποιαδήποτε επικίνδυνη πίεση να αναπτυχθεί στο μονωτικό στρώμα στην περίπτωση ακαταλλήλου αερο - στεγανότητας του δοχείου ή των εξαρτημάτων του. Ο μηχανισμός θα εμποδίζει την υγρασία να εισχωρήσει στη μόνωση.

(4) Στην περίπτωση δοχείων περιεχόντων μίγματα της 4ο (γ) ή διαλυμένο ακετυλένιο (9° (γ)), τα μεταλλικά τμήματα των μηχανισμών κλεισίματος τα ερχόμενα σε επαφή με το περιεχόμενο δεν πρέπει να περιέχουν χαλκόν άνω του 70 στοις εκατόν. Δοχεία για διαλυμένο ακετυλένιο (9° (γ)) μπορούν επίσης να διαθέτουν ατμοφράκτες.

(5) Δοχεία περιέχοντα οξυγόνο της 1° (α) έως 7° (α) και εφαρμοσμένα σε ιχθυοδεξαμενές γίνονται ομοίως δεκτά εάν διαθέτουν συσκευές παρεχούσες τη δυνατότητα στο οξυγόνο να διαφεύγει βαθμιαία.

2. - Επίσημος έλεγχος δοχείων (για δοχεία από κράμα αλουμινίου, βλέπε επίσης Προσθήκην Α.2).

(1) Τα μεταλλικά δοχεία πρέπει να υποβάλλονται σε αρχικούς και περιοδικούς ελέγχους υπό την επίβλεψη εμπειρογνώμονα αναγνωρισμένου υπό της αρμοδίας αρχής. Η φύση των ελέγχων αυτών καθορίζεται στα περιθώρια 2216 και 2217. 2215

(2) Για να εξασφαλισθεί ότι τηρούνται οι διατάξεις των περιθωρίων 2204 και 2221 (2), οι έλεγχοι των δοχείων των προοριζομένων να περιλάβουν διαλυμένο ακετυλένιο (9° (γ)) θα περιλαμβάνουν, επιπροσθέτως, έλεγχον της φύσεως του πορρώδους υλικού και της ποσότητος του διαλυτικού μέσου.

(1) Ο αρχικός έλεγχος καινουργών ή μη-μεταχειρισμένων δοχείων θα περιλαμβάνει. 2216

Α. - Επί καταλλήλου δείγματος δοχείων: -

(α) έλεγχον του υλικού κατασκευής για τουλάχιστον την τάση αποδόσεως, την αντοχήν εις εφελκυσμόν, και τη μόνιμη επιμήκυνση του θραύσματος· οι εκ των ελέγχων αυτών προκύπτουσες τιμές πρέπει να συμφωνούν με τους εθνικούς κανονισμούς·

(β) μέτρηση του πάχους στο λεπτότερο σημείο του τοιχώματος και υπολογισμός της τάσεως·

(γ) έλεγχο της ομοιογένειας του υλικού για κάθε παρτίδα κατασκευής, και επιθεώρηση της εξωτερικής και εσωτερικής καταστάσεως των δοχείων·

Β. - Για όλα τα δοχεία: -

(δ) έλεγχο υδραυλικής πιέσεως συμφώνως προς τις διατάξεις των περιθωρίων 2219 έως 2221·

(ε) επιθεώρηση των ενδείξεων επί των δοχείων (βλέπε περιθώριο 2218).

Γ. Επιπροσθέτως, για δοχεία προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου (9° (γ)):-

(στ) επιθεώρηση όπως απαιτείται εκ των εθνικών κανονισμών.

(2) Τα δοχεία πρέπει να αντέχουν στη πίεση του ελέγχου χωρίς να υφίσταται μόνιμο παραμόρφωση ή να παρουσιάζουν ρωγμές.

(3) Στις περιοδικές επιθεωρήσεις θα επαναλαμβάνονται τα παρακάτω:-

ο έλεγχος υδραυλικής πιέσεως· έλεγχος της εξωτερικής και εσωτερικής καταστάσεως του δοχείου (π.χ., δια ζυγίσεως, εσωτερικής επιθεωρήσεως, ελέγχων του πάχους του τοιχώματος)· επαλήθευση του εξοπλισμού και των ενδείξεων και, εάν χρειασθεί, επαλήθευση των χαρακτηριστικών του υλικού δια καταλλήλων ελέγχων.

Οι περιοδικές επιθεωρήσεις θα διεξάγονται:-

(α) κάθε 2 χρόνια προκειμένου περί δοχείων προοριζομένων για τη μεταφορά των αερίων της 1° (α Τ) και 1° (γ Τ), αερίου πόλεως (δήμου) της 2° (β Τ) αερίων της 3° (α Τ) πλην της αμμωνίας, εξαφθοριοπροπυλενίου και μεθυλοβρωμιδίου· χλωροκυανιδίου της 3° (γ Τ)· και υλών της 5° (α Τ)·

(β) κάθε 5 χρόνια προκειμένου περί δοχείων προοριζομένων για τη μεταφορά άλλων πεπιεσμένων και υγροποιημένων αερίων (υπό την επιφύλαξη των διατάξεων του παρακάτω εδαφίου (γ)) και δοχείων για τη μεταφορά αμμωνίας διαλυμένης υπό πίεση (9° (α Τ))·

(γ) κάθε 10 χρόνια προκειμένου περί δοχείων προοριζομένων για τη μεταφορά αερίων της 1° (α) πλην του οξυγόνου· μιγμάτων αζώτου με σπανία αέρια, της 2° (α)· αερίων της 3° (α) και 3° (β) πλην 1,1 - διφθοριομεθανίου, 1 - χλωρο - 1,1 - διφθοριομεθανίου, μεθυλοσιλανίου και 1,1,1 - τριφθοριομεθα-

νίου και μιγμάτων αερίων της 4° (α) και 4° (β), εάν τα δοχεία έχουν χωρητικότητα όχι άνω των 150 λιτρών και η χώρα προελεύσεως δεν προβλέπει βραχύτερο χρονικό διάστημα.

(δ) προκειμένου περί δοχείων προοριζομένων για τη μεταφορά διαλυμένου ακετυλενίου (9° (γ)), το περιθώριο 2217 (1) θα ισχύει, και προκειμένου περί των συμφώνων προς το περιθώριο 2207(1) δοχείων, το περιθώριο 2217 (2) θα ισχύει.

1) Η εξωτερική κατάσταση (διάβρωση, παραμόρφωση) και η κατάσταση (χαλάρωση, καθίζηση) του πορώδους υλικού σε δοχεία προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου (9° (γ)) θα ελέγχονται κάθε 5 χρόνια. Η διεγματοληψία θα εκτελείται δια της κοπής, εάν θεωρηθεί απαραίτητο, καταλλήλου αριθμού δοχείων και επιθεωρήσεως αυτών εσωτερικώς για διάβρωση και για οποιεσδήποτε αλλαγές που ενδέχεται να προέκυψαν στα συστατικά υλικά και το πορώδες υλικό.

(2) Τα συμφώνως προς το περιθώριο 2207(1) δοχεία θα υποβάλονται κάθε 5 χρόνια σε εξωτερική επιθεώρηση και σε έλεγχο της στεγανότητας. Ο έλεγχος στεγανότητας θα διεξάγεται με το αέριο περιλαμβανόμενο στο δοχείο ή με αδρανές αέριο σε πίεση 0,2 MPa (2 bar). Ο έλεγχος θα εκτελείται δια πιεζομέτρου ή μετρήσεως δια κενού. Η θερμική μόνωση δε θα αφαιρείται. Η πίεση δε θα υποχωρεί διαρκούσης της 8-ώρου περιόδου ελέγχου. Αλλαγές απορρέουσες εκ της φύσεως του αερίου δοκιμής (ελέγχου) ή εκ διακυμάνσεων της θερμοκρασίας θα λαμβάνονται υπ' όψει.

(3). - Ενδείξεις επί των δοχείων.

1) Τα μεταλλικά δοχεία θα φέρουν τα παρακάτω στοιχεία με γράμματα καθαρώς ευανάγνωστα και διαρκείας:-

(α) μία των ονομασιών του αερίου ή του μίγματος αερίων, πλήρη, όπως δίδεται στο περιθώριο 2201, 1° εώς 9°. την επωνυμία ή το σήμα του κατασκευαστή ή ιδιοκτήτη· και τον αριθμό του δοχείου (βλεπε επίσης περιθώριο 2202 (3)). Προκειμένου περί αλογόνων υδρογονανθράκων των 1° (α), 3° (α), 3° (α Τ), 3° (β), 3° (γ Τ), 4° (α), 5° (α) και 6° (α), η χρήση του γράμματος R ακολουθουμένου υπό του αριθμού αναγνωρίσεως της ύλης επιτρέπεται επίσης·

(β) το απόβατο του δοχείου χωρίς εξαρτήματα & συμπληρώματα.

(γ) επίσης, αν τα δοχεία προορίζονται για υγροποιημένα αέρια, το απόβαρο του δοχείου, συμπεριλαμβανομένων ωριαμένων εξαρτημάτων και συμπληρωμάτω όπως βαλβίδων, μεταλλικών πωμάτων κλπ. αλλά πλην του προσταυτευτικού καλύμματος.

ΣΗΜΕΙΩΣΗ στις (β) & (γ): Τα στοιχεία αυτά της μάζης, θα πρέπει να αναγραφούν κατά την επομένη περιοδική δοκιμασία.

(δ) τη πίεση δοκιμής (βλέπε περιθώρια 2219 εώς 2221) και την ημερομηνία (μήνα, έτος) της γενομένης τελευταίας δοκιμής (ελέγχου) βλέπε περιθώρια 2216 και 2217)·

(ε) τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και επιθεωρήσεις· και επιπροσθέτως:

(στ) προκειμένου περί πεπιεσμένων αερίων ή μιγμάτων πεπιεσμένων αερίων (1°, 2°, 12° και 13°): την ανωτάτη πίεση πληρώσεως στους 15°C την επιτρεπομένη για το στο θέμα δοχείο (βλέπε περιθώριο 2219)·

(ζ) προκειμένου περί φθοριούχου βορίου (1° (α Τ)), υγροποιημένων αερίων (3° έως 6°) και αμμωνίας διαλυμένης στο νερό (9° (α Τ)): το επιτρεπόμενο ανώτατο γέμισμα, και τη χωρητικότητα. Προκειμένου για βαθειά κατεψυγμένα αέρια (DEEPLY - REFRIGERATED GASES) των 7° και 8°: τη χωρητικότητα·

(η) προκειμένου περί ακετυλενίου διαλυμένου σε διαλυτικό μέσο (9° (γ)): την επιτρεπομένη πίεση πληρώσεως (βλέπε περιθώριο 2221 (2)), και το βάρος του κενού δοχείου συμπεριλαμβανομένου του βάρους των εξαρτημάτων και παρακολουθημάτων, του πορώδους υλικού, και του διαλυτικού μέσου·

(θ) προκειμένου περί μιγμάτων αερίων της 12° και αερίων δοκιμών (ελέγχων) της 13°, οι λέξεις «μίγματα αερίων» ή «αέρια ελέγχων», αναλόγως της περιπτώσεως θα χαράσσονται στο δοχείο σαν γενική ένδειξη του περιεχομένου. Ακριβής περιγραφή του περιεχομένου θα εικονίζεται καθ' όλη τη μεταφορά·

(ι) προκειμένου περί μεταλλικών δοχείων τα οποία, συμφώνως προς το περιθώριο 2202(3), γίνονται δεκτά για τη μεταφορά ενός αριθμού διαφορετικών αερίων (δοχεία πολλαπλής χρήσεως), ακριβής διαρκείας (ανεξίτηλος) περιγραφή του περιεχομένου θα εικονίζεται διαρκούσης της μεταφοράς.

(2) Οι ενδείξεις θα χαράσσονται είτε επί ενισχυμένου τμήματος του δοχείου, είτε επί δακτυλίου, είτε επί πλάκας αναγράφουσας στοιχεία, τοποθετημένης χωρίς να κινείται στο δοχείο. Επιπροσθέτως, η ονομασία της ύλης μπορεί να σημειούται στο δοχείο δι' ορατής ευκρινούς επιγραφής δια βαφής ή οιασδήποτε άλλης ισοδυνάμου μεθόδου. 2217

(γ) Πίεση δοκιμής, βαθμός πληρώσεως, και όριον χωρητικότητας, των δοχείων (βλέπε επίσης περιθώρια 2238, 211 180 και 212 180.

(1) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά πεπιεσμένων αερίων των 1°, 2° και 12°, η εσωτερική πίεση (πίεση δοκιμής) η εφαρμοστέα για έλεγχο υδραυλικής πιέσεως πρέπει να είναι τουλάχιστον μιάμισυ φορά η πίεση πληρώσεως στους 15°C η σημειουμένη στο δοχείο, αλλά όχι μικρότερη των 1 MPa (10 bar). 2219

(2) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά υλών της 1° (α) πλην του τετραφθοριομεθανίου· δευτερίου και υδρογόνου της 1°(β)· ή αερίων της 2°(α), η πίεση πληρώσεως δεν θα υπερβαίνει τα 25 MPa (250 bar) τα αναφερόμενα για θερμοκρασία 15°C. Στην περίπτωση των δεξαμενών, η πίεση πληρώσεως δεν θα υπερβαίνει τα αναφερόμενα σε θερμοκρασία 15°C.

Προκειμένου περί δοχείων και δεξαμενών προοριζομένων για τη μεταφορά άλλων αερίων των 1° και 2° η πίεση πληρώσεως δεν θα υπερβαίνει τα 20 MPa (200 bar) τα αναφερόμενα σε θερμοκρασία 15°C. 2218

(3) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά φθορίου (1°(α Τ)) η εσωτερική πίεση (πίεση ελέγχου) η εφαρμοστέα για τον έλεγχο της υδραυλικής πίεσης θα είναι 20 MPa (200 bar) και η πίεση πληρώσεως δεν θα υπερβαίνει τα 2.8 MPa (28 bar) σε θερμοκρασία 15°C· επιπροσθέτως, κανένα δοχείο δεν θα περιέχει περισσότερα των 5 KG φθορίου.

Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά τριφθοριούχου βορίου (1°(α Τ)) η υδραυλική πίεση η εφαρμοστέα στην πίεση δοκιμής (ελέγχου) θα είναι είτε 30 MPa (300 bar), οπότε το ανώτατο βάρος του περιεχομένου ανά λίτρο χωρητικότητας δεν θα υπερβαίνει τα 0.86 Kg.

(4) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά μονοξειδίου του αζώτου NO (1° (γ Τ)), η χωρητικότητα θα περιορίζεται στα 50 L· η υδραυλική πίεση η εφαρμοστέα κατά την δοκιμή (πίεση δοκιμής) θα είναι 20 MPa (200 bar)· και η πίεση πληρώσεως δεν θα υπερβαίνει τα 5 MPa (50 bar) σε θερμοκρασία 15°C.

(5) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά μιγμάτων υδρογόνου με όχι άνω του 10 τοις εκατόν σεληνούχου υδρογόνου ή φωσφίνης ή σιλανίου ή γερμανίου κατ' όγκον ή με όχι άνω των 15 στα εκατό αρσίνης κατ' όγκον· μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10 στα εκατόν, σεληνούχου υδρογόνου ή φωσφίνης ή σιλανίου ή γερμανίου κατ' όγκον ή με όχι άνω του 15 στα εκατόν αρσίνης κατ' όγκον (2° (β Τ)) μιγμάτων υδρογόνου με όχι άνω του 10 στα εκατόν διβορανίου κατ' όγκον· ή μιγμάτων αζώτου ή σπανίων αερίων (περιεχόντων όχι άνω του 10 στα εκατόν Ξένον κατ' όγκον) με όχι άνω του στα 10% διβορανίου κατ' όγκον) (2ο (γ Τ)), η χωρητικότητα θα περιορίζεται σε 50 L· η υδραυλική πίεση η εφαρμοστέα στη δοκιμή (πίεση δοκιμής) δεν θα είναι μικρότερη των 20 MPa (200 bar) και η πίεση πληρώσεως δεν θα υπερβαίνει τα 5 MPa (50 bar) σε θερμοκρασία 15°C.

(6) Δοχεία συμφώνως με το περιθώριο 2207(1), στη θερμοκρασία πληρώσεως και σε πίεση 0,1 MPa (1 bar), δεν θα γεμίζονται πέραν του 98 στα εκατόν της χωρητικότητός των.

Οσάκις μεταφέρεται οξυγόνον της 7°(α), θα λαμβάνονται μέτρα αποφυγής οιουδήποτε χυσίματος της υγράς φάσεως (LIQUID PHASE).

(7) Οσάκις διαλυμένο ακετυλένιο (9°(γ)) μεταφέρεται σε δοχεία συμφώνως προς το περιθώριο 2212(1) (β), η χωρη-

τικότητα των δοχείων δεν θα υπερβαίνει τα 150 L.

(8) Η χωρητικότης των δοχείων των προοριζομένων για τη μεταφορά μιγμάτων αερίων της 12° δεν θα υπερβαίνει τα 50 L. Η πίεση του μίγματος δεν θα υπερβαίνει τα 15 MPa (150 bar) σε θερμοκρασία 15°C.

(9) Η χωρητικότητα των δοχείων των προοριζομένων για τη μεταφορά αερίων δοκιμής (ελέγχου) της 13° δεν θα υπερβαίνει τα 50 L. Η πίεση πληρώσεως σε θερμοκρασία 15°C δεν θα υπερβαίνει το 7 στα εκατόν της πιέσεως δοκιμής (ελέγχου) του δοχείου.

(10) Στην περίπτωση του εξαφθοριούχου βολφραμίου (3° (α Τ)) η χωρητικότητα των δοχείων θα περιορίζεται στα 60 L.

Η χωρητικότητα δοχείων για τετραφθοριούχο πυρίτιο (1° (α Τ))· χλωριούχο βόριο, χλωριούχο NITROSYL και φθοριούχο SULPHURYL (3° (α Τ))· μεθυλοδιλανίου (3° (β))· αρσίνης, διχλωροσιλανίου, διμεθυλοσικανίου, σεληνούχου υδρογόνου και τριμεθυλοσιλανίου (3° (β Τ))· χλωροκυανιδίου και κυανιδίου (3° (γ Τ))· μιγμάτων μεθυλοσιλανίου (4° (β Τ))· υλών της 4° (γ Τ) πλην διχλωροδιφθοριομεθανίου περιεχουσών 12 τοις εκατόν αιθυλενοξειδίου κατά βάρος, σιλανίου (5° (β))· και υλών της 5° (β Τ) και (γ Τ), θα περιορίζεται στα 50.

(11) Προκειμένου περί δοχείων προοριζομένων για τριφθοριούχον χλώριον (3° (α Τ)) η χωρητικότητα θα περιορίζεται στα 40 L. Μετά το γέμισμα, δοχείον περιέχον τριφθοριούχον χλώριον (3° (α Τ)), προτού παραδοθεί για μεταφορά, θα κρατείται επί όχι ολιγοτέρων των 7 ημερών προς επαλήθευσιν της στεγανότητάς του.

2220 (1) Προκειμένου περί δοχείων προοριζομένων για τη μεταφορά υγροποιημένων αερίων των 3° έως 6°, και δοχείων προοριζομένων για τη μεταφορά αερίων διαλυθέντων υπό πίεση της 9°, η εφαρμοστέα υδραυλική πίεση κατά την δοκιμήν (πίεση δοκιμής) δεν θα είναι μικρότερα των 1 MPa (10 bar).

(2) Προκειμένου περί υγροποιημένων αερίων των 3° και 4° θα τηρούνται αι κατωτέρω τιμαί για την υδραυλική πίεση την εφαρμοστέα κατά την δοκιμήν (πίεση δοκιμής) και για τον επιτρεπόμενον ανώτατον βαθμόν πληρώσεως:

Βλέπε στο τέλος του πίνακα της παραγράφου (2).

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου MPa	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χωρητικότητας KG
Βρωμοχλωροδιφθοριομεθάνιο (R 12 B 1)	3°(α)	1	1.61
Χλωροδιφθοριομεθάνιο (R 22)	3°(α)	2,9	1.03
Χλωροπενταφθοριομεθάνιο (R 115)	3°(α)	2,5	1.06
1-χλωρο-2,2,2 - τριφθοριομεθάνιο (R 133α)	3°(α)	1	1.18
Διχλωροδιφθοριομεθάνιο (R 12)	3°(α)	1,8	1.15
Διχλωροφθοριομεθάνιο (R 21)	3°(α)	1	1.23
1,2 - Διχλωρο - 1,1,2,2 - τετραφθοριομεθάνιο (R 114)	3°(α)	1	1.30
Οκτωφθοριοκυκλοβουτάνιο (RC 318)	3°(α)	1,1	1.34
Αμμωνία	3°(α Τ)	3,3	0.53
Χλωριούχο Βόριο	3°(α Τ)	1	1.19
Χλώριο	3°(α Τ)	2,2	1.25
Τριφθοριούχο Χλώριο	3°(α Τ)	3	1.40
Εξαφθοριοπροπυλένιο (R 216)	3°(α Τ)	2,2	1.11
Υδροβρώμιο	3°(α Τ)	6	1.20
Μεθυλοβρωμίδιο	3°(α Τ)	1	1.51
Διοξείδιο Αζώτου	3°(α Τ)	1	1.30
Χλωριούχο NITROSYL	3°(α Τ)	1,3	1.10
Φωσγένιο	3°(α Τ)	2	1.23
Διοξείδιο Θείου	3°(α Τ)	1,4	1.23
Φθοριούχο SULPHYRYL	3°(α Τ)	5	1.10
Εξαφθοριούχο Βολφράμιο	3°(α Τ)	1	2.70
Βουτάνιο	3°(β)	1	0.51
1-Βουτένιο	3°(β)	1	0.53
1-Χλωρο - 1, 1 - διφθοριομεθάνιο (R 142β)	3°(β)	1	0.99
CIS-2-βουτένιο	3°(β)	1	0.55
Κύκλοπροπάνιο	3°(β)	2	0.53
1,1-Διφθοριομεθάνιο (R 152α)	3°(β)	1,8	0.79
Διμεθυλικός αιθήρ	3°(β)	1,8	0,58
Ισοβουτένιο	3°(β)	1	0.49
Ισοβουτάνιο	3°(β)	1	0.52
Μεθυλοδιλάνιο	3°(β)	22,5	0.39
Προπάνιο	3°(β)	2,5	0.42
Προπυλένιο	3°(β)	3	0.43
TRANS -2-βουτένιο	3°(β)	1	0.54
1,1,1 - Τριφθοριομεθάνιο	3°(β)	3,5	0.75
Αρσίνη	3°(β Τ)	4,2	1.10
Διχλωροσιλάνιο	3°(β Τ)	1	0.90
Διμεθυλαμίνη	3°(β Τ)	1	0.59
Διμεθυλοσιλάνιο	3°(β Τ)	22,5	0.39
Αιθυλαμίνη	3°(β Τ)	1	0.61
Αιθυλοχλωρίδιο	3°(β Τ)	1	0.80
Σεληνούχο Υδρογόνο	3°(β Τ)	3,1	1.60
Υδροσουλφίδιο	3°(β Τ)	5,5	0.67
Μεθυλαμίνη	3°(β Τ)	1,3	0.58
Μεθυλοχλωρίδιο	3°(β Τ)	1,7	0.81
Μεθυλική Μερκαπτάνη	3°(β Τ)	1	0.78
Τριμεθυλαμίνη	3°(β Τ)	1	0.56
Τριμεθυλοσιλάνιο	3°(β Τ)	22,5	0.39
Βουταδιένιο	3°(γ)	1	0.55
1,3 - Βουταδιένιο	3°(γ)	1	0.59
Βινυχλωρίδιο	3°(γ)	1,2	0.81
Κυανογόνο	3°(γ Τ)	10	0.70
Χλωροκυανίδιο	3°(γ Τ)	2	1.03
Αιθυλενοξείδιο	3°(γ Τ)	1	0.78
Μεθυλοβινυλαιθέρας	3°(γ Τ)	1	0.67
Τριφθοριοχλωροαιθυλένιο (R 113)	3°(γ Τ)	1,9	1.13
Βινυβρωμίδιο	3°(γ Τ)	1	1.37
Μίγμα F 1	4°(α)	1,2	1.23
Μίγμα F 2	4°(α)	1,8	1.15
Μίγμα F 3	4°(α)	2,9	1.03
Μίγμα αερίων R 500	4°(α)	2,2	1.01
Μίγμα αερίων R 502	4°(α)	3,1	1.05
Μίγμα 19 έως 21 στα εκατόν κατά βάρος διχλωροδιφθοριομεθανίου (R 12) και 79 έως 81 στα εκατόν κατά βάρος βρωμοχλωροδιφθοριομεθανίου (R 12 BI)	4°(α)	1,2	1.50
Μίγματα μεθυλοβρωμιδίου και χλωροπικρίνης	4°(α Τ)	1	1.51
Μίγμα Α (εμπορική ονομασία: βουτάνιο)	4°(β)	1	0.50
Μίγμα Α Ο (εμπορική ονομασία: βουτάνιο)	4°(β)	1,5	0.47
Μίγμα Α 1	4°(β)	2	0.46
Μίγμα Β	4°(β)	2,5	0.43
Μίγμα Γ (εμπορική ονομασία: προπάνιο)	4°(β)	3	0.42
Μίγματα υδρογονανθράκων περιέχοντα μεθάνιο	4°(β)	22,5	0.187
		3	0.244
Μίγματα μεθυλοσιλανίων	4°(β Τ)	22,5	0.39
Μίγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4° (β Τ)	1,7	0.81
Μίγματα μεθυλοχλωριδίου και χλωροπικρίνης	4°(β Τ)	1.7	0.81

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου MPa	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χωρητικότητας KG
Μίγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	4°(β T)	1	1.51
Μίγματα 1,3 βουταδιενίου και υδρογονανθράκων της 3°	4°	1	0,50
Μίγμα αιθυλακετυλενίου / προπαδιενίου & υδρογονανθράκων			
Μίγμα P 1	4°(γ)	3	0.49
Μίγμα P 2	4°(γ)	2,4	0.47
Οξείδιο αιθυλενίου περιέχον το πολύ 10% διοξείδιο άνθρακος κατά μάζα	4°(γ T)	2,8	0.73
Αιθυλενοξείδιο περιέχον όχι άνω του 50 τοις εκατόν μεθυλικού άλατος μυρμηκικού οξέος κατά βάρος με άζωτο μέχρι ανωτάτης ολικής πιέσεως 1 MPa (10 bar) στους 50°C.	4°(γ T)	2,5	0.80
Αιθυλενοξείδιο με άζωτο μέχρι ολικής πιέσεως 10 KG/ CM^2 στους 50°C	4°(γ T)	1,5	0.78
Διχλωροδιφθοριομεθάνιο περιέχον 12 τοις εκατόν αιθυλενοξείδιο κατά βάρος	4°(γ T)	1,8	1.09

1. Οι προβλεπόμενες πιέσεις δοκιμής/ελέγχου είναι τουλάχιστον ίσες προς τις πιέσεις ατμού των υγρών στους 70°C, μειωμένες κατά 0,1 MPa (1 bar), της απαιτουμένης κατωτάτης πιέσεως δοκιμής/ελέγχου ούσης, εν τούτοις, 1 MPa (10 bar). 2220

2. Ενόψη του υψηλού βαθμού τοξικότητος του φωσγενείου (χλωριούχο καρβονύλιο) (3°(α T)) και του χλωροκυανιδίου (3° (γ T)), η κατωτάτη πίεση δοκιμής/ελέγχου για τα αέρια αυτά έχει ορισθεί στα 2 MPa (20 bar).

3. Οι ανώτατες προβλεπόμενες τιμές για τον βαθμόν πληρώσεως σε KG/LITRE έχουν καθορισθεί ως κάτωθι: ανώτατο βάρος περιεχομένου ανά λίτρο χωρητικότητας = 0.95 φορές την πυκνότητα υγράς φάσεως στους 50°C· επιπροσθέτως, η φάση ατμού δεν πρέπει να εξαφανίζεται κάτω των 60°C.

(3) Προκειμένου περί δοχείων προοριζομένων να περιέχουν υγροποιημένα αέρια των 5° και 6° ο βαθμός πληρώσεως θα είναι τέτοιος, ώστε η εσωτερική πίεση στους 65°C μην υπερβαίνει την πίεση δοκιμής/ελέγχου των δοχείων. Θα τηρούνται οι παρακάτω τιμές (βλέπε επίσης παράγραφον (4)):

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου MPa	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χωρητικότητας KG
Βρωμοτριφθοριομεθάνιο (R 13 B 1)	5° (α)	4,2	1.13
		12	1.44
		25	1.60
Διοξείδιο Άνθρακα	5° (α)	19	0.66
		25	0.75
Χλωροτριφθοριομεθάνιο (R 13)	5° (α)	10	0.83
		12	0.90
		19	1.04
		25	1.10
Εξαφθοραιθάνιο (R 116	5° (α)	20	1.10
Υποξείδιο του Αζώτου N_2O	5° (α)	18	0.68
		22,5	0.74
		25	0.75
Εξαφθοριούχο Θείο	5° (α)	7	1.04
		14	1.37
Τριφθοριομεθάνιο (R 23)	5° (α)	19	0.87
		25	0.95
Ξένον	5° (α)	13	1.24
Υδροχλωρίδιο	5° (α T)	10	0.30
		12	0.56
		15	0.67
		20	0.74
Αιθάνιο	5° (β)	9,5	0.25
		12	0.29
		30	0.39
Σιλάνιο	5° (β)	22,5	0.32
		25	0.41
Αιθυλένιο	5° (β)	22,5	0.34
		30	0.37
Γερμάνιο	5° (β T)	25	1.02
Φωσφίνη	5° (β T)	22,5	0.30
		25	0.51
1.1-Διφθοριοαιθυλένια	5° (γ)	25	0.77
Φθοριούχο βινύλιο	5° (γ)	25	0.64
Διβοράνιο	5° (γ T)	25	0.072

			Συστατικά (βάρος τοις εκατόν)	
Διοξείδιο του άνθρακος περιέχον (α) 1-10 τοις εκατόν άζωτον, οξυγόνον, αέρα ή σπάνια αέρια κατά βάρος	6°	19	1	0.64
		19	1-10	0.48
		25	1	0.73
		25	1-10	0.59
Μίγμα αερίων R 503	6° (α)	3,1		0.11
		4,2		0.20
		10		0.66
Διοξείδιο του άνθρακος περιέχον όχι άνω του 35 τοις εκατόν αιθυλενοξείδιο κατά βάρος	6° (γ)	19		0.66
		25		0.75
Αιθυλενοξείδιο περιέχον άνω του 10 τοις εκατόν αλλά όχι άνω του 50 τοις εκατόν διοξειδίου του άνθρακα κατά βάρος	6° (γ T)	19		0.66
		25		0.75

(4) Για ύλες της 5° πλην υδροχλωριδίου (5°(α T)· γερμανομεθανίου και φωσφίνης (5° (β T)· και διβορανίου (5°(γ T), και για ύλες της 6°, η χρήση ελεχθέντων δοχείων σε κατώτερη πίεση της οριζομένης στη παράγραφο (3) για την στο θέμα ύλη επιτρέπεται, αλλά η ποσότητα της ύλης ανά δοχείο δεν θα υπερβαίνει εκείνην η οποία στους 65°C θα παρήγαγε εσωτερικώς του δοχείου πίεσην ίση με την πίεση δοκιμής/ ελέγχου. Στην περίπτωση αυτή το επιτρεπόμενο ανώτατο φορτίο θα καθορίζεται υπό του εμπειρογνώμονα του αναγνωριζομένου υπό της αρμοδίας αρχής.

(1) Προκειμένου περί αερίων διαλυομένων υπό πίεση, της 9°, οι παρακάτω τιμές θα τηρούνται για την υδραυλική πίεση την εφαρμοστέα επί των δοχείων κατά την δοκιμήν/ έλεγχον (πίεση δοκιμής/ελέγχου), και για τον επιτρεπόμενον ανώτατον βαθμόν πληρώσεως: 22

Περιγραφή ύλης	Αριθμός Είδους	Κατωτάτη Πίεση Δοκιμής/ Ελέγχου MPa	Ανώτατο Βάρος Περιεχομένου ανά λίτρο χωρητικότητας KG
Αμμωνία διαλυμένη υπό πίεση στο νερό με άνω του 35% αλλά όχι άνω του 40% αμμωνία κατά βάρος	9° (α Γ)	1	0.80
	9° (α Τ)	1,2	0.77
Διαλυμένο Ακετυλένιο	9° (γ)	6	βλέπε υπό στοιχείον (2)

(2) Προκειμένου περί διαλυμένου ακετυλενίου (9°(γ)), άπαξ και η ισορροπία επετεύχθη στους 15°C η πίεση πληρώσεως του κυλίνδρου δεν θα υπερβαίνει την τιμήν την προβλεπομένην υπό της αρμοδίας αρχής για την πορώδη μάζα, η οποία τιμή θα είναι χαραγμένη στον κύλινδρο. Η ποσότης του διαλυτικού μέσου και η ποσότητα του ακετυλενίου θα αντιστοιχούν κι αυτές στους αριθμούς τους οριζομένους στην έγκριση.

3. Μικτή Συσκευασία

Οι ύλες της Κλάσεως αυτής πλην των υλών των 7° και 8° μπορούν να εγκλεισθούν στο ίδιον κόλον μεταξύ των εάν περιέχονται: 2222

(α) σε μεταλλικής πιέσεως δοχεία όγκου μη υπερβαίνοντος τα 10 λίτρα·

(β) σε γυάλινους σωλήνες χονδρού - τοιχώματος ή γυάλινα σιφόνια συμφώνως προς τα περιθώρια 2205 και 2206, υπό τον όρον ότι τα εύθραστα αυτά δοχεία (υποδοχείς) ασφαλίζονται (στερεώνονται) συμφώνως προς τας διατάξεις του περιθωρίου 2201(7). Το αποσβεστικό υλικό θα ταιριάζει στις ιδιότητες του περιεχομένου. Οι εσωτερικές συσκευασίες θα τοποθετούνται σε εξωτερική συσκευασία στην οποία θα τηρούνται αποτελεσματικά χωριστά η μία από την άλλη.

(2) Είδη των 10° και 11° μπορούν να εγκλείονται στο ίδιο κόλον η μία με την άλλη υπό τους όρους τους προβλεπομένους στο περιθώριο 2210.

(3) Επιπροσθέτως, ύλες συσκευασμένες συμφώνως προς τα περιθώρια 2205 και 2206 μπορούν να εγκλείονται στο ίδιο κόλον η μία με την άλλη υπό τους παρακάτω ειδικούς όρους.

(4) Κόλον το οποίον θα πληροί τους όρους των (1) και (3) δεν θα ζυγίσει πάνω από 100 KG, ή πάνω από 75 KG εάν περιέχει εύθραυστα δοχεία..

Ειδικοί Όροι:

Αρ. ή Γράμμα Είδους	Περιγραφή Ύλης	Ανωτάτη ανά δοχείο	Ποσότητα ανά κόλον	Ειδικές Διατάξεις
	Αέρια συσκευασμένα συμφώνως προς το περιθώριο 2205 Όλα τα αέρια τα αναγραφόμενα στο περιθώριο αυτό	στις ποσότητες τις προβλεπόμενες στο περιθώριο 2205	6 KG	Χλώριον (3° (α Τ) δεν θα συσκευάζεται με διοξείδιο του θείου (3° (αΤ)
(α) (α Τ)	Άφλεκτα Αέρια Άφλεκτα Τοξικά Αέρια			Δεν θα συσκευάζονται με ύλες των Κλάσεων 1α, 1β, 1γ, 3, 4.2, 5.2 ή 7
(β)	Εύφλεκτα Αέρια			Δεν θα συσκευάζονται με ύλες των Κλάσεων 1α, 1β, 1γ, 3, 4.2, 5.2, 7 ή 8
	Αέρια συσκευασμένα συμφώνως προς το περιθώριο 2206 Όλα τα αέρια τα αναγραφόμενα στο περιθώριο πλην αμμωνίας και κυκλοπροπανίου			
(α) (α Τ)	Άφλεκτα Αέρια Άφλεκτα Τοξικά Αέρια	150 G	6 KG	Δεν θα συσκευάζονται με ύλες των Κλάσεων 1α, 1β, 1γ, 3, 4.2, 5.2 ή 7
(β)	Εύφλεκτα Αέρια			
(β Τ)	Εύφλεκτα Τοξικά Αέρια			Δεν θα συσκευάζονται με ύλες των Κλάσεων 1α, 1β, 1γ, 3, 4.1, 4.2, 4.3, 5.1, 5.2 ή 7
(γ)	Χημικώς Ασταθή Αέρια			
(γ Τ)	Χημικώς Ασταθή Τοξικά Αέρια			
3°(α Τ)	Αμμωνία	20 G	6KG	
3° (β)	Κυκλοπροπάνιο			

4. Ενδείξεις και ετικέτες στα κόλα (βλέπε Προσθήκην Α.9)

(1) Κάθε κόλον περιέχον δοχείον με αέρια των 1° έως 9°, 12° ή 13° ή μη-ξεναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση της 11° θα μαρκάρονται ευανάγνωστα και ανεξίτηλα με την ένδειξη του περιεχομένου, προσθέτοντας «Κλάση 2». Το μαρκάρισμα αυτό θα είναι στην επίσημη γλώσσα της χώρας της αναχωρήσεως, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή Γαλλική, ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν, τυχόν, συμφωνίες συνήφθησαν μεταξύ των ενδιαφερομένων χωρών προβλέπουσες ως αναφορικώς με την επιχείρηση της μεταφοράς. 2223

Η παρούσα διάταξη δεν χρειάζεται να τηρηθεί εάν τα δοχεία και οι ενδείξεις τους είναι σαφώς ορατά.

(2) Κόλα περιέχοντα διανεμητές αεροζόλ της 10° θα μαρκάρονται με τη λέξη «ΑΕΡΟΖΟΛ» με γράμματα ευανάγνωστα και ανεξίτηλα.

(3) Οσάκις η αποστολή είναι αποστολή πλήρους φορτίου, οι ενδείξεις οι αναφερόμενες στην παράγραφο (1) δεν είναι υποχρεωτικές.

(1) Κόλα τα οποία περιέχουν δοχεία κατασκευασμένα από υλικά κινδυνεύοντα να θρυμματισθούν, όπως η ύαλος ή ωρισμένες πλαστικές ύλες, θα φέρουν ετικέτα συμφώνως προς το μοντέλο No.12. 2224

(2) Κάθε κόλον περιέχον αέρια της 7°(α) ή 8°(α) θα φέρει, σε δύο αντίθετες πλευρές, ετικέτες συμφώνως προς το μοντέλο No.11, και εάν οι ύλες τις οποίες περιέχει εγκλείονται σε γυάλινα δοχεία (περιθώριο 2207(2) (α)), πρέπει, επιπροσθέτως, να φέρει ετικέτα συμφώνως προς το μοντέλο No.12.

Κάθε κόλον περιέχον διανεμητές αεροζόλ
των 10°(β) 2., 10°(β Τ) 2., 10°(γ) ή 10°(γ Τ), ή μη-
ξαναγεμιζόμενα δοχεία (CONTAINERS) αερίου υπό πίεση 2225
των 11°(β), 11°(β Τ), 11°(γ) ή 11°(γ Τ), θα φέρει ετικέτα συμφώνως προς το μοντέλο No. 2A.

Β. Λεπτομέρειες (στοιχεία) εγγράφου μεταφοράς

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να υπάρχει:

(α) στην περίπτωση των καθαρών και τεχνικώς - καθαρών αερίων των 1°, 3°, 5°, 7° ή 9°, των διανεμητών αεροζόλ της 10°, των μη-ξαναγεμιζομένων δοχείων (CONTAINERS) αερίου υπό πίεση της 11°, και να είναι: μία των ονομασιών των υπογραμμιζομένων στο περιθώριο 2201·

(β) στην περίπτωση των μιγμάτων των αερίων των 2°, 4°, 6°, 8°, 12° ή 13°: «μίγμα αερίων». Η περιγραφή αυτή πρέπει να συμπληρούται με την ένδειξη της συνθέσεως του μίγματος αερίων κατ' όγκον στα εκατόν ή βάρος στα εκατόν. Συστατικά μέρη κάτω του ενός στα εκατόν δεν χρειάζεται να αναφέρονται. Στην περίπτωση των μιγμάτων αερίων των 2°(α), 2°(β), 2°(β Τ), 4°(α), 4°(β), 4°(γ), 6°(α), 8°(α) ή 8°(β) οι περιγραφές ή οι ονομασίες οι συνήθειες στο εμπόριο που υπογραμμίζονται στο περιθώριο 2201 μπορούν ομοίως να χρησιμοποιούνται, χωρίς τον καθορισμόν της συνθέσεως.

Οι περιγραφές αυτές πρέπει να υπογραμμίζονται με κόκκινο και να ακολουθούνται από στοιχεία της Κλάσεως, τον αριθμό του είδους (μαζί με το, τυχόν, γράμμα) και τα αρχικά «ADR» ή «RID» (π.χ., 2, 5°(α Τ), ADR).

(2) Προκειμένου περί αποστολών αερίων αναφερομένων μεταξύ των χημικώς ασταθών αερίων, ο αποστολέας οφείλει να πιστοποιεί τα κάτωθι στο έγγραφο μεταφοράς: «Πάρθηκαν τα απαραίτητα μέτρα προς εκπλήρωση των όρων του περιθωρίου 2200 (4) της ADR». Στην περίπτωση αποστολών μιγμάτων αερίων της 12° ή αερίων δοκιμής/ελέγχου της 13°, ο αποστολέας οφείλει να πιστοποιεί τα παρακάτω στο έγγραφο μεταφοράς: «Έχουν τηρηθεί οι όροι οι διαλαμβανόμενοι στα 12° ή 13° του περιθωρίου 2201 της ADR».

(3) Προκειμένου περί αποστολών τριφθοριούχου χλωρίου (3°(α Τ)) ο αποστολέας οφείλει να πιστοποιεί τα κάτωθι στο έγγραφο μεταφοράς: «Μετά το γέμισμα με τριφθοριούχο χλώριο, το δοχείο ετηρήθη υπό παρατήρηση επί χρονικό διάστημα όχι μικρότερο των επτά ημερών και η στεγανότητά του επαληθεύθηκε».

(4) Προκειμένου περί δεξαμενών περιεχουσων αέρια της 7°(α) ή 8°(α) πλην διοξειδίου του άνθρακος και υποξειδίου του αζώτου, στο έγγραφο μεταφοράς θα αναγράφεται: «Η δεξαμενή είναι σε μόνιμη επικοινωνία με την ατμοσφαίρα».

Γ. Κενά Είδη Συσκευασίας

(1) Τα δοχεία και οι δεξαμενές της 14° θα κλείνουν με τον ίδιο τρόπο σαν να επρόκειτο για πλήρη δοχεία και δεξαμενές. 2227-2236

(2) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να συμφωνεί με ένα από τα ονόματα που δίδονται στην παρ. 14 π.χ.: «Κενό δοχείο ή («Κενή δεξαμενή»), ακαθάριστο, 2, 14ο, ADR (ή Είδος 14, RID)». Το κείμενο αυτό πρέπει να φέρει υπογράμμιση. Η περιγραφή πρέπει να συμπληρώνεται με την προσθήκη των λέξεων: «Τελευταίο φορτίο» με την ονομασία και τον αριθ. είδους των εμπορευμάτων που φορτώθηκαν τελευταία: π.χ. 2237

Τελευταίο φορτίο: Αργόν I^0(α).

(2) Τα δοχεία της 14^0 που αναφέρονται στο περιθώριο 2212 (1) (α) (β) και (δ) μπορούν να μεταφέρονται μετά την εκπνοή του χρονικού ορίου που τίθεται για την περιοδική δοκιμασία που καθορίζεται στο περιθώριο 2215, προκειμένου να υποβληθούν σε δοκιμασίες.

Δ. Μεταβατικές διατάξεις.

Οι παρακάτω μεταβατικές διατάξεις θα εφαρμόζονται για δοχεία που προορίζονται για συμπιεσμένα ή υγροποιημένα αέρια ή αέρια διαλυμένα υπό πίεση: 2238

(α) δοχεία ήδη σε υπηρεσία, θα πρέπει, με την επιφύλαξη των παρακάτω εξαιρέσεων, θα γίνονται δεκτά για διεθνή μεταφορά εφ' όσον το επιτρέπουν οι διατάξεις της συμβαλλομένης χώρας στην οποία διεξήχθησαν οι δοκιμασίες σύμφωνα με το περιθώριο 2216 και εφ' όσον ετηρήθησαν οι προθεσμίες οι προβλεπόμενες από τα περιθώρια 2216 (3) και 2217 για τις περιοδικές επιθεωρήσεις·

(β) προκειμένου περί δοχείων κατασκευασθέντων σύμφωνα με το προηγούμενο σύστημα (επιτρεπομένη τάση δύοτρίτα, αντί τριών-τετάρτων, της τάσεως αποδόσεως), δεν θα επιτρέπεται καμία αύξηση ούτε στη πίεση δοκιμής ούτε στη πίεση πληρώσεως (βλέπε περιθώριο 2211 (1))·

(γ) μεταβατικά μέτρα για δεξαμενές: βλέπε περιθώριο 211 180 και 211 184.

(δ) μεταβατικά μέτρα για δεξαμενές-δοχεία:
βλέπε περιθώριο 212 180.

ΚΛΑΣΗ 3. ΕΥΦΛΕΚΤΑ ΥΓΡΑ

1. Κατάλογος υλικών.

(1) Μεταξύ των ευφλέκτων υλών και μιγμάτων που είναι υγρά ή ιξώδη σε θερμοκρασίες έως 35° C 1/ εκείνα που αναφέρονται στο περιθώριο 2301 ή που εμπίπτουν στην συλλογική επικεφαλίδα του περιθωρίου αυτού, υπόκεινται στις διατάξεις του που προβλέπονται στα περιθώρια 2300 (2) έως 2322 και στις διατάξεις του παρόντος Παραρτήματος ή του παραρτήματος Β. Και τότε χαρακτηρίζονται και θεωρούνται σαν ουσίες ADR. 2/ 2300

(2) Εύφλεκτα υγρά, κατά την έννοια της ADR, έχουν πίεση ατμών που δεν υπερβαίνει τις 300 KPa (3 BAR) σε θερμοκρασία 50^0 C και σημείο αναφλέξεως που δεν υπερβαίνει τους 100^0 C εκτός από εκείνα τα έφλεκτα υγρά τα οποία, λόγω συμπληρωματικών επικινδύνων ιδιοτήτων, αναγράφονται ή ανήκουν σε άλλες κλάσεις. Το σημείο αναφλέξεως θα καθορίζεται όπως φαίνεται στο Παράρτημα Α.3, περιθώρια 3300 έως 3302.

(3) Ουσίες της Κλάσεως 3, πλην εκείνων της 12^0 και 13°, ταξινομημένες με τους διαφόρους αριθμούς ειδών του περιθωρίου 2301, θα κατατάσσονται σε μία από τις ακόλουθες ομάδες που διακρίνονται με το γράμμα (α), (β) και (γ) ανάλογα με τον βαθμό κινδύνου των:

Γράμμα (α): Πολύ επικίνδυνες ουσίες:

Εύφλεκτα υγρά με σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35^0 C και εύφλεκτα υγρά με σημείο αναφλέξεως κάτω των 21^0 C, τα οποία είναι ή εξαιρετικά τοξικά, σύμφωνα με τα κριτήρια του περιθωρίου 2600, ή εξαιρετικά διαβρωτικά, σύμφωνα με τα κριτήρια του περιθωρίου 2800.

Γράμμα (β): Επικίνδυνες ουσίες:

Εύφλεκτα υγρά με σημείο αναφλέξεως κάτω από 21^0 C, τα οποία δεν κατατάσσονται στο γράμμα (α), με εξαίρεση τις ουσίες του περιθωρίου 2301,5^0 (γ).

Γράμμα (γ): Ουσίες με μικρό κίνδυνο:

Εύφλεκτα υγρά με σημείο αναφλέξεως από 21^0 C έως 100^0 C και ουσίες του περιθωρίου 2301, 5^0 (γ).

(4) Όταν, σαν αποτέλεσμα προσθηκών, το σημείο αναφλέξεως, το σημείο βρασμού, το αρχικό σημείο βρασμού ή η πίεση ατμών μιας ουσίας της Κλάσεως 3 δεν βρίσκεται μέσα στα όρια που προδιαγράφονται για τα διάφορα είδη του περιθωρίου 2301 το μίγμα αυτό θα κατατάσσεται στον αριθμό είδους στο οποίο ανήκει επί τη βάσει του σημείου αναφλέξεώς του, του σημείου βρασμού του ή του αρχικού σημείου βρασμού ή της πιέσεως ατμού όπως πραγματικά καθορίζεται.

(5) Ουσίες της Κλάσεως 3 που είναι ενδεχόμενο να σχηματίσουν εύκολα υπεροξείδια (όπως συμβαίνει με τους αιθέρες ή σε ωρισμένες ετεροκυκλικές οξυγονωμένες ουσίες), δεν πρέπει να παραδίδονται για μεταφορά, εκτός αν το περιεχόμενο των σε υπεροξείδιο, υπολογιζόμενο σαν υπεροξείδιο υδρογόνου (H_2O_2) δεν υπερβαίνει το 0.3 τοις εκατό.

Το περιεχόμενο υπεροξείδιο θα πρέπει να προσδιορίζεται όπως υποδεικνύεται στο Παράρτημα Α.3 περιθώριο 3303.

1/ Προσδιορισμός της ιξώδους καταστάσεως σε 35° C θα βασίζεται σε κριτήρια δοκιμασίας με εισδυσιόμετρο (βλέπε Παράρτημα Α.3 περιθ. 3310 και 3311).

2/ Για τις ποσότητες ουσιών του περιθ. 2301 που δεν υπόκεινται στις διατάξεις της παρούσης Κλάσεως, είτε στο παρόν Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθώριο 2301α.

(6) Χημικώς ασταθείς ουσίες της Κλάσεως 3 δεν θα πρέπει να διακινούνται για μεταφορά εκτός αν έχουν ληφθεί τα κατάλληλα μέτρα για πρόληψη επικινδύνου αποσυνθέσεως ή πολυμερισμού των κατά την μεταφορά. Για τον σκοπό αυτό, θα πρέπει να δίνεται ιδιαίτερη προσοχή και φροντίδα ώστε να εξασφαλίζεται το ότι τα δοχεία δεν περιέχουν καμμία ουσία που να είναι πιθανό να προκαλέσει τις αντιδράσεις αυτές.

ΣΗΜΕΙΩΣΗ: Ακόμη και όπου δεν αναφέρεται ουσία των παραγράφων (α), (β) ή (γ) των διαφόρων ειδών του παρόντος περιθωρίου, ουσίες, διαλύματα, μίγματα και σκευάσματα μπορούν να κατατάσσονται στα γράμματα αυτά σύμφωνα με τα κριτήρια που εκτίθενται στο περιθώριο 2300.

2301

A. Ουσίες με σημείο αναφλέξεως κάτω των 21° C, μη τοξικές και μη διαβρωτικές

1. Ουσίες με πίεση ατμών σε 50° C το πολύ ως 175 KPa (1.75 BAR) όπως π.χ.:

ακεταλδεΰδη (αλδεΰδη), 2-χλωροπροπάνιο, χλωριούχο βινυλιδένιο, κροτονυλένιο (2-βουτυλένιο), μεθυλο-ισοπροπυλικός αιθήρ, μεθυλομυρμηκικό ισοπροπάνιο, 2-μεθυλο-1-βουτένιο, 3-μεθυλο-1-βουτένιο (ισοπροπυλικό αιθυλένιο), 1,4-πενταδιένιο, κανονικό αμυλένιο (1-πεντένιο).

2. Ουσίες με πίεση ατμών με 50° C πλέον των 110 KPα (1.10 BAR) αλλά όχι πλέον των 175 KPα (1.75 BAR), όπως π.χ.:

α) αιθυλικός αιθήρ, ισοπρένιο, οξείδιο προπυλενίου

β) 1-χλωροπροπάνιο (χλωριούχο ισοπροπύλιο) κυκλοπεντένιο, διμεθοξυμεθάνιο (μεθυλάλη), βινυλικός αιθυλικός αιθήρ, μεθυλικός προπυλικός αιθήρ, 2-μεθυλο2-βουτένιο, κανονικό πεντάνιο, 2-πεντένιο, θειούχο διμεθύλιο.

3. Ουσίες με πίεση ατμών σε 50° C το πολύ 110 KPα (1.10 BAR) όπως π.χ.:

β) ωρισμένα ακάθαρτα πετρέλαια και άλλα ορυκτά έλαια, πτητικά προϊόντα αποστάξεως πετρελαίου και άλλων ορυκτών ελαίων (πίσσας γαιάνθρακος, λιγνίτη, σχιστολίθου, ξύλου ή τύρφης), π.χ. βενζίνη, πετρελαϊκός αιθήρ, προϊόντα συμπυκνώσεως φυσικού αερίου.

ΠΑΡΑΤΗΡΗΣΗ: Ενώ σε ωρισμένες κλιματολογικές συνθήκες η βενζίνη μπορεί να έχει πίεση ατμών σε 50° C περισσότερο απο 110 KPα (1.10 BAR) αλλά όχι πλέον των 150 KPα (1.50 KPα BAR), θα πρέπει να εξακολουθεί να ταξινομείται με τον αριθμό του παρόντος άρθρου.

Υδατάνθρακες όπως:

βενζένιο, κυκλοεπτάνιο, κυκλοεξάνιο, κυκλοεξένιο, κυκλοπεντάνιο, αιθυλιβενζένιο, τεχνικό, επτάνια, επτένια, εξάνια, οκτάνια, οκτένια, τολουένιο.

Αλογονωμένες ουσίες όπως:

κανονικό βρωμιούχο βουτύλιο, χλωριούχο αμύλιο, χλωριούχα βουτύλια (χλωροβουτάνια), 1,1-διχλωροαιθάνιο (χλωριούχο αιθυλένιο), διχλωριούχο προπυλένιο.

ΠΑΡΑΤΗΡΗΣΗ: Τοξικές αλογονωμένες ουσίες είναι ουσίες του 16°. Διαβρωτικές αλογονωμένες ουσίες του 21° ή 25°.

Αλκοόλες, όπως:

τριτογενής αμυλική αλκοόλη, τριτοταγής βουτανόλη (τριτοταγής βουτυλική αλκοόλη), τεχνική διακετονική αλκοόλη, αιθανόλη (αιθυλική αλκοόλη) και τα υδατικά διαλύματα αυτών που περιέχουν πλέον του 70% αλκοόλη, ισοπροπανόλη (ισοπροπυλική αλκοόλη).

Αιθέρες, όπως:

ακετάλη (1,1-διαιθοξυαιθάνη), 1,2-διμεθοξυαιθάνη, διοξάνη, διοξολάνη, αιθυλικός βουτυλικός αιθήρ, βινυλικός ισοβουτυλικός αιθήρ, διϊσοπροπυλικός αιθήρ, τετραϋδροφουράνη.

Αλδεΰδες, όπως:

βουτυραλδεΰδη, προποιοναλδεΰδη.

Κετόνες, όπως:

ακετόνη, αιθυλική μεθυλική κετόνη, μεθυλική ισοβουτυλική κετόνη, μεθυλική προπυλική κετόνη, μεθυλική βινυλική κετόνη.

Εστέρες, όπως:

δευτεροταγής βουτυλικός οξεικός, αιθυλικός οξεικός, ισοβουτυλικός οξεικός, ισοπροπυλικός οξεικός, μεθυλικός οξεικός, κανονικός προπυλικός οξεικός, βινυλικός οξεικός, αιθυλικός ακρυλικός, μεθυλικός ακρυλικός, τριαιθυλο-βορικός, τριμεθυλικός βορικός, μεθυλικός βουτυρικός, διμεθυλικός ανθρακικός, αιθυλικός μηρμυκικός, προπυλικοί μηρμυκικοί, μεθυλο-μεθακρυλικός, αιθυλο-προπιονικός, μεθυλο-προπιονικός.

Ουσίες περιέχουσες θείο, όπως:

αμυλο-μερκαπτάνη, βουτυλική μερκαπτάνη, προπυλική μερκαπτάνη, θειοφαίνιο.

ΠΑΡΑΤΗΡΗΣΗ: Τοξικές ουσίες περιέχουσες θείο είναι ουσίες του 18°.

4. Μίγματα ουσιών του 1° έως 3° περιέχουσες το πολύ 55% νιτροκυτταρίνη με περιεχόμενο σε άζωτο το πολύ 12.6% (διαλύματα κολλοδίου, διαλύματα ημικολλοδίου, άλλα διαλύματα νιτροκυτταρίνης και χρώματα νιτροκυτταρίνης, βερνίκια και λάκκες.)

α) με σημείο ζέσεως ή αρχικό σημείο ζέσεως το πολύ 35° C.

β) με σημείο ζέσεως ή αρχικό σημείο ζέσεως πέραν των 35°.

ΠΑΡΑΤΗΡΗΣΗ: Μίγματα με σημείο αναφλέξεως κάτω από 21° Cκαι:

- περιέχοντα περισσότερο απο 35% νιτροκυτταρίνη, ανεξάρτητα με το περιεχόμενό των σε άζωτο, ή:

- Περιέχοντα το πολύ 35% νιτροκυτταρίνη με περιεχόμενο αζώτου πάνω από 12,6% θεωρούνται ως ουσίες της Κλάσεως Ια (όρια περιθώριο 2101, 1°) ή της Κλάσεως 4.1 (όρα περιθώριο 2401 7° (α).)

5. Ιξώδεις ουσίες όπως, συγκολλητικά, εμαγιέ, χρώματα, γυαλίσματα, βερνίκια και ωρισμένα χρώματα δερμάτων και λιθογραφιών (ROTOGRAVURES) με εξαίρεση τα μίγματα που περιέχουν νιτροκυτταρίνη:

α) έχοντα σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35° C και εφ' όσον δεν υπάγονται στο (γ),

β) έχοντα σημείο ζέσεως ή αρχικό σημείο ζέσεως υπερβαίνον τους 35° C και εφ' όσον δεν υπάγονται στο (γ),

γ) εφ' όσον πληρούν τις ακόλουθες απαιτήσεις:

1. ότι λιγώτερο από το 3% της στιβάδος καθαρού διαλύτου αποχωρίζεται στην δοκιμασία αποχωρισμού διαλύτου, 1/ και:

2. ότι το ιξώδες 1/ και το σημείο αναφλέξεως συμφωνούν με τον ακόλουθο πίνακα:

Κινητικό Ιξώδες «ν» (εξωπολικό) (σε βαθμό σχάσεως πλησίον του 0)	Χρόνος Ροής τ σύμφωνα με τα ISO 2431 - 1980	Σημ. Αναφλέξεως σε °C
χστ/S σε 23° C	σε S Διάμετρος πίδακος σε χστ.	
20 < ν < 80	20 < τ < 60 4	πάνω από 17
80 < ν < 135	60 < τ < 100 4	» 10
135 < ν < 220	20 < τ < 32 6	» 5
220 < ν < 300	32 < τ < 44 6	» -1
300 < ν < 700	44 < τ < 100 6	» -5
700 < ν	100 < τ 6	-5 και κάτω

6. Επιβλαβείς ουσίες και παρασκευάσματα χρησιμοποιούμενα σαν παρασιτοκτόνα και έχοντα σημείο αναφλέξεως κάτω των 21° C:

α) έχοντα σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35° C,

β) έχοντα σημείο ζέσεως ή αρχικό σημεία ζέσεως πάνω από 35° C.

1/ Δοκιμασία αποχωρισμού διαλύτου:

Η εν λόγω δοκιμασία διενεργείται σε 23° C χρησιμοποιώντας βαθμοτομημένο μετρικό κύλινδρο των 100 χστλ. με πώμα, συνολικού ύψους περίπου 25 εκ. και ενιαίας εσωτερικής διαμέτρου περίπου 3 εκ. στο βαθμοτομημένο τμήμα του. Η ουσία θα πρέπει να αναδευτεί ώστε να αποκτήσει ομοιογενή σύσταση και να χυθεί εντός του μετρικού κυλίνδρου έως την χαραγή των 100 χστλ. Θα πρέπει να εισαχθεί το πώμα

και ο κύλινδρος να αφεθεί σε ηρεμία επί 24 ώρες. Μετά 24 ώρες θα πρέπει να μετρηθεί το ύψος της ανωτέρας στιβάδος σαν ποσοστό % του συνολικού ύψους του δείγματος.

2/ Προσδιορισμός ιξώδους:

Όπου η ουσία που μας απασχολεί ανήκει στα μη Νευτωνικά ή όπου δεν είναι δυνατόν να εφαρμοστεί μέθοδος προσδιορισμού ιξώδους με ρεόμετρο, θα πρέπει να χρησιμοποιηθεί ιξωδόμετρο μεταβλητού βαθμού σχάσεως για να προσδιοριστεί ο συντελεστής δυναμικού ιξώδους της ουσίας, σε 23° C, σε αρκετό αριθμό βαθμών σχάσεως, οι λαμβανόμενες τιμές να συνδυαστούν με τον βαθμό σχάσεως και εν συνεχεία να εξωπολωθούν στον βαθμό σχάσεως μηδέν, το δυναμικό ιξώδες που λαμβάνομε κατ' αυτόν τον τρόπο, διαιρούμενο με την πυκνότητα, μας δίνει το προφανές κινητικό ιξώδες σε βαθμό σχάσεως πλησίον του μηδενός.

ΠΑΡΑΤΗΡΗΣΗ: Η ταξινόμηση ουσιών και παρασκευασμάτων του παρόντος άρθρου βασίζεται στα κριτήρια για επιβλαβείς ουσίες της υποσημειώσεως 1/ του περιθωρίου 2600 (1) και των παρατηρήσεων στα άρθρ. 71 – 88 του περιθωρίου 2601.

Β. Τοξικές ουσίες με σημείο αναφλέξεως κάτω των 21°

ΠΑΡΑΤΗΡΗΣΕΙΣ

1. Τοξικές ουσίες που έχουν σημείο αναφλέξεως απο 21° και άνω, το υδροκυανικό οξύ και τα διαλύματά του ως και τα μεταλλικά καρβονύλια, είναι ουσίες της Κλάσεως 6.1.

2. Σχετικά με τα κριτήρια τοξικότητος, βλέπε υποσημείωση 1/ στο περιθώριο 2600 (1).

3. Επιβλαβείς ουσίες που έχουν σημείο αναφλέξεως κάτω από 21° C είναι ουσίες των άρθρων 1 – 6 της κλάσεως αυτής.

11. Νιτρίλια και ισονιτρίλια (ισοκυανιούχα) όπως:

α) ακρυλονιτρίλιο, τριτοταγές ισοκυανιούχο βουτύλιο.

β) ακετονιτρίλιο, βουτυρονιτρίλιο, 2-χλωροακρυλονιτρίλιο, ισοβουτυρονιτρίλιο, μεθακρυλονιτρίλιο, πιβαλονιτρίλιο, προπιονιτρίλιο.

12. Ιμίνες, όπως:

αιθυλονοϊμίνη, προπυλενοϊμίνη.

ΠΑΡΑΤΗΡΗΣΗ: Για τις ουσίες αυτές απαιτούνται και εφαρμόζονται ειδικές συνθήκες συσκευασίας (βλέπε περιθώριο 2303).

13. Ισοκυανικό αιθύλιο, ισοκυανικό μεθύλιο.

ΠΑΡΑΤΗΡΗΣΗ: Για τις ουσίες αυτές απαιτούνται και εφαρμόζονται ειδικές συνθήκες συσκευασίας (βλέπε περιθώριο 2304).

14. Άλλα ισοκυανικά, όπως:

α) Τριτοταγές ισοκυανικό βουτύλιο, ισοκυανικό μεθοξυμεθύλιο, ισοκυανικά προπύλια.

β) κανονικό ισοκυανικό βουτύλιο, ισοκυανικό ισοβουτύλιο, διαλύματα ισοκυανικών με σημείο αναφλέξεως κάτω από 21° C (ταξινομ. Κλάσεως 6.1 περιθώριο 2601, 18 και 19).

15. Λοιπές ουσίες περιέχουσες άζωτο, όπως:

α) αλλυλαμίνη, 1,2-διμεθυλυδραζίνη,

β) πυριδίνη.

16. Αλογονωμένες οργανικές ουσίες, όπως:

α) βρωμιούχο αλλύλιο, χλωροφορμικό αιθύλιο, χλωροφορμικό μεθύλιο, χλωροπρένιο, χλωριούχο, αλλύλιο.

β) χλωροθειοφορμικό μεθύλιο, 1,2-διχλωροαιθάνιο (διχλωριούχο αιθυλένιο), χλωρομεθυλομεθυλικός αιθήρ.

17. Οξυγονωμένες οργανικές ουσίες, όπως:

α) ακρολεΐνη, ορθοπυριτικό μεθύλιο (τετραμεθοξυσιλάνη)

β) οξεικό αλλύλιο, διαλλυλικός αιθήρ, μεθανόλη (μεθυλικὴ αλκοόλη), μεθακρυσταλδεύδη,

18. Οργανικές ουσίες περιέχουσες θείο, όπως:

α) ισοθειοκυανικό ισοπροπύλιο, διθειούχος άνδρακας,

β) αιθυλιμερκαπτάνη, διαιθυλικό σουλφίδιο, διαλύματα ισοθειοκυανιούχων με σημείο αναφλέξεως κάτω των 21° C (ταξ. Κλάσ. 6.1 περιθώριο 2601, 20 (β)).

19. Έντονα τοξικές ή τοξικές ουσίες και παρασκευάσματα χρησιμοποιούμενα σαν παρασιτοκτόνα και έχοντα σημείο αναφλέξεως κάτω των 21° C.

α) με σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35° C και/ή έντονα τοξικές.

β) με σημείο ζέσεως ή αρχικό σημείο ζέσεως πέραν των 35° C και τοξικές.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Η ταξινόμηση ουσιών και σκευασμάτων του άρθρου 19 (α) ή (β) θα πρέπει να βασίζεταιστα κριτήρια για έντονα τοξικές ή τοξικές ουσίες που περιέχονται στην υποσημείωση 1/ του περιθωρίου 2600 (1) και στις παρατηρήσεις των άρθρων 71 – 88 του περιθωρίου 2601.

2. Επιβλαβή παρασκευάσματα και ουσίες χρησιμοποιούνται σαν παρασιτοκτόνα και έχουν σημείο αναφλέξεως κάτω των 21° C, είναι ουσίες του 6° (α) ή (β).

20. Έντονα τοξικές ή τοξικές ουσίες, διαλύματα, μίγματα και παρασκευάσματα με σημείο αναφλέξεως κάτω των 21° C που δεν μπορούν να ταξινομηθούν σε άλλους συλλογικούς τίτλους:

α) με σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35° και/ή έντονα τοξικές.

β) με σημείο ζέσεως ή αρχικό σημείο ζέσεως πέραν των 35° C και τοξικές.

ΠΑΡΑΤΗΡΗΣΗ: Η ταξινόμηση ουσιών, διαλυμάτων, μιγμάτων και παρασκευασμάτων του άρθρου 20 (α) ή (β) θα βασίζεται στα κριτήρια που εφαρμόζονται για έντονα τοξικές ή τοξικές ουσίες που περιέχονται στην υποσημείωση 1/ του περιθωρίου 2600 (1).

Γ. Διαβρωτικές ουσίες με σημείο αναφλέξεως κάτω των 21° C.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Διαβρωτικές ουσίες με σημείο αναφλέξεως 21° C και άνω και ωρισμένα όξινα αλίδια με σημείο αναφλέξεως κάτω των των 21° C είναι ουσίες της Κλάσεως 8.

2. Σχετικά με τα κριτήρια διαβρώσεως βλέπε υποσημείωση 1/στο περιθώριο 2800 (1).

21. Χλωροσιλάνια, όπως:

α) διμεθυλο-διχλωρο-σιλάνιο, αιθυλο-τριχλωροσιλάνιο, μεθυλο-τριχλωροσιλάνιο, τριμεθυλο-χλωροσιλάνιο, βινυλ-τριχλωροσιλάνιο.

ΠΑΡΑΤΗΡΗΣΗ: Χλωροσιλάνια που εκλύουν εύλεκτα αέρια σε επαφή με το νερό ή με υγρό αέρα είναι ουσίες της Κλάσεως 4.3 και δεν πρέπει να γίνονται δεκτές για μεταφορά παρά μόνον αν ειδικά αναφέρονται στην κλάση αυτή.

22. Αμίνες και τα διαλύματά των, όπως:

α) ισοπροπυλαμίνη, υδατικά διαλύματα διμεθυλαμίνης, αιθυλαμίνης ή μεθυλαμίνης και τριμεθυλαμίνης, με σημείο ζέσεως έως 35° C.

β) ν-αμυλαμίνη, ν-βουτυλαμίνη, διαλυαμίνη, διαιθυλαμίνη, διϊσοπροπυλαμίνη, διμεθυλο-Ν-προπυλαμίνη, ισοβουτυλαμίνη, ν-προπυλαμίνη, πυρολιδίνη, τριαιθυλαμίνη, υδατικά διαλύματα διμεθυλαμίνης, αιθυλαμίνης, μεθυλαμίνης και τριμεθυλαμίνης, με σημείο ζέσεως πέραν των 35° C.

ΠΑΡΑΤΗΡΗΣΗ: Η άνυδρη διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη και τριμεθυλαμίνη είναι ουσίες της Κλάσεως 2 (βλέπε περιθώριο 2201, 3 (β τ)).

23. Αλκυλυδραζίνες, όπως:

α) 1,1-διμεθυλυδραζίνη, μεθυλυδραζίνη.

24. Διαλύματα αλκοολικών, όπως:

α) χλωρομυρμηκικό ισοπροπύλιο, ιωδιούχου αλλύλιο.

β) χλωριούχο ακετύλιο, χλωριούχο, προπύλιο.

26. Έντονα διαβρωτικές ή διαβρωτικές ουσίες, διαλύματα, μίγματα ή παρασκευάσματα με σημείο αναφλέξεως κάτω των 21° C που δεν μπορούν να ταξινομηθούν σε άλλη συλλογική κατηγορία:

α) με σημείο ζέσεως ή αρχικό σημείο ζέσεως έως 35° C και/ή έντονα διαβρωτικές.

β) με σημείο ζέσεως ή αρχικό σημείο ζέσεως πέραν των 35° C και διαβρωτικές.

ΠΑΡΑΤΗΡΗΣΗ: Η ταξινόμηση ουσιών, διαλυμάτων, μιγμάτων ή παρασκευασμάτων κάτω από το άρθρο 26° (α) ή (β) θα βασίζεται στα κριτήρια που ισχύουν για έντονα διαβρωτικές και διαβρωτικές ουσίες που περιέχονται στην υποσημείωση 1/ του περιθωρίου 2800 (1).

Δ. Μη τοξικές και μη διαβρωτικές ουσίες, με σημείο αναφλέξεως μεταξύ 21° και 100° C

ΠΑΡΑΤΗΡΗΣΗ: Μη τοξικές και μη διαβρωτικές ουσίες σε διαλύματα και ομοιογενή μίγματα που έχουν σημείο αναφλέξεως 21° C και άνω (όπως ωρισμένα χρώματα ή βερνίκια, πλην των ουσιών που περιέχουν νιτροκυτταρίνη), δεν θα

υπόκεινται στις απαιτήσεις της ADR αν, στην δοκιμασία αποχωρισμού διαλύτου που περιγράφεται στην υποσημείωση 1/ στο άρθρο 5, το πάχος της αποχωρισμένης στιβάδος διαλύτου είναι λιγώτερο απο τό 3% του συνολικού ύψους, και αν οι ουσίες σε 23° C έχουν, (στο κύπελλο ροής το σύμμορφο προς το ISO 2431 – 1980 με πίδακα διαμέτρου 6 χστ.), χρόνο ροής:

α) τουλάχιστον 60 δευτερόλεπτα, ή

β) τουλάχιστον 40 δλ. και με περιεχόμενο το πολύ 60% ουσιών της κλάσεως 3.

31. Ουσίες που έχουν σημείο αναφλέξεως μεταξύ 21° C και 55° C.

γ) ωρισμένα πετρέλαια και άλλα ορυκτά έλαια, ημιβαρέα προϊόντα αποστάξεως πετρελαίου ή άλλων βαρέων ελαίων (πίσσας γαιάνθρακος, λιγνίτη σχιστολίθου, ξύλου ή τύρφης), όπως:

κηροζίνης, πετρελαίου, νάφθας διαλύτου, λευκού πνεύματος (υποκαταστάτου τερεβινθίνης).

Υδρογονάνθρακες, όπως:

CUMENE (ισοπροπυλοβενζένιο), CYMENES (μεθυλοϊσοπροπυλικά βενζένια), N-DECANE, δικυκλο-πενταδιένιο, αιθυλιβενζένιο, χημικώς καθαρό μεσιτυλένιο (1, 3, 5-τριμεθυλοβενζένιο), NONANE, πενταμεθυλοεπτάνιο (ισοδωδεκάνιο), στυρένιο (βινυλ-βενζένιο) τερεβινθίνη, μ-ξυλένιο (1,3-διμεθυλοβενζένιο), Ο-ξυλένιο (1,2-διμεθυλ-βενζένιο), ρ-ξυλένιο (1,4-διμεθυλοβενζένιο).

Αλογονωμένες ουσίες, όπως:

Χλωροβενζένιο (χλωριούχο φαινύλιο), διχλωροπεντάνια, 1,3-διχλωροπροπάνια.

Αλκοόλες, όπως:

Ν-αμυλ αλκοόλη, SEC-αμυλ-αλκοόλη, μεθυλοαμυλ αλκοόλη (μεθυλο ισοβουτυλική καρβινόλη), βουτανόλη (ν-βουτυλ αλκοόλη), ν-βουτανόλη-2 (SEC-βουτυλ αλκοόλη), κυκλοπεντανόλη, διακετονική αλκοόλη, χημικώς καθαρή, 2-αιθοξοαιθανόλη (αιθυλενο-γλυκολικός μονοαιθυλικός αιθήρ), ισοβουτανόλη (ισοβουτυλική αλκοόλη), μεθοξυ-αιθανόλη ν-προπανόλη, υδατικά διαλύματα αιθυλικής αλκοόλης σε συμπύκνωση από 24% έως και 70%.

ΠΑΡΑΤΗΡΗΣΗ: Υδάτικά διαλύματα αιθυλικής αλκοόλης σε συμπύκνωση μικρότερη από, 24% δεν υπόκεινται στις διατάξεις του ADR.

Αιθέρες, όπως:

1,2 διαιθοξυαιθάνιο (αιθυλενο-γλυκολικός διαιθυλικός αιθήρ), δι-ν-βουτυλικός αιθήρ (ν-βουτυλικός αιθήρ), διϊσοαμυλικός αιθήρ, φαινυλμεθυλικός αιθήρ (ανισόλη).

Αλδεΰδες, όπως:

2-αιθυλική εξαλδεΰδη, εξαλδεΰδη, παραλδεΰδη.

Κετόνες, όπως:

κυκλοεξανόνη, κυκλοπεντανόνη, διϊσοβουτυλο-κετόνη, οξείδιο μεσιτυλίου.

Εστέρες, όπως:

Οξεικό αμύλιο, οξεικό ν-βουτύλιο, αιθυλενογλυκολικός μονομεθυλικός αιθήρ (οξεικός), οξεικός αιθυλενο-γλυκολικός μονοαιθυλικός αιθήρ, οξεικό 2-αιθοαιθύλιο (οξεικός αιθυλενο-γλυκολικός μονοαιθυλικός αιθήρ), οξεικό 2-αιθυλοβουτύλιο, αμυλοξεικό μεθύλιο, ακρυλικό ν-βουτύλιο, βουτυρικό αιθύλιο, μυρμηκικό ισοαμύλιο, γαλακτικό αιθύλιο, φωσφορούχο τριαιθύλιο, φωσφορούχο τριμεθύλιο, πυριτικό τετραιθύλιο.

Αζωτούχες ουσίες, όπως:

διμεθυλική αιθανολαμίνη (διμεθυλο-αμινοαιθανόλη), μορφολίνη, νιτρικό αμύλιο, νιτρομεθάνιο νιτροπροπάνια, PICOLINES (μεθυλοπυριδίνες).

32. Ουσίες με σημείο αναφλέξεως πάνω από 55° C έως και 100° C.

γ) Ωρισμένα πετρέλαια και άλλα ορυκτά έλαια, βαρέα προϊόντα αποστάξεως πετρελαίου ή άλλων ορυκτών ελαίων, ωρισμένα αεριέλαια, ωρισμένες πίσσες και τα προϊόντα αποστάξεώς των, έλαια θερμάνσεως, έλαια ντήζελ.

Υδρογονάνθρακες, όπως:

δεκαϋδροναφθαλίνη (δεκαλίνη), διαιθυλοβενζένια, τετραϋδροναφθαλίνη, ενδεκάνιο.

Οξυγονωμένες ουσίες, όπως:

οξεικό κυκλοεξύλιο, δι-ισοβουτυλική καρβινόλη (2,6-διμεθυλο επτανόλη), φουρφουμάλ (φουρφουραλδεΰδη), εξανόλες.

Αλογονωμένες ουσίες, όπως:

2-αιθυλ-εξυλ-χλωρίδιο.

Αζωτούχες ουσίες, όπως:

Ν,Ν-διμεθυλο-φορμαμίδη.

33. γ) Μίγματα ουσιών του 31 (γ) περιέχοντα το πολύ 55% νιτροκυττρίνη με περιεχόμενο άζωτο το πολύ έως 12.6% (διαλύματα κολλοδίων, ημικολλοδίων, άλλα διαλύματα νιτροκυτταρίνης και βαφές νιτροκυτταρίνης, βερνίκια και λάκκες.

ΠΑΡΑΤΗΡΗΣΗ: Μίγματα περιέχοντα περισσότερο από 55% νιτροκυτταρίνη, με οποιοδήποτε περιεχόμενο αζώτου ή περιέχοντα περισσότερη από 55% νιτροκυτταρίνη με περιεχόμενο άζωτο πάνω από 12,5 %, είναι ουσίες της Κλάσεως 1α (βλέπε περιθώριο 2101, 1°) ή της Κλάσεως 4.1 (βλέπε περιθώριο 2401, 7 (α)).

34. γ) Μίγματα των ουσιών του 32 (γ) περιέχοντα το πολύ 55% νιτροκυτταρίνη με περιεχόμενο άζωτο το πολύ 12,6% (διαλύματα κολλοδίων, ημικολλοδίων, πλην των διαλυμάτων νιτροκυτταρίνης και των χρωμάτων νιτροκυτταρίνης, βερνίκια και λάκκες.)

ΠΑΡΑΤΗΡΗΣΗ: Μίγματα περιέχοντα πλέον του 55% νιτροκυτταρίνη, με οποιοδήποτε περιεχόμενο αζώτου, ή περιέχοντα το πολύ 55% νιτροκυτταρίνη με περιεχόμενο άζωτο πάνω από 12,6%, είναι ουσίες της Κλάσεως 1α (βλέπε περιθώριο 2101, 1) ή της Κλάσεως 4.1 (βλέπε περιθώριο 2401, 7 (α)).

Κενές συσκευασίες

41. Κενές συσκευασίες, κενά βυτιοφόρα οχήματα, κενές αποσυνδεόμενες δεξαμενές και κενά εμπορευματοκιβώτια δεξαμενών, ακαθάριστα, που περιείχαν ουσίες της Κλάσεως 3.

Ουσίες των 1 – 6, 21 – 26, και 31 – 34 μεταφερόμενες σύμφωνα με τις ακόλουθες διατάξεις δεν υπόκεινται ούτε στις διατάξεις της παρούσης Κλάσεως που περιέχονται στο παρόν Παράρτημα, ούτε στις διατάξεις που περιέχονται στο Παράρτημα Β: 2301α

1) α) Ουσίες ταξινομούμενες στην παράγρ. α) κάθε άρθρου:

Το πολύ 500 χστλ. σε κάθε εσωτερική συσκευασία και το πολύ 1 λίτρο κατά συσκευασία (κόλον).

β) Ουσίες ταξινομούμενες στην β) κάθε άρθρου:

το πολύ 3 λίτρα κατά εσωτερική συσκευασία και το πολύ 6 λίτρα κατά συσκευασία (κόλον).

γ) Ουσίες ταξινομούμενες στην (γ) κάθε άρθρου:

το πολύ 3 λίτρα κατά εσωτερική συσκευασία και το πολύ 45 λίτρα κατά κόλον.

Οι ποσότητες αυτές ουσιών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες οι οποίες θα πληρούν ταυλάχιστον τις προϋποθέσεις του περιθωρίου 3538.

Οι «Γενικές προϋποθέσεις συσκευασίας» του Παραρτήματος Α,5 περιθώριο 2500 (1), (2) και (4) έως (7) πρέπει να τηρούνται.

ΠΑΡΑΤΗΡΗΣΗ: Σε περιπτώσεις ομοιογενών μιγμάτων που περιέχουν νερό, οι καθοριζόμενες ποσότητες αναλογούν μόνο στις ουσίες της Κλάσεως αυτής που περιέχονται στα μίγματα αυτά.

2. Το υγρό καύσιμο που περιέχεται στα ρεζερβουάρ των οχημάτων μεταφοράς και προορίζεται για την κίνησή των (ψυγεία π.χ.) Οι κρουνοί καυσίμου που βρίσκονται μεταξύ μηχανής και ρεζερβουάρ καυσίμου μοτοσυκλετών και μοτοποδηλάτων που τα ρεζερβουάρ τους περιέχουν καύσιμο, πρέπει να είναι κλειστοί κατά την μεταφορά. Επίσης, οι εν λόγω μοτοσυκλέττες και/ή μοτοποδήλατα πρέπει να είναι φορτωμένες σε όρθια θέση και στερεωμένες ώστε να μη πέφτουν.

2. ΔΙΑΤΑΞΕΙΣ

Α. ΣΥΣΚΕΥΑΣΙΕΣ (ΚΟΛΑ)

1. Γενικοί όροι συσκευασίας 2302

1) Τα κόλα πρέπει να πληρούν τους όρους του Παραρτήματος Α.5 εκτός αν προδιαγράφονται ειδικοί όροι για την συσκευασία ωρισμένων ουσιών στα περιθώρια 2303 – 2310.

2) Σύμφωνα με τους όρους των περιθωρίων 2300 (3) και 3511 (2) θα πρέπει να χρησιμοποιούνται οι εξής:

Κόλα της ομάδος συσκευασίας 1, μαρκαρισμένα με το γράμμα «Χ», προκειμένου για πολύ επικίνδυνες ουσίες ταξινομημένες στο γράμμα (α) κάθε άρθρου.

Κόλα της ομάδος συσκευασίας II ή I, μαρκαρισμένα με το γράμμα «Υ» ή «Χ» για τις επικίνδυνες ουσίες που ταξινομούνται στο γράμμα (β) κάθε άρθρου.

Κόλα της ομάδος συσκευασίας III, II ή I, μαρκαρισμένα με το γράμμα «Υ» ή «Χ» για τις λιγώτερες επικίνδυνες ουσίες που ταξινομούνται στο γράμμα (γ) κάθε άρθρου.

ΠΑΡΑΤΗΡΗΣΗ: Για την μεταφορά ουσιών της κατηγορίας 3 (Κλάσεως 3) σε δεξαμενοφόρα οχήματα, αποσυνδεόμενες δεξαμενές ή δεξαμενές - εμπορευματοκιβώτια, βλέπε Παράρτημα Β.

2. Ειδικοί όροι συσκευασίας

2303 α) Ιμίνες του 12 θα πρέπει να συσκευάζονται σε χαλύβδινα δοχεία με τοιχώματα επαρκούς πάχους τα οποία πρέπει να κλείνονται με βιδωτό πώμα ή αεροστεγές και υδατοστεγές κάλυμμα εφαρμοζόμενο με φλάντζα κατάλληλη. Τα δοχεία, θα πρέπει αρχικά και περιοδικά, τουλάχιστον ανά πενταετία να δοκιμάζονται με πίεση τουλάχιστον 0.3 MPa (3 BAR), σύμφωνα με το περιθώριο 2216. Κάθε δοχείο πρέπει να ασφαλίζεται με απορροφητικό υλικό περενθέματος σε ισχυρό στεγανό προστατευτικό μεταλλικό περίβλημα. Το προστατευτικό περίβλημα πρέπει να κλείνει ερμητικά και το κλείσιμό του να είναι ασφαλισμένο από κάθε τυχαίο απροειδοποίητο άνοιγμα.

Η όλη μάζα του περιεχομένου δεν θα πρέπει να υπερβαίνει τα 0.67 κιλά ανά λίτρο περιεκτικότητος. Το κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 κιλά. Κόλα ζυγίζοντα περισσότερο από 30 κιλά, εκτός από όσα μεταφέρονται σαν ένα πλήρες φορτίο, πρέπει να είναι εφωδιασμένα με μέσα διακινήσεως (χειρολαβές κ.λπ.)

β) Ιμίνες του 12 μπορούν επίσης να συσκευάζονται σε χαλύβδινα δοχεία επαρκούς πάχους τα οποία πρέπει να είναι κλεισμένα με βιδωτό πώμα και βιδωτό προστατευτικό κάλυμμα ή ανάλογο σύστημα, υδατοστεγές και αεροστεγές. Τα δοχεία θα πρέπει αρχικά και περιοδικά, τουλάχιστον ανά πενταετία, να δοκιμάζονται με πίεση τουλάχιστον 1 MPa (10 BAR) σύμφωνα με το περιθώριο 2216.

Η μάζα του περιεχομένου δεν πρέπει να υπερβαίνει τα 0.67 κιλού ανά λίτρο περιεκτικότητος. Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 κιλά.

2304 Το ισοκυανικό μεθύλιο και το ισοκυανικό αιθύλιο του 13 πρέπει να συσκευάζονται:

α) σε ερμητικά κλεισμένα δοχεία κατασκευασμένα από καθαρό αλουμίνιο και με περιεκτικότητα το πολύ ενός λίτρου που δεν πρέπει να γεμίζονται περισσότερο από 90% της περιεκτικότητός των.

Τα δοχεία πρέπει να ασφαλίζονται, όχι περισσότερα από 10 σε κάθε κιβώτιο, με το κατάλληλο υλικό παρενθέσεως σε ξύλινο κιβώτιο. Κόλα του είδους αυτού θα πρέπει να ικανοποιούν τις απαιτήσεις δοκομασίας για συνδιασμένη συσκευασία και σύμφωνα με το περιθώριο 3538 για την ομάδα 1, ενώ δεν θα πρέπει να ζυγίζουν περισσότερο από 30 κιλά, ή:

β) σε δοχεία από καθαρό αλουμίνιο με πάχος τοιχωμάτων τουλάχιστον 5 χστ. ή σε δοχεία από ανοξείδωτο χάλυβα. Τα δοχεία πρέπει να είναι πλήρως συγκολλημένα και θα πρέπει να επιθεωρούνται αρχικά και περιοδικά κάθε πέντε χρόνια τουλάχιστον υπό πίεση τουλάχιστον 0.5 MPa (5 BAR) σύμφωνα με το περιθώριο 2216. Θα πρέπει να είναι έτσι κλεισμένα ώστε να είναι στεγανά, με δύο πώματα, το ένα επί του άλλου και εξ αυτών το ένα πρέπει να είναι βιδωτό ή να ασφαλίζεται κατά τρόπο εξ ίσου αποτελεσματικό.

Ο βαθμός πληρώσεως δεν πρέπει να υπερβαίνει το 90%. Βαλέλια περιέχοντα πλέον των 100 κιλών πρέπει να είναι εφωδιασμένα με εξογκωμένα (πιεσμένα απο μέσα) τσέρια κυλίσεως ή πρόσθετα τσέρκια κυλίσεως.

2305 Ουσίες ταξινομούμενες στην (α) των διαφόρων άρθρων του περιθωρίου 2301 πρέπει να είναι συσκευασμένες:

α) σε χαλύβδινα δοχεία με μη αφαιρουμένη κεφαλή, σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια δοχεία με μη αφαιρουμένη κεφαλή, σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα δοχεία (JERRICANS) σύμφωνα με το περιθώριο 3522, ή:

δ) σε πλαστικά βαρέλια με μη αφαιρουμένη κεφαλή, περιεκτικότητος το πολύ 60 λίτρων, ή σε πλαστικά (JERRICANS) σύμφωνα με το περιθώριο 3526 ή:

ε) σε σύνθετες συσκευασίες (πλαστικά υλικά) σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδυασμό συσκευασιών με εσωτερικά δοχεία από γυαλί, πλαστικό υλικό ή μέταλλο, σύμφωνα με το περιθώριο 3538.

230 Ι) Ουσίες ταξινομούμενες στην (β) των διαφόρων άρθρων του περιθωρίου 2301, πρέπει να συσκευάζονται:

α) σε χαλύβδινα βαρέλια, σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα δοχεία (JERRICANS - μπιντόνια) σύμφωνα με το περιθώριο 3521, ή:

δ) σε πλαστικά βαρέλια ή μπιντόνια, σύμφωνα με το περιθώριο 3526, ή:

ε) σε σύνθετη συσκευασία (από πλαστικό υλικό) σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδυασμό συσκευασιών, σύμφωνα με το περιθώριο 3538.

ΠΑΡΑΤΗΡΗΣΗ: στα α), β) και δ):

Βαρέλια με αφαιρουμένη κεφαλή επιτρέπονται μόνον για ιξώδεις ουσίες με βαθμό ιξώδους πάνω από 200 χστ.^{2}/S σε 23°C.

2) Ουσίες ταξινομούμενες στην (β) των 3, 6, 15, 17, 22, 24 και 25 μπορούν επίσης να συσκευάζονται σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή πυρίμαχα), σύμφωνα με το περιθώριο 3539.

2: Ουσίες ταξινομούμενες στην (γ) διαφόρων άρθρων του περιθωρίου 2301 θα πρέπει να συσκευάζονται:

α) σε χαλύβδινα βαρέλια σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα μπιντόνια, σύμφωνα με το περιθώριο 3522, ή:

δ) σε πλαστικά βαρέλια ή μπιτόνια, σύμφωνα με το περιθώριο 3526, ή:

ε) σε σύνθετες συσκευασίες (από πλαστικό υλικό), σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδιασμό συσκευασιών σύμφωνο με το περιθώριο 3538, ή:

η) σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή πυρίμαχα), σύμφωνα με το περιθώριο 3539.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

Ι. Στην (α), (β) και (δ): Βαρέλια με αφαιρούμενη κεφαλή επιτρέπονται μόνο για ιξώδεις ουσίες με βαθμό ιδώδους άνω των 200 χστ^2/S σε 23° C.

2. Συσκευασίες σύμμορφες με το περιθώριο 2307 περιέχουσες ουσίες του αρθρ. 32 (γ) και 34 (γ) θα πρέπει μόνο να πληρούν τις προδιαγραφές του άρθρ.λ 3300 (1), (2) και (4) – (7).

230 1) Η αιθυλική αλκοόλη και τα υδατικά διαλύματά της του 3(β) και 31(γ) μπορούν επίσης να συσκευάζονται σε ξύλινα βαρέλια με πώμα, σύμφωνα με το περιθώριο 3524.

2) Ουσίες των 3(β), 4(β), 5(β) και γ), 6(β) 31(γ), 32(γ), 33(γ) και 34(γ) μπορούν επίσης να συσκευάζονται σε συσκευασίες από λεπτό μέταλλο σύμφωνα με το περιθώριο 3540. Συσκευασίες από λεπτό μέταλλο με αφαιρουμένη κεφαλή επιτρέπονται επίσης μόνο για ιξώδεις ουσίες με βαθμό ιξώδους πάνω από 200 χστ.^{2}/S σε 23°C και για ουσίες του 5 (γ).

ΠΑΡΑΤΗΡΗΣΗ:

Συσκευασίες σύμφωνες με το περιθώριο 2308(2) περιέχουσες ουσίες του άρθρ. 32(γ) και 34(γ) θα πρέπει μόνο να πληρούν τις προδιαγραφές του περιθωρίου 3500(1), (2) και (4) – (7).

230 Τα ανοίγματα των συσκευασιών για ουσίες του άρθρ. 6(α) και (β), 11(α) και (β), 14(α) και (β), 15(α) και (β), 16(α) και (β), 17(α) και (β), 18(α) και (β), 19(α) και (β), 20(α) και (β), θα πρέπει να είναι έτσι κλεισμένες ώστε να είναι στεγανές με

δύο κλεισίματα εν σειρά, εκ των οποίων το ένα πρέπει να είναι βιδωτό ή στερεωμένο με τρόπο εξ ίσου αποτελεσματικό.

Συσκευασίες περιέχουσες παρασκευάσματα του αρθρ. 31(γ) ή 32(γ) που αφήνουν να εκφεύγουν μικρές ποσότητες διοξειδίου του άνθρακος και/ή αξώτου, θα πρέπει να αερίζονται, σύμφωνα με το περιθώριο 3500 (8). 2310

3. Μικτή Συσκευασία

1) Ουσίες καλυπτόμενες από το ίδιο άρθρο μπορούν να συσκευάζονται μαζί σε συνδιασμό συσκευασίας, σύμφωνα με το περιθώριο 3538.

2) Ουσίες διαφόρων άρθρων της Κλάσεως 3 σε ποσότητες μη υπερβαίνουσες τα πέντε λίτρα κατά συσκευασία, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις του ADR, σε συνδυασμένη συσκευασία σύμφωνα με το περιθώριο 3538, με την προϋπόθεση ότι δεν θα αντιδρούν επικίνδυνα μεταξύ των.

3) Ουσίες της Κλάσεως 3, σε ποσότητες που δεν υπερβαίνουν τα πέντε λίτρα κατά συσκευασία, μπορούν να συσκευάζονται σε συνδυασμένη συσκευασία, μπορούν να συσκευάζονται σε συνδυασμένη συσκευασία σύμφωνη με το περιθώριο 3538 με ουσίες ή πράγματα άλλων κλάσεων, με την προϋπόθεση ότι επιτρέπεται επίσης η μικτή συσκευασία για ουσίες ή πράγματα των κλάσεων, με την προϋπόθεση ότι επιτρέπεται επίσης η μικτή συσκευασία για ουσίες ή πράγματα των κλάσεων αυτών, και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις του ADR, με την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ των, εκτός αν κατωτέρω προβλέπεται κάτι διαφορετικό.

4) Σαν επικίνδυνες αντιδράσεις θεωρούνται οι ακόλουθες:

α) καύση και/ή έκλυση σημαντικής θερμότητας,
β) έκλυση ευφλέκτων και/ή τοξικών αερίων,
γ) σχηματισμός διαβρωτικών υγρών,
δ) σχηματισμός ασταθών ουσιών.

5) Η μικτή συσκευασία οξίνων ουσιών με βασικές ουσίες σε μια συσκευασία δεν πρέπει να επιτρέπεται αν οι δύο αυτές ουσίες είναι συσκευασμένες σε εύθραυστα δοχεία.

6) Οι διατάξεις των περιθωρίων 2001 (7) 2002 (6) και 2302 θα πρέπει να τηρούνται.

7) Αν χρησιμοποιούνται κιβώτια από ξύλο ή μοριοσανίδα, κάθε κόλον δεν πρέπει να ζυγίζει πλέον των 100 κιλών.

Ειδικοί Όροι

Αρ. άρθρ.	Περιγραφή ουσίας	Μεγίστη Ποσότης κατά δοχείο	κατά κόλον	Ειδικές Διατάξεις
12	Ιμίνες			
13	ισοκυανικό μεθύλιο και αιθύλιο	Δεν επιτρέπεται μικτή συσκευασία		
	Ουσίες ταξινομούμενες στην (α) κάθε άρθρου	0,5 λίτ.	1 λίτ.	Δεν επιτρέπεται να συσκευάζονται μαζί με ουσίες ή πράγματα των κλάσεων 1α, 1β, 1γ, 5.2 (εκτός απο ακληρωντές και συστήματα ενώσεων) και 7.

4. Μαρκάρισμα και ετικέτες κινδύνου στις συσκευασίες (βλέπε Παράρτ. Α. 9). 2312

1) Συσκευασίες περιέχουσες ουσίες των άρθρ. 1 – 6, 11 – 26, 31 και 33 θα πρέπει να φέρουν μια ετικέττα σύμφωνη με το υπόδειγμα αριθ. 3. Πάντως, αν ωρισμένες ουσίες είναι συσκευασμένες σε σύνθετες συσκεασίες (γιαλί, πορσελάνη ή πυρίμαχο) σύμφωνα με το περιθώριο 3539 περιεχομένου πάνω από πέντε λίτρα, οι συσκευασίες θα πρέπει να φέρουν δύο ετικέττες σύμφωνες με το υπόδειγμα Νο 3 (βλέπε περιθώριο 3901 (2)).

2) Συσκευασίες περιέχουσες ουσίες του άρθρ. 6 θα πρέπει επί πλέον να φέρουν ετικέττα σύμφωνη με το υπόδειγμα Νο 6.1Α. Όσες περιέχουν ουσίες του 11-20 μιά ετικέττα σύμφωνα με το υπόδειγμα 6.1 και όσες περιέχουν ουσίες των άρθρ. 21 -26 μια ετικέττα σύμφωνη με το υπόδειγμα Νο 8.

3) Κόλα περιέχοντα συσκευασίες εύθραυστες που δεν φαίνονται απ' έξω, θα πρέπει να φέρουν σε δύο απέναντι πλευρές επιγραφή σύμφωνη με το υπόδειγμα Νο 12. 2310

4. Κόλα περιέχοντα συσκευασίες των οποίων τα κλεισίματα δεν φαίνονται απ' έξω και κόλα που περιέχουν αεριζόμενες συσκευασίες, ή αεριζόμενες συσκευασίες χωρίς εξωτερικό περίβλημα, θα πρέπει να φέρουν σε δύο απέναντι πλευρές ετικέττα σύμφωνη με το υπόδειγμα Νο 11. 2311

Β. Στοιχεία του εγγράφου μεταφοράς 2313

1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με ένα από τα ονόματα που είναι υπογραμμισμένα στο περιθώριο 2301. 2314

Αν η ουσία δεν αναφέρεται με το όνομά της, θα πρέπει να γράφεται το χημικό της όνομα. Για ουσίες και παρασκευάσματα των άρθρ. 6 και 19, το όνομα αυτό θα αναγράφεται για το πλέον επικίνδυνο συστατικό, τόσο για το παρασιτοκτόνο στοιχείο 1/όσο και για το ευφλεκτο στοιχείο (π.χ. παραθείο σε εξάνιο). Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται και να ακολουθείται από στοιχεία της κλάσεως, τον αριθ. άρθρου (μαζί με το τυχόν γράμμα) και τα αρχικά «ADR» (ή «RID», π.χ.: 3, 14 (α), ADR.

2) Για φορτία χημικώς ασταθών ουσιών, ο αποστολέας πρέπει να πιστοποιεί στο έγγραφο μεταφοράς: «Ελήφθησαν μέτρα σύμφωνα με το περιθώριο 2300(6)».

Γ. Κενές συσκευασίες 2315 – 2321

1) Κενές συσκευασίες, ακαθάριστες, του 41 θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητος σαν να ήσαν γεμάτες.

2) Κενές συσκευασίες, ακαθάριστες, του 41 θα φέρουν τις ίδιες ετικέττες κινδύνου, σαν να ήσαν γεμάτες.

3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με ένα από τα ονόματα που είναι υπογραμμισμένα στο άρθρο 41, π.χ.: 2322

Κενή συσκευασία, 3, 41 ADR. Η περιγραφή αυτή θα πρέπει να υπογραμμίζεται.

Σε περίπτωση κενών δεξαμενοφόρων οχημάτων, κενών αποσυνδεομένων δεξαμενών και κενών δεξαμενών/εμπορευματοκιβωτίων, ακαθαρίστων, η περιγραφή αυτή θα συμπληρώνεται με την προσθήκη των λέξεων:

«Τελευταίο φορτίο» μαζί με το όνομα και τον αριθ. άρθρου των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. Τελευταίο φορτίο: Βενζίνη, 3° (β)

ΥΠΟΣΗΜΕΙΩΣΗ: 2323 – 2399

1/ Για την περιγραφή του παρασιτοκτόνου στοιχείου, το όνομα σύμφωνα με το Πρότυπο ISO R.1/50-1981 (βλέπε επίσης περιθώριο 2601, 71 έως 88) θα πρέπει να χρησιμοποιηθεί, αν αναφέρεται σ' αυτό.

Κλάση 4.1. - ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ

II. Κατάλογος υλών

Μεταξύ των υλών των καλυπτομένων υπό τον τίτλον Κλάση 4.1, οι αναγραφόμενες στο περιθώριο 2401 υπόκεινται στις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες που γίνονται δεκτές για μεταφορά υπό ωρισμένου όρους θα θεωρούνται ως ύλες της ADR. 2400

1° Ύλες οι οποίες μπορούν εύκολα να αναφλεγούν από σπινθήρες, όπως ξυλάλευρο, πριονίδι, ροκανίδια, ξηρή ίνα (στο ξύλο), ξυλάνθρακας, παληόχαρτα και άχρηστα χαρτιά, ξυλοκυτταρίνη, χαρτο-ίνα, καλάμια (εκτός σπάρτου), αγριοκάλαμο, σανός, άχυρο, καθώς και όταν υγρές (συμπεριλαμβανομένων του καλαμποκιού, ρυζιού, και λιναριού), φυτικές υφάνσιμες ύλες και υπολείμματα φυτικών υφανσίμων υλών, φελλός σε σχήμα κόνης ή κόκκων, εκταθείς ή όχι, μετά ή άνευ προσμίξεως τύρφης (πίσσας) ή άλλων υλών μη υποκειμένων σε στιγμιαίαν οξείδωση, και υπολείμματα φελλού σε μικρούς βώλους. Βλέπε επίσης Κλάσιν 4.2, περιθώριον 2431, 8° – 10°, και περιθώριο 2431α, υπό στοιχείον (β). 2401

Σημείωσις: 1. Οι ύλες αυτές συμπεριλαμβάνονται στον κατάλογο μόνο για λόγους απαγορεύσεως μικτής φορτώσεως. Για τον σκοπόν αυτόν οι διατάξεις του περιθωρίου 2416(1) ισχύουν. Κανένα άλλο άρθρο, είτε του παρόντος Παραρτήματος είτε του Παραρτήματος Β, έχει γι' αυτές εφαρμογή.

2. Ο σανός ο οποίος εξακολουθεί να έχει βαθμόν υγρασίας

ο οποίος είναι ενδεχόμενο να οδηγήσει σε ζύμωση δεν γίνεται δεκτός για μεταφορά.

3. Περιτυλίγματα και πλάκες (φύλλα) εκταθέντος φελλού, κατασκευασμένα υπό πίεση, μετά ή άνευ προσμίξεως τύρφης (πίσσας) ή άλλων υλών μη υποκειμένων εις στιγμιαίαν οξείδωση, σε ουδεμία των διατάξεων της ADR υπόκεινται.

4. Φελλός εμπλουτισμένος με ύλες που εξακολουθούν να υπόκεινται σε στιγμιαία οξείδωση είναι ύλη της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 9°).

2° (α) Θείον (συμπεριλαμβανομένων των ανθέων θείου)· (β) Θείον σε τετηγμένη κατάσταση.

3° Κελλοϊδίνη, παραγομένη από ατελή εξάτμιση της αλκοόλης της περιεχομένης σε κολλόδιον και αποτελουμένη κυρίως από κολλοδιοβάμβακα.

4° Κυτταρινοΐδη (σολλουοΐδ) σε πλάκες, φύλλα, ράβδους ή σωλήνες, και υφάσματα επιχρισμένα με νιτροκυτταρίνην.

5° Κυτταρινοΐδη Ταινιών, τ.ε. η πρώτη ύλη για ταινίες (φιλμ), χωρίς εμουλσίνη (γαλακτώδες μίγμα), σε ρόλλους, και εμφανισθέντα φιλμ εκ κυτταρινοΐδης.

6° Υπολείμματα Κυτταρονοΐδης και υπολείμματα φιλμ κυτταρινοΐδης.

Σημείωσις: Τα υπολείμματα νιτροκυτταρίνης, απηλαγμένα από ζελατίνη, σε πηνία, φύλλα ή λωρίδες, είναι ύλη της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 4°).

7ο (α) Ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη (όπως ο κολλοδιοβάμβαξ), τ.ε. με περιεχόμενο αζώτου μη υπερβαίνον το 12.6 στα εκατόν, καλώς σταθεροποιημένη και περιέχουσα επιπροσθέτως όχι λιγότερο του 25 στα εκατόν νερό ή αλκοόλην (μεθυλικήν, αιθυλικήν, κανονικήν προπυλικήν ή ισοπροπυλικήν, βουτυλικήν ή αμυλικήν αλκοόλη, ή μίγματα αυτών), επίσης εάν μετουσιωμένη, διαλύτης νάφθα, βενζόλιο, τολουόλη, ξυλένιο, μίγματα μετουσιωμένης αλκοόλης και ξυλενίου, μίγματα νερού και αλκοόλης, ή αλκοόλη περιέχουσα καμφορά σε διάλυμα·

Σημείωσις: 1. Η νιτροκυτταρίνη με περιεχόμενον εις άζωτον υπερβαίνον το 12.6 στα: εκατόν είναι ύλη της Κλάσεως 1α (Βλέπε περιθώριο 2101, 1°).

2. Όταν η νιτροκυτταρίνη υγροποιηθεί με μετουσιωμένην αλκοόλην, η μετουσιωτική ύλη δεν πρέπει να έχει επιβλαβή επίδραση επί της σταθερότητος της νιτροκυτταρίνης.

(β) πλαστικοποιημένη νιτροκυτταρίνη, χωρίς χρωστικές ουσίες, περιέχουσα όχι λιγότερο του 18 τοις εκατόν πλαστικοποιητικήν ουσίαν (φθαλικόν βουτύλιον ή πλαστικοποιητικήν ουσίαν τουλάχιστον ισοδυνάμου αποτελέσματος) και στην οποία η νιτροκυτταρίνη έχει περιεχόμενον αζώτου μη υπερβαίνον το 12.6 στα εκατόν· η γιτροκυτταρίνη μπορεί να είναι υπό μορφήν ρινισμάτων (CHIPS)?

Σημείωσις: Πλαστικοποιημένη νιτροκυτταρίνη, χωρίς χρωστικές ουσίες, περιέχουσα όχι λιγότερο του 12 στα εκατόν και λιγότερο του 18 στα εκατόν φθαλικό βουτύλιο ή πλαστικοποιητική ουσίαν τουλάχιστον ισοδυνάμου αποτελέσματος είναι ύλη της Κλάσεως 1α (βλέπε περιθώριο 2101, 4°).

(γ) πλαστικοποιημένη νιτροκυτταρίνη, με χρωστικές ουσίες, περιέχουσα όχι λιγότερο του 18 στα εκατόν πλαστικοποιητικήν ουσίαν (φθαλικό βουτύλιο ή πλαστικοποιητική ουσία τουλάχιστον ισοδυνάμου αποτελέσματος), στην οποία η νιτροκυτταρίνη έχει περιεχόμενο σε άζωτο μη υπερβαίνον το 12.6 στα εκατόν και η οποία περιέχει όχι λιγότερο του 40 στα εκατό νιτροκυτταρίνην· η νιτροκυτταρίνη μπορεί να είναι υπό μορφήν ρινισμάτων.

Σημείωσις: Πλαστικοποιημένη νιτροκυτταρίνη, με χρωστικές ουσίες, περιέχουσα λιγότερο του 40 στα εκατόν νιτροκυτταρίνην δεν υπόκειται στις διατάξεις της ADR.

Για (α), (β) και (γ): ασθενώς εμπλουτισμένη με νίτρο νιτροκυτταρίνη και πλαστικοποιημένη νιτροκυτταρίνη, με ή χωρίς χρωστικές ουσίες, δε γίνοται δεκτές προς μεταφοράν εκτός εάν πληρούν τους όρους της Προσθήκης Α.Ι ή τους ανωτέρω διαλαμβανομένους όρους αναφορικώς με τη φύση και τη ποσότητα των προσθέτων υλών.

Για (α), βλέπε επίσης Προσθήκην Α.Ι., περιθώριο 3101· για (β) και (γ), βλέπε επίσης Προσθήκην Α.Ι., περιθώριο 3102, 1.

8° Κόκκινος φωσφόρος (άμορφος), υποθειούχος φωσφόρος και πενταθειούχος φωσφόρος.

Σημείωσις: Πενταθειούχος φωσφόρος όχι απηλλαγμένος από λευκόν ή κίτρινον φωσφόρον δε γίνεται δεκτός για μεταφορά.

9° Ελαστικόν (καουτσούκ) εδάφους, κόνις ελαστικού (καουτσούκ).

10° Γαιάνθραξ εις κόνιν, λιγνίτης εις κόνιν, κώκ λιγνίτου εις κόνιν, οπτάνθραξ εις κόνιν και ποάνθραξ εις κόνιν παρασκευασθέντα τεχνητώς (π.χ. δια κονιοποιήσεως ή άλλης κατεργασίας), και κώκ εξ ανθρακοποιηθέντος λιγνίτου καταστάν αδρανές (τ.ε. μη υποκείμενον εις αυτόματον ανάφλεξίν).

Σημείωσις: 1. Φυσικές κόνεις ληφθείσες ως υπολείμματα κατά την παραγωγήν άνθρακος, κώκ, λιγνίτου ή ποάνθρακος δεν υπόκεινται στις διατάξεις της ADR.

2. Κώκ εξ ανθρακοποιηθέντος λιγνίτου μη καταστάν τελείως αδρανές δε γίνεται δεκτόν για μεταφορά.

11° (α) Ακάθαρτος ναφθαλίνη με σημείο τήξεως κάτω των 72°C.

(β) Καθαρή ναφθαλίνη και ακάθαρτος ναφθαλίνη με σημείο τήξεως 75°C και άνω·

(γ) Ναφθαλίνη σε τετηγμένη κατάσταση.

για (α) και (β), βλέπε επίσης περιθώριο 2401 α.

12° Διογκούμενα πολυστυρένια, εκλύοντα εύφλεκτους ατμούς με σημείο αναφλέξεως το πολύ έως 55°C.

Ναφθαλίνη σε μπάλλες ή νιφάδες (11 (α) & (β)) δεν υπόκεινται στις διατάξεις της παρούσης Κλάσεως που περιλαμβάνονται στο Παράρτημα Β αν είναι συσκευασμένη, όχι περισσότερο απο 1 κιλό ανά κυτίο, σε στεγανά κλεισμένα κυτία από ξύλο ή μοριοσανίδα και τα κυτία αυτά περικλείονται, όχι περισσότερα απο 10 ανά κιβώτιο, σε ξύλινα κιβώτια.

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας

(1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και διευθετημένα ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου. 2402

(2) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματά των είναι κατασκευασμένα δε θα πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν με αυτό επιβλαβείς ή επικινδύνους ενώσεις.

(3) τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά εις όλα τα μέρη των για να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Στερεές ύλες θα ασφαλίζονται σταθερά στις συσκευασίες τους, και εσωτερικές συσκευασίες θα ασφαλίζονται σταθερά στις εξωτερικές συσκευασίες. Εκτός εαν άλλως ορίζεται στο άρθρο το τιτλοφορούμενο «Συσκευασία μιας ύλης», οι εσωτερικές συσκευασίες μπορούν να εγκλείονται στις εξωτερικές συσκευασίες, είτε μία-μία είτε ομαδικά.

(4) Το αποσβεστικό υλικό θα ταιριάζει με τη φύση του περιεχομένου· ειδικότερα, πρέπει να είναι απορροφητικό όταν το περιεχόμενον είναι υγρόν ή είναι ενδεχόμενον να εξιδρώσει υγρό.

2. Συσκευασία μιας ύλης

(1) Το θείον της 2° (α) θα συσκευάζεται σε γερούς σάκκους (σακκούλες) από χαρτί ή στενά-υφασμένη γιούτη. 2403

(2) Το θείον σε τετηγμένη κατάσταση, της 2°(β), δε θα μεταφέρεται κατ' άλλον τρόπον ειμή σε δεξαμενές.

Η κελλοϊδίνη (3°) θα είναι έτσι συσκευασμένη ώστε να αποφεύγεται η ξήρανσή της. 2404

(1) Η κυτταρινοΐδη (σελλουλοΐδ) σε πλάκες, φύλλα, ράβδους ή σωλήνες, και υφάσματα επιχρισμένα με νιτροκυτταρίνη, (4ο), θα εγκλείονται: 2405

(α) σε σταθερά - κλεισμένα ξύλινα είδη συσκευασίας, ή

(β) σε γερά χάρτινα περιτυλίγματα τα οποία θα τοποθετούνται

1. σε ξύλινους σκελετούς συσκευασίας, ή

2. μεταξύ πλαισίων κατασκευασμένων από σανίδες, των άκρων των πλαισίων εκτεινομένων πέραν του χάρτινου περι-

τυλίγματος και των πλαισίων δεμένων ομού με σιδηροταινίες, ή

3. σε περιτυλίγματα από στενά- υφασμένο ύφασμα.

(2) Το κόλον δεν πρέπει να ζυγίζει άνω απο: 75KG προκειμένου περί κυτταροϊδίνης (σελλουλόϊδ) σε πλάκες, φύλλα ή σωλήνες και υφάσματα επιχρισμένα με νιτροκυτταρίνην, εαν το εξωτερικόν είδος συσκευασίας είναι κατασκευασμένο από ύφασμα σύμφωνα με την (1) (β)3·

120 KG σε όλες τις άλλες περιπτώσεις.

Φίλμ κυτταροϊδίνης (σελλουλόϊδ) σε ρόλλους και εμφανισθέντα φίλμ κυτταροϊδίνης (5°) θα εγκλείονται σε ξύλινα είδη συσκευασίας ή σε κυτία απο ινώδη σανίδα. 2406

(1) Υπολείμματα κυτταροϊδίνης (σελλουλόϊδ) και υπολείμματα φίλμ κυτταροϊδίνης (6°) θα εγκλείονται σε ξύλινα είδη συσκευασίας ή σε δύο γερούς σάκκους κατασκευασμένους από κανβά γιότας στενώς υφασμένον, των σάκκων όντων φλογοστεγανών ώστε να μην αναφλέγονται ακόμη και όταν έλθουν σε επαφή με φλόγα και εχόντων γερές και συνεχείς ραφές. Οι σάκκοι αυτοί θα τοποθετούνται ο ένας μέσα στον άλλον· μετά το γέμισμα τα ανοίγματά τους θα διπλωθούν χωριστά και πολλές φορές και θα ραφούν στενά ώστε να αποφεύγεται οποιαδήποτε διαφυγή του περιεχομένου. Εν τούτοις, τα υπολείμματα κυτταροϊδίνης μπορούν να συσκευάζονται σε ένα σάκκον εάν τα υπολείμματα κυτταροϊδίνης συσκευασθούν αρχικώς σε γερό χαρτί συσκευασίας ή σε κατάλληλη πλαστική ύλη και βεβαιούται στο έγγραφο μεταφοράς ότι τα υπολείμματα κυτταροϊδίνης δεν περιέχουν οιαδήποτε υπολείμματα υπό μορφήν κόνεος. 2407

(2) Κόλα έχοντα συσκευασίαν από ακατέργασο κανβά ή γιούτα δεν πρέπει να ζυγίζουν περισσότερο από 40 KG σε μονή συσκευασία ούτε περισσότερο απο 80 KG σε διπλή συσκευασία.

(3) Για τα στοιχεία (λεπτομέρειες) του εγγράφου μεταφοράς, βλέπε περιθώριο 2416(2).

(1) Οι ύλες της 7°(α) θα συσκευάζονται: 2408

(α) σε ξύλινα δοχεία ή βαρέλια κατασκευασμένα από αδιαπέραστη ινώδη σανίδα· τα δοχεία αυτά και βαρέλια θα έχουν επένδυση αδιαπέραστη από τα υγρά που περιέχουν· τα κλεισίματά των πρέπει να είναι στεγανά· ή

(β) σε σάκκους αδιαπέραστους από ατμούς από τα υγρά που περιέχουν (π.χ. σάκκοι κατασκευασμένοι από ελαστικό (καουτσούκ) ή από κατάλληλη πλαστική ύλη μη ευχερώς εύφλεκτη), τοποθετημένους σε ξύλινο κιβώτιο ή σε μεταλλικό δοχείο· ή

(γ) σε επενδεδυμένα με ψευδάργυρο ή μόλυβδο σιδηρά βαρέλια, ή

(δ) σε δοχεία κατασκευασμένα απο πλάκες κασσιτέρου, φύλλα ψευδαργύρου ή φύλλα αργυλλίου και ασφαλισμένα με αποσβεστικό υλικό σε ξύλινα κιβώτια.

(2) Η νιτροκυτταρίνη της 7° (α), εαν υγροποιημένη αποκλειστικώς με νερό, μπορεί να συσκευασθεί σε βαρέλια από ινώδη σανίδα· η ινώδη σανίδα αυτή πρέπει να έχει υποστεί ειδική επεξεργασία ώστε να είναι εντελώς αδιαπέραστη· τα κλεισίματα των βαρελιών θα είναι υδατο-ατμο-στεγανά.

(3) Η νιτροκυτταρίνη της 7° (α), με προστιθέμενο ξυλένιο, δεν μπορεί να συσκευασθεί άλλως ειμή σε μεταλλικά δοχεία.

(4) Οι ύλες της 7° (β) και (γ) θα συσκευάζονται:

(α) σε ξύλινα είδη συσκευασίας επενδεδυμένα με γερό χαρτί ή φύλλο-ψευδαργύρου ή φύλλο αργυλλίου· ή

(β) σε γερά βαρέλια από ινώδη σανίδα ή, υπό τον όρον ότι οι ύλες είναι απηλλαγμένες από κόνιν και ότι τούτο βεβαιούται στο έγγραφο μεταφοράς, σε κιβώτια από ινώδη σανίδα τα οποία έχουν καταστεί αδιαπέραστα· ή

(γ) σε είδη συσκευασίας από φύλλο-μετάλλου.

(5) Για ύλες της 7°, τα μεταλλικά δοχεία πρέπει να είναι έτσι κατασκευασμένα ώστε, λόγω της μεθόδου συναρμολογήσεως των τοιχωμάτων των, του τρόπου του κλεισίματός των, ή της υπάρξεως μηχανισμού ασφαλείας, να αποδίδουν όταν η εσωτερική πίεση φθάσει τιμήν μεγαλυτέραν των 0,3 MPa (3 bar)· η ύπαρξη των κλεισιμάτων αυτών ή μηχανισμών ασφαλείας δεν πρέπει να εξασθενεί την αντοχή του δοχείου ούτε την αντοχή του κλεισίματός του.

(6) Το κόλον δεν πρέπει να ζυγίζει περισσότερο απο 75 KG ή, εάν μπορεί να ρολλαρισθεί, όχι περισσότερο απο 300 KG· εν τούτοις, βαρέλι από ινώδη σανίδα δεν πρέπει να ζυγίζει περισσότερο απο 75 KG και κιβώτιο από ινώδη σανίδα όχι περισσότερο απο 35 KG.

(7) Για τα στοιχεία του εγγράφου μεταφοράς, βλέπε περιθώριο 2416 (3).

(1) Ο κόκκινος φωσφόρος και ο πενταθειούχος φώσφόρος (8°) θα συσκευάζονται: 2409

(α) σε δοχεία κατασκευασμένα από φύλλον σιδήρου ή πλάκα κασσιτέρου, τα οποία θα τοποθετούνται σε γερό ξύλινο δοχείο· το κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή

(β) σε δοχεία κατασκευασμένα από γυαλί ή είδη κεραμεικής πάχους όχι μικρότερου των 3 MM (χιλ.), ή από κατάλληλη πλαστική ύλη, το καθένα περιέχον όχι περισσότερο από 12,5. KG ύλης. Τα δοχεία αυτά θα ασφαλίζονται με αποσβεστικό υλικό σε γερό ξύλινο κιβώτιο· το κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 KG· ή

(γ) σε μεταλλικά δοχεία τα οποία, εάν με το περιεχόμενό τους ζυγίζουν περισσότερο απο 200 KG, θα είναι εφοδιασμένα με ενισχυτικές στεφάνες στα άκρα τους, και με κυλιόμενες στεφάνες (ROLLING HOOPS).

(2) Ο υποθειούχος φωσφόρος (8°) θα συσκευάζεται σε στεγανά μεταλλικά δοχεία, τα οποία θα ασφαλίζονται με αποσβεστικό υλικό σε ξύλινα κιβώτια με πολύ εφαρμοστές πλευρές. Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 KG.

Οι ύλες της 9° θα συσκευάζονται σε σταθερά κλειόμενα στεγανά·δοχεία. 2410

(1) Οι ύλες της 10° θα συσκευάζονται σε μεταλλικά ή ξύλινα δοχεία ή σε γερούς σάκκους. 2411

(2) Τα ξύλινα δοχεία και σάκκοι, δε θα γίνονται, εν τούτοις, δεκτοί για γαιάνθρακα εις κόνιν, λιγνίτην εις κόνιν ή ποάνθρακα εις κόνιν που παρασκευάσθηκαν τεχνητώς εκτός εάν η κόνις έχει τελείως ψυχθεί μετά από ξήρανσιν δια θερμότητος.

(3) Για τα στοιχεία (λεπτομέρειες) του εγγράφου μεταφοράς, βλέπε περιθώριο 2416(4).

(1) Η ναφθαλίνη της 11°·(α) θα συσκευάζεται σε σταθερά - κλεισμένα ξύλινα ή μεταλλικά δοχεία

(2) Η ναφθαλίνη της 11° (β) θα συσκευάζεται σε ξύλινα ή μεταλλικά δοχεία, ή σε γερά κιβώτια από ινώδη σανίδα, ή σε γερούς σάκκους κατασκευασμένους από ύφασμα ή τετράφυλλο χαρτί ή από κατάλληλη πλαστική ύλη. 2412

Οσάκις χρησιμοποιούνται κιβώτια από ινώδη σανίδα, το κόλον δεν πρέπει να ζυγίζει πάνω απο 30 KG.

(3) Η ναφθαλίνη σε τετηγμένη κατάσταση 11°(γ), δεν πρέπει να μεταφέρεται άλλως ειμή εντός δεξαμενών.

3. Μικτή συσκευασία

(1) Ύλες ομαδοποιημένες υπό τον αυτόν αριθμόν είδους μπορούν να συμπεριληφθούν στο αυτό κόλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με ό,τι προβλέπεται για κάθε ύλην, και οι εξωτερικές συσκευασίες θα είναι οι καθορισθείσες για τις ύλες του εν θέματι αριθμού είδους. Κόλον περιέχον ράβδους και σωλήνες κυτταροϊδίνης (σελλουλόϊδ) ομού κατασκευασμένους σε περιτύλιγμα από ύφασμα δεν πρέπει να ζυγίζει πάνω απο 75 KG. 2413

(2) Εάν μικρότερες ποσότητες δεν προβλέπονται από το άρθρο το τιτλοφορούμενο «Συσκευασία μιας ύλης», οι ύλες της παρούσης Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG για όλες τις ύλες τις αναφερόμενες υπό τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγκλείονται από αυτό κόλον είτε με ύλες άλλου αριθμού είδους είτε άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται ομοίως προκειμένου περί τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιτροσθέτως, οι γενικές διατάξεις οι περιεχόμενες στα περιθώρια 2001(5) και 2002(6) και (7) πρέπει να τηρούνται.

Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG ή περισσότερο από 75 KG εάν περιέχει εύθραυστα δοχεία.

Ειδικοί Όροι

Αριθμός Είδους	Περιγραφή Ύλης	Ανωτάτη Ποσότης ανά δοχείο	ανά κόλον	Ειδικές Διατάξεις
2°(α)	Θείον	5 KG	5KG	Δεν πρέπει να συσκευάζεται μαζί με χλωρικά άλατα, υπερμαγγανικά, υπερχλωρικά άλατα ή υπεροξείδια (πλήν διαλυμμάτων υπεροξειδίου του υδρογόνου)
7°(α)	Λαθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη (όπως κολλοδιοβάμβαξ) 100 Γραμμ.	1 KG		Δεν πρέπει να συσκευάζονται μαζί με ύλες των Κλάσεων 4.2. και 5.1.
8ο	Κόκκινος (άνυδρος) φωσφόρος	5 KG	5 KG	
8ο	Υποθειούχος Φωσφόρος	Μικτή Συσκευασία δεν επιτρέπεται		

4. Ενδείξεις και ετικέτες κινδύνου στα κόλα
(βλέπε προσθήκην Α.9)

(1) Κόλα περιέχοντα ύλες των 4° έως 8° θα φέρουν ετικέτα συμφώνως προς το μοντέλο No. 4.1.

Εν τούτοις, εάν οι ύλες των 4° έως 7° είναι συσκευασμένες σε περιτυλίγματα κατασκευασμένα από στενά υφάνσιμο ύφασμα συμφώνως προς το περιθώριο 2405(1) (β)3, σε κυτία από ινώδη σανίδα ή κιβώτια συμφώνως προς τα περιθώρια 2406(1) και 2408(4)(β), σε σάκκους από ιούτη συμφώνως προς το περιθώριο 2407(1) ή σε βαρέλια από ινώδη σανίδα συμφώνως προς το περιθώριο 2408(1) (α), (2) και 4(β), τα κόλα θα φέρουν δύο ετικέτες συμφώνως προς το μοντέλο No. 4.1.

Κόλα περιέχοντα διογκούμενα πολυστυρένια του 12° θα πρέπει να φέρουν την εξής επιγραφή: «Μακρυά από κάθε πηγή αναφλέξεως». Η επιγραφή αυτή θα πρέπει να αναγράφεται στην επίσημη γλώσσα της χώρας αναχωρήσεως, αν δε η γλώσσα αυτή δεν είναι Αγγλική, Γαλλική ή Γερμανική, θα πρέπει να γράφεται επίσης και στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν υπάρχουν άλλες συμφωνίες μεταξύ των ενδιαφερομένων για την μεταφορά χωρών.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μη ορατά από έξω θα φέρουν ετικέτα σύμφωνη προς το μοδέλλο No. 12. Αν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα επιπροσθέτως, εκτός αν πρόκειται για σφραγισμένες αμπούλες, θα φέρουν ετικέτες σύμφωνα με το μοδέλλο No 11. Οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο απέναντι πλευρές των κιβωτίων ή κατά τρόπο ανάλογο, όταν χρησιμοποιούνται άλλες συσκευασίες.

(3) Προκειμένου για αποστολές που μεταφέρονται σαν πλήρη φορτία, η ετικέττα No. 2B δε χρειάζεται να τοποθετείται στα κόλα.

Β. Στοιχεία του εγγράφου μεταφοράς.

1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να είναι σύμμορφη με μία από τις ονομασίες που υπογραμμίζονται στο περιθώριο 2401. Όπου η ονομασία της ουσίας δεν ορίζεται στην περίπτωση της 1°, θα χρησιμοποιείται η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται και να ακολουθείται από τα στοιχεία της Κλάσεως, τον αριθμό του είδους (μαζί με το τυχόν, γράμμα και τα αρχικά «ADR» ή «RID» (π.χ. 4.1, 7ο (α), ADR).

2) Προκειμένου περί καταλοίπων ή αποβλήτων κυτταρίνης (6°) συσκευασμένων σε γερό χαρτί συσκευασίας ή σε κατάλληλη πλαστική ύλη και τοποθετημένων, έτσι συσκευασμένων, σε σάκκους από πυκνά υφασμένο ακατέργαστο καμβά ή γιούτη, στο έγγραφο μεταφοράς πρέπει να βεβαιώνονται τα εξής:

«Δεν περιέχει κατάλοιπα σε μορφή σκόνης»

3) Προκειμένου για ύλες της 7°(β) και (γ) συσκευασμένων σε κιβώτια από μοριοσανίδα, στο έγγραφο μεταφοράς πρέπει να βεβαιώνονται τα εξής:

«Ύλες απηλλαγμένες από σκόνη».

4) Προκειμένου για γαιάνθρακα σε σκόνη, για λιγνίτη σε σκόνη, ή πούνθρακα σε σκόνη (10°) που έχουν παραχθεί τεχνητά και συσκευάστηκαν σε ξύλινα δοχεία ή σε σάκκους (βλέπε περιθώριο 2411(2)), στο έγγραφο μεταφοράς πρέπει να αναγράφονται τα εξής::

«Ύλες εντελώς ψυγμένες αφού ξηράνθηκαν με θερμότητα».

2414

2415

2416

2417
–2423

Γ. Κενά Είδη Συσκευασίας
Καμμία διάταξη.

2424
2425
-2429

ΚΛΑΣΗ 4.2.

ΥΛΕΣ ΥΠΟΚΕΙΜΕΝΕΣ ΣΕ ΑΥΤΟΜΑΤΗ ΚΑΥΣΗ

1. Κατάλογος Ουσιών

Μεταξύ των ουσιών και των ειδών που καλύπτει η Κλάση 4.2., μόνον τα αναφερόμενα στο περιθώριο 2431 θα γίνονται δεκτά για μεταφορά, και τότε μόνον με την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ουσίες και τα είδη αυτά που θα γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR. 2430

1° Λευκός ή κίτρινος φωσφόρος 2431

2° Ενώσεις φοσφώρου με αλκαλικά μέταλλα ή αλκαλικά γαιώδη, συστατικά, π.χ. φωσφίδιο νατρίου, φωσφίδιο ασβεστίου, φωσφίδιο στροντίου.

Παρατηρήσεις:

1. Τα φωσφίδια αργιλλίου, μαγνησίου και ψευδαργύρου είναι ουσίες της Κλάσεως 6.1 (βλέπε περιθ. 2601,43°(α) ή (β).

2. Άλλες ενώσεις φωσφόρου με βαρέα μέταλλα όπως σίδηρος, χαλκός, κασσίτερος κλπ. δεν υπόκεινται στις διατάξεις της ADR.

3° Οργανο-μεταλλικές ενώσεις υποκείμενες σε αυτόματη καύση, όπως: αλκύλια αργιλλίου, αλκυλικά άλατα αργιλλίου, υδρίδια αλκυλικού αργιλλίου, αλκύλια λιθίου, αλκύλια μαγνησίου, αλκύλια ψευδαργύρου, αλκύλια γαλλίου και αλκύλια βορίου ως και διαλύματα αυτών που υπόκεινται σε αυτόματη καύση.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Οργανομεταλλικές ενώσεις και διαλύματα αυτών που δεν υπόκεινται σε αυτόματη καύση αλλά που σε επαφή με νερό εκλύουν αναφλέξιμα αέρια, είναι ουσίες της Κλάσεως 4.3. (όρα περιθώριο 2471, 2°(ε)).

2. Αναφλέξιμα διαλύματα των ουσιών 3° σε συμπυκνώσεις που δεν υπόκεινται σε αυτόματη καύση και που σε επαφή με νερό δεν εκλύουν αναφλέξιμα αέρια, είναι ουσίες της Κλάσεως 3. Ο αποστολέας θα πρέπει να προσθέτει στο έγγραφο μεταφοράς τη φράση: «Ουσίες που δεν υπόκεινται σε αυτόματη καύση» (Βλέπε επίσης: Κλάση 4.3., περιθώριο 2471, 2°(δ) Παρατήρηση 2).

4. Κατάλοιπα φίλμ-νιτροκυτταρίνης, απηλλαγμένα από ζελατίνη, σε ρόλους, φύλλα ή λωρίδες.

Παρατήρηση:

Τα κατάλοιπα φίλμ-νιτροκυτταρίνης απηλλαγμένα από ζελατίνη δε θα γίνονται δεκτά για μεταφορά αν είναι σκονισμένα ή περιλαμβάνουν σκονισμένα κομμάτια.

5° α) Μεταχειρισμένα ράκη και κατάλοιπα,
(β) Λιπαρά ή ελαιώδη υφάσματα, θρυαλλίδες, σχοινί ή κλωστή (νήμα)·
(γ) Οι εξής λιπαρά ή ελαιώδη είδη: έριο (μαλλί), τρίχες (και αλογότριχες), τεχνητό έριο, αναμορφωμένο έριο (επίσης καλούμενο (WOOL SHODDY), βαμβάκι, ξαναξασμένο βαμβάκι, τεχνητές ίνες (RAYON κλπ.) μετάξι, λινάρι, καννάβι

και γιούτα, επίσης υπό μορφή καταλοίπων κλωστηρίου ή υφαντουργείου.

Για τα (α), (β) και (γ), βλέπε επίσης περιθώριο 2431α (από στοιχ. α)).

Παρατήρηση:

Βρεγμένες ύλες του 5°(β) και (γ) δεν θα πρέπει να γίνονται δεκτές για μεταφορά.

6° (α) Μέταλλα σε πυροφόρο μορφή, όπως: σκόνη και πυρίτις (πούδρα) αργυλίου, μαγνησίου, νικελίου, τιτανίου, ψευδαργύρου ή ζιρκονίου, επίσης μίγματα πυρίτιδων και πυρίτιδων κραμάτων, κόνις από φίλτρα υφικαμίνου·

Παρατήρηση:

Σκόνη και πυρίτις μετάλλων σε μη πυροφόρο μορφή, που σε επαφή με νερό εκλύουν αναφλέξιμα αέρια, είναι ουσίες της Κλάσεως 4.3. (βλέπε περιθώριο 2471, 1° (δ)).

β) Άλατα διθειονικού (υδροθειώδους) οξέος ($H_2S_2O_4$) όπως διθειονίτες (υδροσουλφίδια) νατρίου, καλίου ασβεστίου και ψευδαργύρου.

γ) Άνυδρο σουλφίδιο καλίου και άνυδρο σουλφίδιο νατρίου ως και τα υδροξείδια των που περιέχουν λιγώτερο από 30% νερό κρυσταλλοποιήσεως, υδροσουλφίδια νατρίου που περιέχει λιγώτερο από 25% νερό κρυσταλλοποιήσεως.

Παρατήρηση:

Σουλφίδιο καλίου και σουλφίδιο νατρίου με περιεχόμενο τουλάχιστον 30% νερό κρυσταλλοποιήσεως και υδροσουλφίδιο νατρίου που περιέχει τουλάχιστο 25% κρυσταλλοποιήσεως, είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801 45° (β)).

Για το α) βλέπε επίσης περιθώριο 2431α στο (β). Για το β) βλέπε επίσης περιθώριο 2431α υπό στοιχ. (α).

7° Πρόσφατα ασβεστοποιημένη αιθάλη. Βλέπε επίσης περιθώριο 2431α υπό στοιχείο (α).

8° Φρεσκο - σβησμένος ξυλάνθραξ, σε σκόνη, σε κόκκους ή σε βώλους. Βλέπε επίσης περιθώριο 2431α υπό στοιχείο (α) και Κλάση 4.1. περιθώριο 2401, 1°.

Παρατήρηση:

Με τον όρον «φρεσκοσβυσμένος ξυλάνθραξ» νοείται:

Στην περίπτωση ξυλάνθρακος σε βώλους, ο ξυλάνθραξ που έχει σβηστεί το πολύ προ 4 ημερών.

Σε περίπτωση ξυλάνθρακος σε σκόνη και ξυλάνθρακος σε κόκκους σε μέγεθος κόκκων λιγώτερο των 8 χστ. ο ξυλάνθραξ που έχει σβηστεί προ 8 το πολύ ημερών και έχει ψυχθεί με αέρα σε λεπτά στρώματα ή με άλλη μέθοδο που εξασφαλίζει αντίστοιχο βαθμό ψύξεως.

9° Μίγματα κοκκοποιημένων ή πορωδών καυσίμων ουσιών με συστατικά που ακόμη υπόκεινται σε αυτόματη οξείδωση, όπως π.χ. το λινέλαιο και άλλα φυσικά ξηραινόμενα έλαια, βρασμένα ή με πρόσθετες ξηραντικές ενώσεις, ρητίνες, ρητινέλαιο, κατάλοιπα πετρελαίου κλπ. (π.χ. η ουσία η γνωστή σαν κατάλοιπο φελλού, λουπουλίνη) και ελαιώδη κατάλοιπα από την λεύκασιν σογιελαίου.

Βλέπε επίσης περιθώριο 2431α υπό στοιχείο (α) και Κλάση 4.1., περιθώριο 2401, 1°.

10° Χαρτί, χαρτόνι και προϊόντα κατασκευασμένα από χαρτί και/ή χαρτόνι (π.χ. περιτυλίγματα χαρτονιού και δακτύλιοι χαρτονιού), φύλλα από ίνα ξύλου, δέσμες (κούκλες) νημάτων, υφασμάτων, σπάγγος, κλωστή κατάλοιπα κλωστηρίου ή υφαντουργείου, όλα εμποτισμένα με λάδια, λίπη, φυσικά ξηραινόμενα έλαια, βρασμένα ή με πρόσθετες ξηραντικές ενώσεις ή άλλες εμποτισμένες ουσίες υποκείμενες σε αυτόματη οξείδωση. Βλέπε επίσης περιθώριο 2431α υπό στοιχείο (α) και Κλάση 4.1., περιθώριο 2401, 1°.

Παρατήρηση:

Ουσίες του 10° δεν θα γίνονται δεκτές για μεταφορά αν η υγρασία των υπερβαίνει την υγρασία λόγω υδροσκοπικότητος.

11° Η ουσία με βάση οξείδιο του σιδήρου που χρησιμοποιήθηκε για καθαρισμό φωταερίου (δαπανηθέν οξείδιο του σιδήρου).

Παρατήρηση:

Αν η ουσία που χρησιμοποιήθηκε για κάθαρση φωταερίου (δαπανηθέν οξείδιο σιδήρου), μετά την εναποθήκευση και εξαερισμό, δεν υπόκειται πλέον σε αυτόματη ανάφλεξη και εφ' όσον τούτο πιστοποιείται στο έγγραφο μεταφοράς με την ένδειξη: «Ουσία μη υποκειμένη σε αυτόματη ανάφλεξη», δεν υπόκειται στις διατάξεις της ADR.

12° Μεταχειρισμένοι σάκκοι μαγιάς, ακαθάριστοι. Βλέπε επίσης περιθώριο 2431α υπό στοιχείον (α).

13° Κενοί σάκκοι νιτρικού νατρίου κατασκευασμένοι από ύφασμα.

Παρατήρηση:

Υφασματένιοι σάκκοι από τους οποίους αφαιρέθηκε τελείως με πλύσιμο όλο το νιτρικό άλας που τους διεπότιζε, δεν υπόκεινται στις διατάξεις της ADR.

14° Κενές συσκευασίες, κενά βυτιοφόρα οχήματα, κενές αποσυνδεόμενες δεξαμενές και κενά δοχεία - δεξαμενές, ακαθάριστα, που περιείχαν φωσφόρο του 1°.

15° Κενές συσκευασίες, κενά βυτιοφόρα οχήματα, κενές αποσυνδεόμενες δεξαμενές και κενά δοχεία - δεξαμενές, ακαθάριστα, που περιείχαν ουσίες του 3°.

Παρατήρηση:

Σχετικά με τα 14° και 15°, κενές συσκευασίες που περιείχαν ουσίες άλλες εκτός της Κλάσεως 4.2 δεν υπόκεινται στις διατάξεις της ADR.

Επικίνδυνες ουσίες παραδιδόμενες για μεταφορά σύμφωνα με τις ακόλουθες διατάξεις δεν υπόκεινται ούτε στις διατάξεις της παρούσης Κλάσεως που περιέχονται στο παρόν Παράρτημα ούτε στις περιεχόμενες στο Παράρτ. Β: 2431α

(α) Ουσίες των 5°, 6° (β), 7° έως 10° και 12°, αν η κατάστασή των είναι τέτοια ώστε να αποκλείει κάθε κίνδυνο αυτόματης ανάφλεξης και εφ' όσον τούτο πιστοποιείται από τον αποστολέα στο έγγραφο της μεταφοράς με την ένδειξη: - «Ουσίες μη υποκείμενες σε αυτόματη ανάφλεξη» προκειμένου όμως για ουσίες της 8° και για ορισμένες ουσίες των 9° και 10°, βλέπε Κλάση 4.1 περιθώριο 2401, 1°.

(β) Κόνις και πυρίτις αργυλίου ή ψευδαργύρου του (6°(α)), π.χ. συσκευασμένη μαζί με βερνίκι για χρήση σε βιομηχανία χρωμάτων, αν είναι συσκευασμένη με προσοχή σε ποσότητες που δεν υπερβαίνουν το 1 κιλό.

2. Διατάξεις

Α. Κόλα

1. Γενικοί Όροι Συσκευασίας.

(1) Η συσκευασία θα πρέπει να είναι κλειστή και φροντισμένη έτσι ώστε να προλαμβάνει κάθε τυχόν απώλεια των περιεχομένων. 2432

(2) Τα υλικά από τα οποία οι συσκευασίες (κόλα) και τα κλεισίματά των είναι κατασκευασμένα, δεν θα πρέπει να υπόκεινται σε προσβολή από το περιεχόμενο ούτε να σχηματίζουν επιβλαβείς ή επικίνδυνες ενώσεις με ή εντός αυτών.

(3) Συσκευασίες, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι αρκετά σκληρές και ανθεκτικές σε όλα τα μέρη των ώστε να προλαμβάνεται κάθε απώλεια κατά την μεταφορά και να αντιμετωπίζονται οι συνήθεις απαιτήσεις μεταφοράς. Ειδικώτερα στην περίπτωση ουσιών σε υγρή κατάσταση ή που είναι εμβαπτισμένες σε υγρό ή σε διάλυμα, τα δοχεία και τα κλεισίματά των θα πρέπει (εκτός αν προβλέπεται άλλως στο κεφάλαιο με την επικεφαλίδα «Συσκευασία μιας ουσίας ή ειδών το ιδίου γένους», να μπορούν να υφίστανται οποιαδήποτε πίεση (λαμβανομένης υπ' όψιν και της ατμοσφαιρικής πιέσεως), που μπορεί να δημιουργηθεί εντός των δοχείων σε συνήθη μεταφορά. Για τον σκοπόν αυτόν, πρέπει να αφήνεται ένας ελεύθερος χώρος, λαμβανομένης υπ' όψιν και της διαφοράς θερμοκρασίας των ουσιών κατά τον χρόνο της πληρώσεως και της ανωτάτης μέσης θερμοκρασίας που είναι ενδεχόμενο να φθάσουν κατά την μεταφορά. Στερεές ουσίες θα πρέπει να στερεώνονται σταθερά στις συσκευασίες των, ενώ οι εσωτερικές συσκευασίες θα πρέπει να στερεώνονται σταθερά στις εξωτερικές συσκευασίες. Αν δεν καθορίζεται άλλως πως στο κεφάλαιο με τίτλο «Συσκευασία μιας μόνη ουσίας ή πραγμάτων του αυτού είδους», οι εσωτερικές συσκευασίες μπορούν να εγκλείονται σε εξωτερικές συσκευασίες είτε μία - μία ή κατά ομάδες.

(4) Φιάλες και άλλα υάλινα δοχεία πρέπει να μην παρουσιάζουν σφάλματα που πιθανόν να μειώνουν την αντοχή των, ειδικώτερα, οι εσωτερικές τάσεις πρέπει να ανακουφίζονται κατάλληλα. Το πάχος των τοιχωμάτων δεν πρέπει να είναι μικρότερο από 3 χστ. προκειμένου για δοχεία τα οποία, μαζί με το περιεχόμενό των ζυγίζουν πλέον των 35 κιλών και τουλάχιστον 2 χστ. στην περίπτωση άλλων δοχείων.

Η στεγανότητας του συστήματος κλεισίματος πρέπει να εξασφαλίζεται με ένα πρόσθετο εξάρτημα (πώμα, κορώνα, σφραγίδα, δέσιμο, κ.λ.π), ικανό να προλάβει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος κατά την μεταφορά.

(5)Όταν προδιαγράφονται ή επιτρέπονται δοχεία κατασκευασμένα από γυαλί, πορσελάνη, πετρώδη ύλη ή παρόμοια υλικά αυτά θα πρέπει να εξασφαλίζονται με αντικρουστικά υλικά σε προστατευτικές συσκευασίες.

Τα αντικρουστικά υλικά θα πρέπει να είναι προσαρμοσμένα στο είδος των περιεχομένων. Ειδικώτερα, θα πρέπει να είναι στεγνά και απορροφητικά όταν τα περιεχόμενα είναι ρευστά ή ενδέχεται να εξιδρώσουν.

2. Συσκευασία μιας μόνον ουσίας ή πραγμάτων του ιδίου είδους.

(1) Φωσφόρος της 1° θα συσκευάζεται: 2433

α) Σε στεγανά επικασσιτερωμένα δοχεία ερμητικά κλειστά και τοποθετημένα εντός ξυλίνων κιβωτίων ή:

β) Σε Σιδερένια βαρέλια που κλείνουν ερμητικά. Πώματα που κλείνουν με πίεση δεν θα επιτρέπονται. Το σιδηρόφυλλο που αποτελεί το σώμα, τον πυθμένα και το καπάκι θα πρέπει να έχουν πάχος τουλάχιστον 1.5 χστ. Κάθε κόλον δεν πρέπει να ζυγίζει πλέον των 500 κιλών. Και αν ζυγίζει πλέον των 100 κιλών πρέπει να είναι εφωδιασμένο με στεφάνια (τσέρκια) ή ενισχυτικά πλευρά και να είναι ηλεκτροσυγκολλημένο, ή:

γ) Το πολύ 250 κιλά σε κάθε δοχείο, σε ερμητικά κλεισμένα γυάλινα δοχεία ασφαλιζόμενα με αντικρουστικά υλικά, εντός στεγανών επικασσιτεριωμένων δοχείων κλεισμένων με μολυβδοκόλληση και εξασφαλισμένα παρομοίως με αντικρουστικά υλικά εντός ξυλίνων κιβωτίων.

2. Δοχεία και βαρέλια περιέχοντα φωσφόρο θα πρέπει να είναι γεμισμένα με νερό

(1) Ουσίες της 2° πρέπει να συσκευάζονται σε στεγανά 2434
επικασσιτεριωμένα δοχεία ερμητικά κλεισμένα και τοποθετημένα σε ξύλινα κιβώτια.

(2)Ουσίες της 2° μπορούν επίσης να συσκευάζονται σε ποσότητες όχι πλέον των 2 κιλών κατά δοχείο, σε δοχεία από γυαλί, πορσελάνη, πετρώδη ύλη ή παρόμοια υλικά, εξασφαλιζόμενα με αντικρουστικά υλικά σε ξύλινα κιβώτια.

(1) Ουσίες του 3° θα πρέπει να συσκευάζονται σε ερμητικά 2435
κλεισμένα μεταλλικά δοχεία που δεν μπορούν να προσβληθούν από τα περιεχόμενα, χωρητικότητος το πολύ 450 λίτρων.

Τα δοχεία αυτά θα πρέπει:

– είτε να προφυλάσσονται από εξωτερικά περιβλήματα από ανθεκτικό στη φωτιά υλικό, ή:

– να έχουν πάχος τοιχώματος τουλάχιστον 3 χστ. με κλείσιμο των άκροφυσίων γεμίσματος και εκροής εξασφαλιζόμενο με προστατευτικό πώμα.

Τα δοχεία πρέπει να υποβάλλονται σε αρχική δοκιμασία και σε περιοδικές δοκιμασίες κάθε πέντε χρόνια με μία αδρανή ουσία δοκιμασίας, σε πίεση τουλάχιστον 1 MPS (10 BAR).

Τα δοχεία δεν πρέπει να γεμίζονται περισσότερο από 90% της περιεκτικότητός των. Ένας χώρος 5% πρέπει να μένει κενός για ασφάλεια όταν το υγρό είναι σε θερμοκρασία 50°C. Όταν παραδίδεται για μεταφορά, το υγρό πρέπει να βρίσκεται κάτω από στρώμα αδρανούς αερίου, η πίεση του οποίου δεν πρέπει να υπερβαίνει το 50 KPS (0,5 BAR).

Πάνω στην πινακίδα με τα στοιχεία του δοχείου πρέπει να είναι έντυπα τα εξής χαρακτηριστικά:

α) «Όργανο - μεταλλικές ουσίες, Κλάση 4.2»

β) Το απόβαρο του δοχείου, συμπεριλαμβανομένων των εξαρτημάτων και προσαρτημάτων.

γ) Η πίεση και ημερομηνία δοκιμασίας (μήνας και έτος) της τελευταίας δοκιμασίας που έγινε.

δ) Η σφραγίδα του εμπρειρογνώμονα που διενήργησε τις δοκιμασίες.

ε) Η χωρητικότης του δοχείου και ο επιτρεπόμενος μέγιστος βαθμός πληρώσεως.

Ο ακριβής προορισμός των περιεχομένων και η φράση: «Απαγορεύεται το άνοιγμα κατά την μταφορά, γιατί υπόκειται σε αυτόματη ανάφλεξη» θα πρέπει να είναι γραμμένη ανεξίτηλα, διατυπωμένη σε επίσημη γλώσσα της χώρας αναχωρήσεως και επίσης, αν αυτή η γλώσσα δεν είναι η Αγγλική Γαλλική ή Γερμανική, και στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν άλλως προβλέπει κάποια συμφωνία μεταξύ των ενδιαφερομένων χωρών της επιχειρήσεως μεταφοράς.

Κάθε συσκευασία (κόλον) δεν πρέπει να ζυγίζει πλέον των 1.000 κιλών.

(2) Ουσίες του 3° μπορούν επίσης να συσκευάζονται σε ερμητικά κλεισμένα γυάλινα δοχεία χωρητικότητος το πολύ 5 λίτρων που πρέπει να ασφαλίζονται με αντικρουστικό υλικό εντός μεταλλίνων δοχείων. Τα γυάλινα δοχεία δεν πρέπει να γεμίζονται περισσότερο από 90% της χωρητικότητός των.

(1) Ουσίες του 4° πρέπει να συσκευάζονται σε σάκκους το- 2436
ποθετουμένους σε βαρέλια κατασκευασμένα από αδιάβροχη ινοσανίδα ή σε δοχεία κατασκευασμένα από λευκοσίδηρο ή φύλλα αλουμινίου. Οι πλευρές των μεταλλικών δοχείων πρέπει να είναι επενδυμένες με ινοσανίδα.

Ο πυθμένας και τα καπάκια των σανιδένιων βαρελιών και των μεταλλικών δοχείων πρέπει να έχουν ξύλινη επένδυση.

(2) Τα μετάλλινα δοχεία πρέπει να είναι εφωδιασμένα με κλεισίματα ή συσκευές ασφαλείας που να υποχωρούν όταν η εσωτερική πίεση φθάσει το πολύ σε 0.3 MPS (3 BAR). Η παρουσία αυτών των κλεισιμάτων ή συσκευών ασφαλείας δεν θα πρέπει να παραβλάπτει την αντοχή των δοχείων ούτε να παρεμποδίζει το κλείσιμό των.

(3) Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 κιλά.

(1) Ουσίες του 5°(α) πρέπει να είναι στεγανά συμπιε- 2437
σμένες και τοποθετημένες σε υδατοστεγή μεταλλικά δοχεία.

(2) Ουσίες του 5° (β) και (γ) πρέπει να είναι στεγανά συμπιεσμένες και συσκευασμένες είτε σε ξύλινα είτε σε κιβώτια από μοριοσανίδα ή σε χάρτινα ή υφασμάτινα περιτυλίγματα τέλεια στερεωμένα.

(1) Ουσίες του 6° (α) πρέπει να συσκευάζονται σε ερμη- 2438
τικά κλεισμένα δοχεία από μέταλλο, γυαλί ή κατάλληλα πλαστικά υλικά. Η ουσία θα πρέπει να αποστέλλεται με ένα προστατευτικό υγρό ή αέριο. Τα δοχεία θα πρέπει εν ανάγκη να είναι εφωδιασμένο με κατάλληλη συσκευή αντισταθμιστική της πιέσεως.

Τα γυάλινα δοχεία θα πρέπει να ασφαλίζονται με αντικρουστικά υλικά σε συσκευασίες από ινοσανίδα ή από μέταλλο. Τα αντικρουστικά υλικά θα πρέπει να είναι άκαυστα. Τα δοχεία που είναι κατασκευασμένα από πλαστικό υλικό πρέπει να τοποθετούνται εντός συσκευασίας ινοσανίδας ή μετάλλου. Συσκευασίες που περιέχουν δοχεία από γυαλί ή πλαστική ύλη πρέπει να τοποθετούνται εντός ξυλίνων κιβωτίων. Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 κιλά.

(2) Ουσίες του 6° (β) και (γ) θα πρέπει να συσκευάζονται σε ερμητικά κλειστά δοχεία από μεταλλικό έλασμα ή σε χαλύβδινα βαρέλια. Στην περίπτωση των δοχείων από μεταλλικά φύλλα, κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 50 κιλά.

Ουσίες των 7° - 10° και 12° θα πρέπει να κλείνονται 2439
μέσα σε αεροστεγείς συσκευασίες. Ξύλινες συσκευασίες χρησιμοποιούμενες για ουσίες του 7° και 8° θα πρέπει να προβλέπονται με μια επένδυση αντιδιαρροής.

Η ουσία που χρησιμοποιήθηκε για κάθαρση φωταερίου 2440
(αβυσμένο οξείδιο σιδήρου) του 11° θα πρέπει να συσκευάζεται σε στεγανά κλειστά δοχεία από φύλλο μετάλλου.

Κενοί σάκκοι νιτρικού νατρίου του 13° θα πρέπει να συ- 2441
σκευάζονται μέσα σε σφιχτοδεμένα δέματα στερεά δεμένα με σπάγγο και τοποθετημένα είτε σε ξύλινο κιβώτιο είτε σε περιτύλιγμα που θα αποτελείται από πολλαπλό χονδρό χαρτί μεγάλης αντοχής ή από υδατοστεγές (αδιάβροχο) ύφασμα.

ΜΙΚΤΗ ΣΥΣΚΕΥΑΣΙΑ

(1) Ουσίες που ανήκουν στόν ίδιο αριθμό ομάδας, μπορούν 2442
να συμπεριληφθούν στο ίδιο κόλον. Οι εσωτερικές συσκευασίες θα πρέπει να είναι σύμμορφες με όσα προδιαγράφονται για κάθε ουσία, ενώ η εξωτερική συσκευασία θα είναι εκείνη που καθορίζεται για τις ουσίες που ανήκουν στον ίδιο αριθμό είδους.

(2) Αν δεν προδιαγράφονται μικρότερες ποσότητες στο άρθρο υπό τον τίτλο «Συσκευασία μιας μόνης ουσίας ή πραγμάτων του ίδιου είδους», ουσίες της παρούσης Κλάσεως, σε ποσότητες που δεν υπερβαίνουν τα 8 κιλά στην περίπτωση στε-

ρεψν ή 3 λίτρων στην περίπτωση υγρών για όλες τις ουσίες που περιλαμβάνονται στον ίδιο αριθμό είδους ή στο ίδιο κόλον είτε με ουσίες άλλου αριθμού είδους ή άλλου ψηφίου της ίδιας κλάσεως, ή με επικίνδυνες ουσίες που ανήκουν σε άλλες κλάσεις (αν παρομοίως επιτρέπεται μικτή συσκευασία στην περίπτωση τέτοιων ουσιών), ή με άλλα εμπορεύματα, σύμφωνα με τους εξής ειδικούς όρους.

Οι εσωτερικές συσκευασίες πρέπει να ικανοποιούν τους γενικούς και ειδικούς όρους συσκευασίας. Επί πλέον, οι γενικές διατάξεις των περιθωρίων 2001 (7), 2002 (6) και (7) πρέπει να τηρούνται.

Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 150 κιλά ή περισσότερο από 75 κιλά αν περιέχει εύθραυστα δοχεία.

Ειδικοί Όροι

Αρ. Είδους	Περιγραφή ουσίας	Μεγίστη Ποσότης κατά δοχείο	κατά κόλον	Ειδικές Διατάξεις
1°	Λευκός ή κίτρινος φωσφόρος	Δεν επιτρέπεται μικτή συσκευασία		
2°	Φωσφίδια	»	»	
3°	Αλκύλια ψευδαργύρου κλπ.	Δεν επιτρέπεται μικτή συσκευασία.		
6°(α)	Μέταλλα σε πυροφόρο μορφή	3 κιλ.	3 κιλ.	Δεν θα πρέπει να συσκευάζονται με ελαφρά νιτρωμένη νιτροκυτταρίνη και ερυθρό φωσφόρο της Κλάσεως 4.1, ούτε με διφθαριούχα
4°, 5° 6° (β) 7° - 12°	Όλες οι ουσίες			

Μαρκάρισμα και πινακίδες κινδύνου επί των κόλων 2443
(Βλέπε Παράρτ. Α.9)

(1) Κόλα περιέχοντα ουσίες των 1° έως 4° και 6° θα πρέπει να φέρουν πινακίδα σύμφωνα με το υπόδειγμα αρ. 4.2. Κόλα περιέχοντα ουσίες του 3° θα πρέπει επί πλέον να φέρουν πινακίδα σύμφωνα με το υπόδειγμα 4.3.

Όταν ουσίες του 4° συσκευάζονται σε υδατοστεγή βαρέλια από ινώδη ύλη σύμφωνα με το περιθώριο 2436(1), το κόλον θα πρέπει μολαταύτα να φέρει δύο πινακίδες σύμφωνα με το υπόδειγμα Νο 4.2 (όρα περιθώριο 3901).

(2) Βαρέλια περιέχονται φωσφόρο του 1° και έχοντα βιδωτό κάλυμμα/πώμα, θα πρέπει να φέρουν επί πλέον στο επάνω μέρος και σε δύο εκ διαμέτρου αντίθετες θέσεις, δύο πινακίδες σύμφωνα με το υπόδειγμα Νο 11, εκτός αν είναι εφωδιασμένα με σύστημα που τα κρατεί όρθια.

(3) Κόλα περιέχοντα δοχεία εφωδιασμένα με εξαεριστήρες και δοχεία εφωδιασμένα με εξαεριστήρες χωρίς εξωτερική συσκευασία, που περιέχουν ουσίες του 6° (α), θα πρέπει να φέρουν σε δύο απέναντι πλευρές πινακίδα σύμφωνα με το υπόδειγμα Νο 11. Κόλα περιέχοντα εύθραυστα δοχεία που δεν φαίνονται απ' έξω, θα πρέπει να φέρουν πινακίδες σύμφωνα με το υπόδειγμα Νο 12. Αν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα θα πρέπει επί πλέον, – να φέρουν πινακίδες σύμφωνα με το υπόδειγμα Νο 11. Οι πινακίδες θα πρέπει να είναι τοποθετημένες στο άνω μέρος δύο απέναντι πλευρών ενός κιβωτίου, ή κατά αντίστοιχο τρόπο σε συσκευασίες άλλου τύπου.

Β. Λεπτομερή στοιχεία στο έγγραφο μεταφοράς. 2444

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς 2445
πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στο περιθώριο 2431. Όπου δεν αναφέρεται το όνομα της ουσίας, για τα 2°, 3°, 9°, ή 10°, θα πρέπει να αναφέρεται η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων θα πρέπει να υπογραμμίζεται και να ακολουθούν τα λεπτομερή στοιχεία της κλάσεως, ο αριθμός είδους (μαζί με το ψηφίο αν υπάρχει) και τα αρχικά «ADR» (ή «RID»), Π.Χ. 4.2.5° (α) ADR.

2446
-2552

Γ. Κενές συσκευασίες

(1) Κενές συσκευασίες, ακαθάριστες των 14° και 15° 2453
πρέπει να κλείνονται κατά τον ίδιο τρόπο και να είναι ασφαλείς κατά διαρροής στον ίδιο βαθμό σαν να ήσαν πλήρεις.

(2) Κενές συσκευασίες, ακαθάριστες, του 14° και 15°, θα πρέπει να φέρουν τις ίδιες πινακίδες κινδύνου σαν να ήσαν γεμάτες.

(3) Η περιγραφή στα έγγραφο μεταφοράς θα πρέπει να συμφωνεί με ένα από τα υπογραμμισμένα ονόματα στο 14° και 15°, π.χ.: Κενή συσκευσία, 4.2, 14°, ADR.

Το κείμενο αυτό πρέπει να υπογραμμίζεται. Σε περίπτωση κενών βυτιοφόρων / δεξαμενοφόρων οχημάτων, κενών απορυμολογουμένων δεξαμενών και κενών δεξαμενών - κοντέηνερ ακαθαρίστων, η περιγραφή αυτή θα συμπληρώνεται με την προσθήκη των λέξεων «Τελευταίο φορτίο» μαζί με το όνομα και τον αριθμό είδους των εμπορευμάτων που μεταφέρθηκαν την τελευταία φορά, π.χ.: Τελευταίο φορτίο: Λευκός φωσφόρος, 1°.

2454
-2569

ΚΛΑΣΗ 4.3

ΟΥΣΙΕΣ ΠΟΥ ΕΚΛΥΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ

1. Κατάλογος ουσιών

Μεταξύ των ουσιών και των ειδών που καλύπτονται από 2470
την Κλάση 4.3, μόνον εκείνα που αναφέρονται στο περιθώριο 2471 θα πρέπει να γίνονται δεκτά για μεταφορά, αλλά και τότε μόνον με τις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ουσίες και τα είδη αυτά που θα γίνονται δεκτά για μεταφορά υπό ωρισμένες συνθήκες και όρους, θα θεωρούνται σαν ουσίες και είδη της ADR.

1° (α) Αλκαλομέταλλα και μέταλλα αλκαλικών γαιών, 2471
π.χ. νάτριο, κάλιο, ασθέστιο ως επίσης και κράματα αλκαλομετάλλων, κράματα μετάλλων αλκαλικών γαιών και κράματα αλκαλομετάλλων με μέταλλα αλκαλικών γαιών.

β) αμαλγάματα αλκαλομετάλλων και αμαλγάματα μετάλλων αλκαλικών γαιών.

γ) εναιωρήματα αλκαλομετάλλων,

δ) λοιπά μέταλλα και κράματα μετάλλων που εκλύουν αναφλέξιμα αέρια σε επαφή με νερό, όπως:
κόνις, πυρίτις και λεπτά ξέσματα αλουμινίου, ψευδαργύρου, μαγνησίου και κράματα μαγνησίου περιέχοντα πλέον του 50% μαγνήσιο και που θα είναι απηλλαγμένα μοριδίων που μπορούν να προκαλέσουν ανάφλεξη (ή να την υποβοηθήσουν), επικαλυμμένα κοκκία μαγνησίου μεγέθους κάθε μεριδίου τουλάχιστον 149 UM.

ΠΑΡΑΤΗΡΗΣΗ: Κόνις και πυρίτις μετάλλων σε πυροφόρο μορφή θεωρούνται ουσίες της Κλάσεως 4.2 (Βλέπε περιθώριο 2431, 6° (α)).

Σχετικά με το (δ) βλέπε επίσης περιθώριο 2471 (β)

2° α) Ανθρακασβέστιο και καρβίδιο αλουμινίου.

β) υδρίδια αλκαλομετάλλων και αλκαλικών γαιών (π.χ. υδρίδιο λιθίου, υδρίδιο ασβεστίου), μικτά υδρίδια και υδρίδια βορίου ως και υδρίδια αλουμινίου αλκαλομετάλλων και μετάλλων αλκαλικών γαιών.

γ) Πυριτιούχα αλκάλεα

δ) πυριτιούχο ασβέστιο σε σκόνη, κόκκους ή βώλους που περιέχει περισσότερο από 30% σιλικόνη, πυριτιούχο μαγκανιο-ασβέστιο (SILICO-MANGANESE- CALCIUM)

ε) οργανο-μεταλλικές ενώσεις που εκλύουν αναφλέξιμα αέρια σε επαφή με νερό, όπως: αλκύλια αλουμινίου, αλκυλοαλίδια αλουμινίου, αλκυλο-υδρίδια αλουμινίου, αλκύλια λιθίου, αλκύλια μαγνησίου, αλκύλια ψευδαργύρου, αλκύλια γαλλίου, αλκύλια βορίου και διαλύματα των ουσιών αυτών που εκλύουν αναφλέξιμα αέρια σε επαφή με νερό.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Οργανομεταλλικές ενώσεις και διαλύματα αυτών που υπόκεινται σε αυτόματη ανάφλεξη, είναι ουσίες της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 3°).

2. Αναφλέξιμα διαλύματα και ουσίες του 2° (ε) σε συμπυκνώσεις που δεν υπόκεινται σε αυτόματη ανάφλεξη και που δεν εκλύουν αναφλέξιμα αέρια σε επαφή με νερό, είναι ουσίες της Κλάσεως 3. Ο αποστολέας θα πρέπει να αναγράφει στο έγγραφο μεταφοράς την φράση: «Ουσίες που δεν εκλύουν αναφλέξιμο ατμό όταν έρχονται σε επαφή με νερό» (Βλέπε

επίσης στην Κατηγορία 4.2 περιθώριο 2431 3°, ΠΑΡΑΤΗΡΗΣΗ 2).

3° Αμίδια αλκαλομετάλλων και αλκαλικών γαιών, π.χ. νατριοαμίδιο (SODIUM AMIDE). Βλέπε επίσης περιθ. 2471α στην παρ. α).

ΠΑΡΑΤΗΡΗΣΗ: Το κυαναμίδιο ασβεστίου δεν υπόκειται στις διατάξεις της ADR.

4° α) Τριχλωροσιλάνιο (πυριτιοχλωροφόρμιο)

β) Μεθυλο-διχλωρο-σιλάνιο και αιυλο-διχλωροσιλάνιο.

5° Τριφθοριούχο βόριο και διμεθυλο-αιθερικό βόριο.

6° Κενά κόλα, κενά βυτιοφόρα οχήματα, κενές αποσυνδεόμενες δεξαμενές, κενές δεξαμενές – εμπορευματοκιβώτια και κενά μικρά κονταίηνες χύμα, ακαθάριστα, στα οποία περιείχοντο ουσίες της Κλάσεως 4.3.

Ουσίες μεταφερόμενες σύμφωνα με τις κατωτέρω διατάξεις, δεν υπόκεινται ούτε στην διάταξη για την Κλάση αυτή που περιέχεται στο παρόν Παράρτημα, ούτε στις περιεχόμενες στο Παράρτημα Β: 2471α

α) Νατριο - αμίδιο της 3° σε ποσότητες που δεν υπερβαίνουν τα 200 γρ. κατά κόλον, συσκευασμένες σε δοχεία που κλείουν έτσι ώστε να μην επιτρέπεται διαρροή και που είναι απρόσβλητα απο τα περιεχόμενα, εφ' όσον τα δοχεία αυτά συσκευάζονται με προσοχή μέσα σε ισχυρή, χωρίς διαφυγές ξύλινη συσκευασία, με κλείσιμο που να αποκλείει διαφυγή.

β)Κόνις και πυρίτις αλουμινίου η φευδαργύρου του 1° (δ) συσκευασμένες μαζί με βερνίκι για χρήση σε βιομηχανία χρωμάτων, εφ' όσον είναι συσκευασμένες σε ποσότητες που δεν υπερβαίνουν το 1 κιλό.

2. ΔΙΑΤΑΞΕΙΣ

Α. Κόλα

I. Γενικές διατάξεις συσκευασίας.

1) Οι συσκευασίες θα πρέπει να κλείνονται έτσι ώστε να αποκλείεται διαρροή και να προλαμβάνεται η είσοδος υγρασίας και η οποιαδήποτε απώλεια των περιεχομένων. 2472

2) Τα υλικά από τα οποία είναι κατασκευασμένα τα δοχεία και τα σκεπάσματά των δεν θα πρέπει να είναι υποκείμενα σε προσβολή από τα περιεχόμενα ή να σχηματίζουν επιβλαβείς ή επικίνδυνες ενώσεις με αυτά. Τα δοχεία πρέπει οπωσδήποτε πάντα να είναι απαλλαγμένα από υγρασία.

3) Οι συσκευασίες και τα καλύμματά των πρέπει να είναι αρκετά σκληρός και ισχυρός παντού ώστε να εμποδίζεται η χαλάρωση κατά την μεταφορά και για να εκπληρούν τις συνήθεις απαιτήσεις της μεταφοράς. Ειδικώτερα, στην περίπτωση των στερεών που είναι εμβαπτισμένα σε υγρό, τα δοχεία και τα κλεισίματά των θα πρέπει, (εκτός αν το άρθρο με την επικεφαλίδα «Συσκευασία μιας μόνης ουσίας» προβλέπει κάτι άλλο), να μπορούν να αντέχουν σε κάθε πίεση που μπορεί να προκύψει εντός των δοχείων σε ομαλές συνθήκες μεταφοράς, λαμβανομένης επίσης υπ' όψιν της πιέσεως του αέρος. Για τον σκοπό αυτό, θα πρέπει να αφήνεται ελεύθερος χώρος, λαμβανομένης υπ' όψιν και της διαφοράς θερμοκρασίας των ουσιών κατά τον χρόνο πληρώσεως και της υψηλοτέρας μέσης θερμοκρασίας που είναι ενδεχόμενο να φθάσουν κατά την διάρκεια της μεταφοράς. Στερεές ουσίες θα είναι ακλόνητα στερεωμένες στις συσκευασίες των και οι εσωτερικές συσκευασίες θα πρέπει να είναι ακλόνητα στερεωμένες στις εξωτερικές συσκευασίες.

Εάν δεν καθορίζεται τίποτε άλλο στο άρθρο με τίτλο «Συσκευασία μιας μόνης ουσίας», οι εσωτερικές συσκευασίες μπορούν να περικλείονται σε εξωτερικές συσκευασίες είτε μία - μία είτε σε ομάδες.

(4) Φιάλες και άλλα γυάλινα δυχεία θα πρέπει να μην έχουν σφάλματα που μπορεί να μειώνουν την αντοχή των. Ειδικώτερα, θα πρέπει να ανακουφίζονται οι εσωτερικές τάσεις. Το πάχος των τοιχωμάτων δεν θα πρέπει σε καμμία περίπτωση να είναι μικρότερο από 2 χστ.

Η στεγανότης του κλεισίματος θα πρέπει να εξασφαλίζεται με ένα πρόσθετο σύστημα (σκέπασμα, κορώνα σφραγίδα, περίδεση κ.λπ.) που θα μπορεί να προλάβει κάθε χαλάρωση του κλεισίματος κατά την μεταφορά.

(5) Αντικρουστικά υλικά θα πρέπει να είναι προσαρμοσμένα στο είδος των περιεχομένων.

Συσκευασία μιας μόνης ουσίας

(1) Ουσίες του 1° (α) έως (γ) θα πρέπει να συσκευάζονται: 2473

α) σε δοχεία κατασκευασμένα από λαμαρίνα, λαμαρίνα με επένδυση μολύβδου ή από λευκοσίδηρο. Για ουσίες του 1° (β) πάντως, δεν θα γίνονται δεκτά δοχεία κατασκευαμένα από λαμαρίνα με επένδυση μολύβδου ή από λευκοσίδηρο.

Τα δοχεία αυτά, με εξαίρεση τα σιδηροβάρελα, πρέπει να τοποθετούνται σε ξύλινα κιβώτια συσκευασίας ή σε προστατευτικούς σιδηροκλωβούς, ή:

β) το πολύ 1 κιλό κατά δοχείο, σε δοχεία από γυαλί ή πήλινα. Πέντε το πολύ από τα δοχεία αυτά μπορούν να συσκευάζονται σε ξύλινα κιβώτιο με αντιδιαρροϊκή επένδυση από συνηθισμένη λαμαρίνα, λαμαρίνα με επίστρωση μολύβδου ή λευκοσίδηρο, συναρμολογημένη με μολυβδοκόλληση. Για γυάλινα δοχεία που περιέχουν ποσότητες το πολύ 250 γρ. το επενδεδυμένο ξύλινο κιβώτιο μπορεί να αντικατασταθεί με εξωτερικό κιβώτιο/δοχείο από συνηθισμένη λαμαρίνα, λαμαρίνα με επίστρωση μολύβδου ή λευκοσίδηρο. Τα γυάλινα δοχεία πρέπει να σταθεροποιούνται μέσα στις εξωτερικές συσκευασίες με άκαυστα αντικρουστικά υλικά.

2) Αν μία ουσία του 1° (α) δεν είναι συσκευασμένη σε συγκολλημένο μεταλλικό δοχείο που να έχει σκέπασμα ερμητικά κλεισμένο με μολυβοκόλληση, τότε:

α) θα πρέπει να καλύπτεται εντελώς με ορυκτέλαιο του οποίου το σημείο αναφλέξεως να είναι πάνω από 50° C ή να είναι αρκετά ραντισμένο έτσι ώστε να εξασφαλίζεται ότι και τα εξογκώματα να καλύπτονται επαρκώς με το λάδι αυτό, ή:

β) ο αέρας μέσα στο δοχείο θα πρέπει να έχει αντικατασταθεί τελείως με προστατευτικό αδρανές αέριο (π.χ. άζωτο) και το δοχείο να είναι αεροστεγώς κλεισμένο, ή:

γ) η ουσία να γεμίσει το δοχείο έως το επάνω χείλος τελείως και μετά την ψύξη να κλείνει αεροστεγώς το δοχείο.

3) Σιδερένια δοχεία πρέπει να έχουν πλευρές πάχους τουλάχιστον 1.25 χστ. Αν δε μαζί με το περιεχόμενό των ζυγίζουν πλέον των 75 κιλών, θα πρέπει να είναι κολλημένα σε σκληρή κόλληση ή ηλεκτροκόλληση. Αν ζυγίζουν πλέον των 125 κιλών θα πρέπει επίσης να είναι εφωδιασμένα με ακραία και στεφάνια κυλίσεως ή φλάτζες κυλίσεως.

4) Ουσίες του 1° (δ) πρέπει να συσκευάζονται σε ερμητικά κλεισμένα δοχεία από μέταλλο, γυαλί ή κατάλληλο πλαστικό υλικό ή σε υδατοστεγείς σάκκους. Γυάλινα δοχεία και σάκκοι πρέπει να στερεώνονται με αντικρουστικά υλικά μέσα σε εξωτερική συσκευασία από ξύλο, μέταλο ή ινοσανίδα. Κάθε κόλον δεν πρέπει να ζυγίζει πλέον των 115 κιλ.

(1) Ουσίες του 2° (α) έως (δ) πρέπει να συσκευάζωνται: 2474

(α) σε δοχεία από λαμαρίνα, λαμαρίνα με επένδυση μολύβδου ή λευκοσίδηρο. Για ουσίες του 2° (β) και (γ) το δοχείο δεν πρέπει να περιέχει περισσότερα από 10 κιλά.

Τα δοχεία αυτά, με εξαίρεση τα σιδεροβάρελα, πρέπει να τοποθετούνται μέσα σε ξύλινα κιβώτια ή σε προστατευτικούς σιδηροκλωβούς, ή:

(β) όχι πλέον του 1 κιλού κατά δοχείο, σε δοχεία κατασκευόμενα απο γυαλί ή πηλό ή κατάλληλο πλαστικό υλικό. Πέντε το πολύ τέτοια δοχεία πρέπει να συσκευάζονται σε ξύλινα κιβώτια με επένδυση αντιδιαρροϊκή από συνηθισμένη λαμαρίνα, λαμαρίνα με επένδυση μολύβδου η λευκοσίδηρο, που συναρμολογείται με μολυβδοκόλληση.

Για γιάλινα δοχεία περιέχοντα ποσότητες που δεν υπερβαίνουν τα 250 γραμμάρια, το επενδεδυμένο ξυλοκιβώτιο μπορεί να αντικατασταθεί με εξωτερικό δοχείο απο συνηθισμένη λαμαρίνα, λαμαρίνα με μολύβδινη επένδυση η λευκοσίδηρο.

Τα γυάλινα δοχεία πρέπει να στερεώνονται σε κιβώτια συσκευασίας με άκαυστα αντικρουστικά υλικά.

(2) Κάθε κόλον δεν πρέπει να ζυγίζει πλέον των 75 κιλών αν περιέχει ουσίες του 2° (β) ή (γ) και το πολύ 125 κιλά αν περιέχει ουσίες του 2° (δ).

(3) Ουσίες του 2° (ε) πρέπει να συσκευάζονται σε ερμητικά κλειστά δοχεία απρόσβλητα από τα περιεχόμενά των, χωρητικότητος μέχρι 450 λίτρων.

Τα δοχεία θα πρέπει:

Είτε να στερεώνονται μέσα σε εξωτερικές συσκευασίες από υλικό ανθεκτικό στη φωτιά,

Είτε να έχουν πάχος τοιχώματος τουλάχιστον 3 χστ. με προστατευτικό κάλυμμα των κρουνών πληρώσεως και εκροής.

Τα δοχεία πρέπει να υποβάλλονται στην αρχική δοκιμασία και με περιοδικές δοκιμασίες ανά πέντε έτη με αδρανή δοκιμαστική ουσία και με πίεση τουλάχιστον 1 MPA (10 BAR).

Τα εξής στοιχεία θα πρέπει να αναγράφονται πάνω στην πινακίδα ενδείξεων του δοχείου:

α) «Οργανομεταλλικές ενώσεις, Κλάση 4.3»,

β) το απόβαρο του δοχείου, συμπεριλαμβανομένων εξαρτημάτων και παρακολουθημάτων,

γ) η πίεση δοκιμασίας και ημερομηνία (μήνας και χρόνος) της τελευταίας δοκιμασίας που έγινε,

δ) η σφραγίδα του εμπειρογνώμονα που εξετέλεσε τις δοκιμασίες,

ε) η περιεκτικότητα του δοχείου και το μέγιστο επιτρεπόμενο σημείο πληρώσεως.

Ο ακριβής προορισμός των περιεχομένων και οι φράσεις: «Απαγορεύεται το άνοιγμα κατά την μεταφορά. Αναδίδει αναφλέξιμα αέρια σε επαφή με νερό» θα πρέπει να είναι ανεξίτηλα σφραγισμένες και γραμμένες σε μια επίσημη γλώσσα της χώρας αποστολής, επίσης δε, αν η εν λόγω γλώσσα δεν είναι η Αγγλική, Γαλλική ή Γερμανική θα αναγράφεται και στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν υπάρχει κάποια συμφωνία μεταξύ των ενδιαφερομένων χώρων που προβλέπει άλλως.

Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 1.000 κιλά.

(4) Ουσίες του 2° (ε) μπορούν επίσης να συσκευάζονται σε ερμητικά κλειστά γυάλινα δοχεία περιεκτικότητος το πολύ 5 λίτρων, τα οποία θα πρέπει να ασφαλίζονται και στερεώνονται με αντικρουστικά υλικά μέσα σε λαμαρινένια δοχεία. Τα γυάλινα δοχεία δεν πρέπει να γεμίζονται περισσότερο από 90% της περιεκτηκότητάς των.

Αμίδια του 3° θα πρέπει να συσκευάζονται σε ποσότητες το πολύ 10 κιλών κατά κυτίο ή βαρέλι, δε ερμητικά κλεισμένα μεταλλικά κυτία ή βαρέλια, που θα τοποθετούνται μέσα σε ξύλινα κιβώτια. Κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 75 κιλά.

(1) Τριχλωροσιλάνιο (σιλικοχλωροφόρμιο) του 4° (α), μεθυλο-διχλωροσιλάνιο και αιθυλο-διχλωροσιλάνιο του 4° (β) θα πρέπει να συσκευάζονται σε δοχεία από ανοξείδωτο χάλυβα με περιεκτικότητα το πολύ 500 λίτρα. Τα δοχεία πρέπει να είναι ερμητικά κλεισμένα. Το σύστημα κλεισίματος πρέπει να προστατεύεται ειδικά από κάλλυμα.

Τα δοχεία πρέπει να είναι κατασκευασμένα έτσι ώστε να αντέχουν σε λειτουργική πίεση 0.4 MPα (4 BAR) και να δοκιμάζονται σύμφωνα με τους ισχύοντας κανονισμούς που διέπουν τα πιεστικά δοχεία στην χώρα αναχωρήσεως. Δοχεία με χωρητικότητα το πολύ 250 λίτρων θα πρέπει να έχουν τοιχώματα πάχους τουλάχιστον 2.5 χστ. και δοχεία με μεγαλύτερη χωρητικότητα τοιχώματα πάχους τουλάχιστον 3 χστ.

(2) Αν η πλήρωση γίνεται βάσει μάζας, ο βαθμός πληρώσεως δεν θα πρέπει να υπερβαίνει:

1.14 κιλό ανά λίτρο για τριχλωροσιλάνιο

0.95 κιλό ανά λίτρο για μεθυλο-διχλωροσιλάνιο

0.93 κιλό ανά λίτρο για αιθυλο-διχλωροσιλάνιο

Αν η πλήρωση γίνεται με οπτικό έλεγχο, ο βαθμός πληρώσεως δεν πρέπει να υπερβαίνει το 85%.

Το αιθερικό διμεθυλικό τριφθοριούχο βόριο του 5° πρέπει 2477
να συσκευάζεται:

α) σε ποσότητες το πολύ ενός λίτρου κατά δοχείο σε ερμητικά σφραγισμένα δοχεία κατασκευασμένα από γυαλί, πηλό ή κατάλληλο πλαστικό υλικό, τοποθετημένα σε ξύλινα ή από ινοσανίδα κιβώτια συσκευασίας. Γυάλινα ή πήλινα δοχεία πρέπει να στερεώνονται στα κιβώτια συσκευασίας με τα κατάλληλα απορροφητικά, αδρανή και άκαυστα αντικρουστικά υλικά, ή να τοποθετούνται σε πολύ εφαρμοστές συσκευασίες κατασκευασμένες από προσχηματισμένα αδρανή πλαστικά υλικά. Κάθε κόλον δεν πρέπει να ζυγίζει πλέον των 55 κιλών αν το κιβώτιο συσκευασίας είναι από ινοσανίδα και το πολύ 125 κιλά αν το κιβώτιο συσκευασίας είναι ξύλινο.

β) σε ερμητικά σφραγισμένα δοχεία κατασκευασμένα από κατάλληλο πλαστικό υλικό και με περιεκτικότητα το πολύ 250 λίτρα, με κάθε δοχείο τοποθετημένο σε εφαρμοστό προστατευτικό χαλύβδινο περίβλημα με πλήρη τοιχώματα.

γ) σε ερμητικά σφραγισμένα ανθεκτικά σε διάβρωση χαλύβδινα βαρέλια χωρητικότητος το πολύ 450 λίτρων.

3. Μικτή συσκευασία

(1) Ουσίες που ανήκουν στην ομάδα με τον ίδιο αριθμό είδους μπορούν να περιλαμβάνονται στο ίδιο κόλον. Οι εσωτερικές συσκευασίες θα πρέπει να είναι σύμφωνες με τα προδιαγραφόμενα για κάθε ουσία, ενώ οι εξωτερικές συσκευασίες θα πρέπει να είναι εκείνες που καθορίζονται για τις ουσίες του εν λόγω αριθμού είδους.

(2) Αν μικρότερες ποσότητες δεν προδιαγράφονται στο άρθρο με επικεφαλίδα «Συσκευασία μιας μόνης ουσίας» ουσίες της Κλάσεως αυτής, σε ποσότητες το πολύ έως 6 κιλ. σε περίπτωση στερεών ή 3 λίτρων σε περίπτωση υγρών, για όλες τις ουσίες που καταχωρίζονται με τον ίδιο αριθμό είδους ή το ίδιο ψηφίο, μπορούν να εγκλείονται στο ίδιο κόλον είτε με ουσίες άλλου αριθμού είδους ή άλλου ψηφίου της ίδιας κλάσεως, είτε με επικίνδυνες ουσίες που ανήκουν σε άλλες κλάσεις (αν επιτρέπεται παρομοίως μικτή συσκευασία στην περίπτωση των ουσιών αυτών) ή με άλλα εμπορεύματα, σύμφωνα με τους εξής ειδικούς όρους.

Οι εσωτερικές συσκευασίες πρέπει να ικανοποιούν τους γενικούς όρους συσκευασίας. Επίσης πρέπει να τηρούνται οι γενικοί όροι που περιέχονται στα περιθώρια 2001(7) και 2002(6) & (7).

Κάθε κόλον δεν πρέπει να ζυγίζει πάνω από 150 κιλά ή πάνω από 75 κιλά εάν περιέχει εύθραυστα δοχεία.

Ειδικοί όροι:

Αριθμός Είδους	Περιγραφή Ύλης	Ανώτάτη Ποσότητα ανά δοχείο	ανά κόλον	Ειδικές Διατάξεις
1°(α)	Αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών (π.χ. νάτριον, κάλιον, βάριον)			Τα όρια των 500 γραμ. 1 KG ισχύουν για αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών της 1°(α), και για υδρίδια αλκαλιμετάλλων και υδρίδια μετάλλων αλκαλικών γαιών, σε σχέση με το ολικό βάρος των υλών αυτών. Τα αλκαλιμέταλλα και μέταλλα αλκαλικών γαιών, και ύλες της 2°(β), δεν μπορούν να συσκευάζονται μαζί με οξέα ούτε με υγρά περιέχοντα ύδωρ.
	– σε εύθραστα δοχεία	500 γρ.	500 γρ.	
	– σε άλλα δοχεία	1 KG	1KG	
2°(α)	Ανθρακούχο ασβέστιο	Μικτή συσκευασία δεν επιτρέπεται		
2°(β)	Υδρίδια αλκαλιμετάλλων και μετάλλων αλκαλικών γαιών (π.χ., λίθιο, υδρίθιο λιθίου, υδρίδιο ασβεστίου), μικτά υδρίδια, υδρίδια βορίου και υδρίδια αργυλίου			
	– σε εύθραυστα δοχεία	500 γρ.	500 γρ.	
	– σε άλλα δοχεία	1 KG	1 KG	
4°	όλες οι ουσίες	Μικτή συσκευασία δεν επιτρέπεται		
5°	Αιθερικό διμεθυλοτριφθορικό βόριο	Μικτή συσκευασία δεν επιτρέπεται		

4. (Μαρκάρισμα και προειδοποιητικές πινακίδες στα κόλα (βλ. Παράρτημα Α.9)

(1) Κόλα περιέχοντα ουσίες της Κλάσεως 4.3 θα πρέπει να φέρουν πινακίδα του υποδείγματος 4.3 και πινακίδα σύμφωνα με το υπόδειγμα No. 10.

(2) Κόλα περιέχοντα ουσίες των 4° και 5° θα πρέπει να φέρουν επί πλέον πινακίδες σύμφωνα με το υπόδειγμα No3 και 8.

(3) Κόλα περιέχοντα εύθραυστα δοχεία αθέατα απ' έξω, θα πρέπει να φέρουν πινακίδα σύμφωνα με το υπόδειγμα No. 12. Αν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα θα πρέπει επί πλέον, εκτός από την περίπτωση σφραγισμένων αμπουλών, να φέρουν πινακίδες σύμφωνα με το υπόδειγμα No 11. Οι πινακίδες αυτές θα πρέπει να είναι στερεωμένες στο επάνω μέρος και σε δύο αντίθετες πλευρές των κιβωτίων ή κατά ανάλογο τρόπο αν χρησιμοποιούνται αλλες συσκευασίες.

Β. Στοιχεία στο έγγραφο μεταφοράς

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στο περιθώριο 2471. Αν δεν δίδεται το όνομα της ουσίας, για ουσίες του 1°, θα πρέπει να δίδεται το εμπορικό όνομα. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται και να ακολουθούν τα στοιχεία της κλάσεως, ο αριθμός είδους και το τυχόν ψηφίο, ως και τα αρχικά «ADR» ή «RID» π.χ.: 4.3, 2° (α) ADR.

Γ. Κενές συσκευασίες 2482 – 2497

(1) Κενές συσκευασίες, ακαθάριστες, του 6° θα κλείνονται κατά τον ίδιο τρόπο και θα είναι απηλλαγμένες από διαρροές στον ίδιο βαθμό σαν να ήσαν πλήρεις.

(2) Κενές συσκευασίες, ακαθάριστες, του 6° θα φέρουν τις ίδιες προειδοποιητικές πινακίδες σαν να ήσαν γεμάτες.

(3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στο 6° (π.χ. «Κενή συσκευασία, 4.3, 6°, ADR»). Το κείμενο αυτό πρέπει να υπογραμμίζεται. Στην περίπτωση κενών βυτιοφόρων οχημάτων, κενών απουσυνδεομένων δεξαμενών, κενών δεξαμενών/κοντέηνερς και κενών μικρών κοντέηνερς σε χύμα, ακαθαρίστων, ή περιγραφή αυτή θα συμπληρώνεται με την φράση: «Τελευταίο φορτίο» μαζί με το όνομα και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ.

Τελευταίο φορτίο: τριχλωροσιλάνιο, 4° (α).

ΚΛΑΣΗ 5.1 ΟΞΕΙΔΩΤΙΚΕΣ ΥΛΕΣ

1. Κατάλογος υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό τον τίτλον Κλάση 5.1, οι αναγραφόμενες στο περιθώριο 2501 υπόκεινται στις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

Σημείωσις: Εκτός εάν ειδικώς αναγράφονται στη Κλάση 1α ή Κλάση 1γ, μίγματα οξειδωτικών υλών με καύσιμες ύλες δεν θα γίνονται δεκτά για μεταφορά εάν μπορούν να εκραγούν σε επαφή με φλόγα ή εάν είναι λίαν ευαίσθητα και περισσότερον ευαίσθητα στη κρούση και τριβή από το από το δινιτροβενζόλιο.

1° Σταθεροποιημένα, υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα περισσότερο από 60 στα εκατόν υπεροξείδιο του υδρογόνου, και σταθεροποιημένο υπεροξείδιο του υδρογόνου. 2501

Σημείωση: 1. Για υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα όχι περισσότερο του 60 στα εκατόν υπεραξείδιο του υδρογόνου, βλέπε περιθώριο 2801, 62°.

2. Υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα του 60 στα εκατόν υπεροξείδιο του υδρογόνου, μη σταθεροποιημένο, και υπεροξείδιο του υδρογόνου, μη σταθεροποιημένο, δεν γίνονται δεκτά για μεταφορά.

Τετρανιτρομεθάνιο, ελεύθερο από καυσίμους ακαθαρσίας.

Σημείωση: Τετρανιτρομεθάνιο μη απαλλαγμένο από καυσίμους ακαθαρσίας δεν γίνεται δεκτό για μεταφορά.

3° Υπερχλωρικό οξύ σε υδάτινα διαλύματα περιέχοντα περισσότερο από 50 στα εκατόν αλλά όχι περισσότερο από 72.5 στα εκατόν υπερχλωρικού οξύ ($HClO_4$). Βλέπε επίσης περιθώριο 2501α, υπό στοιχείον (α). 2479

Σημείωση: Υπερχλωρικό οξύ σε υδάτινα διαλύματα περιέχοντα όχι περισσότερο του 50 στα εκατόν υπερχλωρικό οξύ ($HClO_4$) είναι ύλη της Κλάσεως 8 (βλέπε περιθώριο 2801, 4°). Υδάτινα διαλύματα υπερχλωρικού οξέος περιέχοντα περισσότερο από 72.5 στα εκατόν υπερχλωρικό οξύ δεν γίνονται δεκτά για μεταφορά· το ίδιο ισχύει για μίγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό πλην του νερού.

4° (α) Χλωρικά Άλατα: ανόργανου χλωρικού άλατος ζιζανιοκτόνα αποτελούμενα από μίγματα χλωρικού νατρίου, χλωρικού καλίου ή χλωρικού ασβεστίου με υδροσκοπικό χλωρίδιο (όπως χλωριούχο μαγνήσιο ή χλωριούχο ασβέστιο).

Σημείωση: Χλωρικόν Αμμώνιον δεν γίνεται δεκτό για μεταφορά.

(β) Υπερχλωρικά άλατα (με εξαίρεση το υπερχλωρικόν αμμώνιον, βλέπε 5°). 2480 2481

(γ) Χλωρικά άλατα νατρίου και καλίου.

(δ) Μίγματα χλωρικών αλάτων, υπερχλωρικών αλάτων και χλωριωδών αλάτων (των (α), (β) και (γ) με άλληλα.

Για τα (α), (β), (γ) και (δ), βλέπε επίσης περιθώριο 2501α, υπό στοιχείον (β).

5° Υπερχλωρικόν αμμώνιον. Βλέπε επίσης περιθώριο 2501α υπό στοιχείον (β).

6° (α) Νιτρικόν Αμμώνιον που περιέχει καύσιμες ουσίες (συμπεριλαμβανομένης οποιασδήποτε οργανικής ουσίας υπολογισμένης σαν άνθρακα), με εξαίρεση οποιασδήποτε άλλης προσθέτου ουσίας. 2498

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Νιτρικό αμμώνιο περιέχον πλέον του 0.2% καύσιμες ουσίες (συμπεριλαμβανομένης οποιασδήποτε οργανικής ουσίας υπολογιζομένης σαν άνθρακα) δεν πρέπει να γίνεται δεκτό για μεταφορά εκτός αν αποτελεί συστατικό εκρητικού της Κλάσεως 1α (βλέπε περιθώριο 2101, 12° ή 14°).

2. Υδατικά διαλύματα νιτρικού αμμωνίου σε συμπύκνωση το πολύ 80% δεν υπόκεινται στις απαιτήσεις της ADR.

β) Λιπάσματα νιτρικού αμμωνίου, τύπου Α1: Ομοιογενή μη διαχωριζόμενα μίγματα πέριέχοντα τουλάχιστον 90% νιτρικό αμμώνιο με πρόσθετο υλικό που είναι ανόργανο και χημικά αδρανές έναντι του νιτρικού αμμωνίου και το πολύ 0.2% καυσίμου ύλης (συμπεριλαμβανομένης οργανικής ύλης υπολογιζομένης σαν άνδρακα), ή μίγματα περιέχοντα το πολύ 90% αλλά περισσότερο από 70% νιτρικού αμμωνίου και το πολύ 0.4% καυσίμου ύλης.

γ) Λιπάσματα νιτρικού αμμωνίου, τύπου Α2: Ομοιογενή, μη διαχωριζόμενα μίγματα νιτρικού αμμωνίου με άνθρακικό ασβέστιο και/ή δολομίτη, περιέχοντα πλέον των 80% αλλά λιγώτερο από 90% νιτρικό αμμώνιο και το πολύ 0.4% συνολικό καύσιμο υλικό. 2500

δ) Λιπάσματα νιτρικού αμμωνίου, τύπου Α3: Ομοιογενή, μη διαχωριζόμενα μίγματα νιτρικού αμμωνίου και θείικού αμμωνίου, περιέχοντα περισσότερο από 45% αλλά λιγώτερο από 70% νιτρικό αμμώνιο και το πολύ 0.4% συνολικά καύσιμο υλικό.

ε) Λιπάσματα νιτρικού αμμωνίου τύπου Α4: Ομοιογενή, μη διαχωριζόμενα μίγματα (σύνθετα λιπάσματα), αζωτο/φωσφορικού ή αζωτο/ποτασικού τύπου, περιέχοντα περισσότερο από 70% και λιγώτερο από 90% νιτρικού αμμωνίου και το πολύ 0.4% συνολικά καύσιμο υλικό. 2501

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Για τον προσδιορισμό περιεκτικότητος νιτρικού αμμωνίου, όλα τα ιόντα αξώτου για τα οποία υπάρχει στο μίγμα μοριακό ισοδύναμο των ιόντων αμμωνίου, θα υπολογίζονται σαν νιτρικό αμμώνιο.

2. Λιπάσματα που περιέχουν νιτρικό αμμώνιο ή καύσιμες ύλες που υπερβαίνουν τις τιμές που αναφέρονται στο 6°(β) έως 6 (ε) αντίστοιχα, δεν θα πρέπει να γίνονται δεκτά για μεταφορά παρά μόνο με τους όρους που εφαρμόζονται στην Κλάση 1α (βλέπε περιθώριο 2101, 12° (α).

Βλέπε επίσης Παρατήρηση 4.

3. Λιπάσματα με περιεχόμενο νιτρικό αμμώνιο κάτω των οριακών τιμών που αναφέρονται στο 6° (γ) έως 6° (ε) αντίστοιχα, δεν υπόκεινται στις απαιτήσεις της ADR.

4. Λιπάσματα με περιεχόμενο νιτρικό αμμώνιο το πολύ 45% και των οποίων το περιεχόμενο καυσίμων ουσίων είναι μεγαλύτερο από 0.4% δεν υπόκεινται στις διατάξεις της ADR εφ' όσον η μοριακή περίσσεια του αζώτου έναντι των ιόντων αμμωνίου (υπολογιζομένων σαν νιτρικό κάλιο) δεν υπερβαίνει το 10% κατά μάζα.

Για (α) έως (ε) βλέπε επίσης περιθώριο 2501α υπό στοιχείο (β).

7° α) Νιτρικό νάτριο.

β) Μίγματα νιτρικού αμμωνίου με νιτρικά άλατα νατρίου, καλίου, ασβεστίου και μαγνησίου.

γ) νιτρικό βάριο, νιτρικός μόλυβδος.

Για (α), (β) και (γ) βλέπε επίσης περιθώριο 2501α υπό στοιχείο (β).

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Εφ' όσον δεν περιέχουν πλέον του 10% νιτρικό αμμώνιο, μίγματα νιτρικού αμμωνίου με νιτρικό ασβέστιο ή με νιτρικό μαγνήσιο ή και με τα δύο, δεν υπόκεινται στις διατάξεις της ADR.

2. Κενοί υφασμάτινοι σάκκοι που περιείχαν νιτρικό νάτριο και δεν έχουν τέλεια απαλλαγεί απο το νίτρο που τους διαποτίζει, είναι είδη της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 13°).

8° Ανόργανα νιτρώδη άλατα. Βλέπε επίσης περιθώρ. 2501α υπό στοιχείο (β).

ΠΑΡΑΤΗΡΗΣΗ: Νιτρώδη άλατα αμμωνίου και μίγματα ανοργάνου νιτρώδους άλατος με άλας αμμωνίου δεν θα γίνονται δεκτά για μεταφορά.

9° (α) Υπεροξείδια αλκαλικών μετάλλων και μίγματα περιέχοντα υπεροξείδια αλκαλικών μετάλλων που δεν είναι περισσότερο επικίνδυνα από το υπεροξείδιο του νατρίου.

β) Υπεροξείδια αλκαλικών γαιωδών μετάλλων, π.χ. διοξείδιο βαρύου.

γ) υπερμαγγανικά άλατα νατρίου, καλίου, ασβεστίου και βαρύου.

Για τα (α), (β) και (γ) βλέπε επίσης 2501α υπό στοιχείο (β).

ΠΑΡΑΤΗΡΗΣΗ:

Υπερμαγγανικό αμμώνιο και μίγματα υπερμαγγανικού με αμμωνιακό άλας δεν θα γίνονται δεκτά για μεταφορά.

Διαλύματα χρωμικού οξέος είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 11° (β)).

10° Τριοξείδιο χρωμίου (χρωμικός ανυδρίτης, επίσης καλούμενο χρωμικό οξύ).

Βλέπε επίσης περιθώριο 2501α υπό στοιχείο (β).

11° Κενές συσκευασίες, κενά βυτιοφόρα αυτοκίνητα κενές αποσυνδεόμενες δεξαμενές, κενές δεξαμενές/κοντέηνερς και κενά μικρά κοντέηνερς χύμα φορτίου, ακαθάριστα, που περιείχαν ουσίες της Κλάσεως 5.1.

ΠΑΡΑΤΗΡΗΣΗ: Κενές συσκευασίες και κενές δεξαμενές που περιείχαν χλωρικό, υπερχλωρικό, χλωριώδες άλας των 4° και 5°, ανόργανο νιτρώδες άλας του 8° ή ουσίες των 9° και 10° με κατάλοιπα απο προηγούμενα περιεχόμενά των προσκολλημένα στο έξω μέρος, δεν γίνονται δεκτές για μεταφορά.

2501α Ουσίες παραδιδόμενες για μεταφορά σύμφωνα με τις κατωτέρω διατάξεις δεν υπόκεινται ούτε στις διατάξεις της περιεχόμενες στο παρόν Παράρτημα για την παρούσα Κλάση, ούτε στις διατάξεις τις περιεχόμενες στο Παράρτημα Β.

(α) Ουσίες του 3°, σε ποσότητες το πολύ 200 γρ. κατά δοχείο, με την προϋπόθεση πως είναι συσκευασμένες σε δοχεία έτσι κλεισμένα ώστε να αποκλείεται διαρροή, απρόσβλητα από το περιεχόμενο και συσκευασμένα το πολύ ανά 10 κατά κιβώτιο, σε ξύλινα κιβώτια με αδρανές απορροφητικό αντικρουστικό υλικό.

(β) Ουσίες των 4° - 10°, σε ποσότητες το πολύ 10 κιλ. συσκευασμένες το πολύ ανά 2 κιλά ανά δοχείο, σε δοχεία έτσι κλεισμένα, ώστε να αποκλείεται διαρροή, απρόσβλητα από το περιεχόμενο και περικλειόμενα σε ισχυρές, χωρίς διαρροές συσκευασίες από ξύλο ή λαμαρίνα, με κλεισίματα αποκλείοντα διαρροές.

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας

2502 (1) Τα δοχεία θα είναι έτσι κλεισμένα και διευθετημένα ώστε να αποφεύγεται οποιαδήποτε απώλεια ή διαρροή του περιεχομένου.

(2) Τα υλικά από τα οποία είναι κατασκευασμένα τα είδη συσκευασίας και τα κλεισίματά δεν πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο, ή να προκαλούν αποσύνθεση του περιεχομένου, ή να σχηματίζουν με με το περιεχόμενο επιβλαβείς ή επικίνδυνες χημικές ενώσεις.

(3) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι αρκετά άκαμπτα και στερεά σε όλα τους τα μέρη, σε τρόπο ώστε να αποφεύγεται η οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους κανονικούς όρους μεταφοράς. Ειδικότερα, όταν οι ύλες αυτές είναι σε υγρή κατάσταση, τα δοχεία και τα κλεισίματά τους πρέπει, εκτός εάν το άρθρο το τιτλοφορούμενο «Συσκευασία μιας ύλης» προβλέπει άλλως, να είναι σε θέση να αντέχουν οποιαδήποτε πίεση η οποία, λαμβανομένης υπόψη της υπάρξεως αέρος, ενδέχεται να εγερθεί εσωτερικώς των δοχείων κατά την συνήθη μεταφορά. Δια το σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον του γεμίσματος και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς. Εκτός, εάν αλλιώς ειδικώς ορίζεται στο άρθρο το τιτλοφορούμενο «Συσκευασία μιας ύλης», οι εσωτερικές συσκευασίες μπορούν να εγκλείονται σε εξωτερικές συσκευασίες, είτε μία - μία είτε ομαδικά.

(4) Οι φιάλες και τα λοιπά γυάλινα δοχεία πρέπει να είναι απαλλαγμένα από βλάβες που κινδυνεύουν να εξασθενήσουν την αντοχή τους· ειδικότερα, πρέπει να αίρονται καταλλήλως οι εσωτερικές τάσεις. Τα τοιχώματα δεν πρέπει να έχουν πάχος μικρότερο των 3 ΜΜ (χιλ.) στην περίπτωση δοχείων που ζυγίζουν, μαζί με το περιεχόμενό τους, άνω των 35 ΚG, και όχι μικρότερο των 2 ΜΜ (χιλ.) στην περίπτωση άλλων δοχείων.

Η στεγανότητα του συστήματος κλεισίματος πρέπει να εξασφαλίζεται με πρόσθετο μηχανισμό (πώμα, στέμμα (κορώνα), σφραγίδα, δέσιμο, κ.λπ.) ικανόν να εμποδίζει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος διαρκούσης της μεταφοράς.

(5) Οσάκις δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά προβλέπονται ή επιτρέπονται, πρέπει να ασφαλίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες. Το αποσβεστικό υλικό πρέπει να είναι άκαυτο (αμίαντο, υαλοέριο, απορροφητική γη, τριπολική γη, κ.λπ.) και ανίκανο να σχηματίζει επικίνδυνες ενώσεις με το περιεχόμενο των δοχείων. Εάν το περιεχόμενον είναι υγρό, το αποσβεστικό υλικό θα είναι επίσης απορροφητικό και αναλογικό σε ποσότητα με τον όγκον του υγρού· αυτό το εσωτερικό απορροφητικό στρώμα δεν πρέπει, όμως, να έχει πάχος μικρότερο των 4 CM σε οποιοδήποτε σημείο.

Συσκευασία μιας ύλης

2503 (1) Υδάτινα διαλύματα υπεροξειδίου του υδρογόνου της 1°, θα συσκευάζονται σε βαρέλια ή άλλα δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) καθαρότητος 99.5 στα εκατό τουλάχιστον ή από ειδικό χάλυβα μη κινδυνεύοντα να προκαλέση αποσύνθεση του υπεροξειδίου του υδρογόνου. Τα δοχεία αυτά θα είναι εφοδιασμένα με χειρολαβή· θα πρέπει να παραμένουν όρθια σε σταθερό σχήμα και πρέπει:

(α) να διαθέτουν στο άνω μέρος αυτών μηχανισμόν κλεισίματος εξασφαλίζοντα ίσην εσωτερικήν και ατμοσφαιρικήν πίεση· ο μηχανισμός αυτός κλεισίματος πρέπει σε κάθε περίπτωση να εμποδίζει οιανδήποτε διαφυγήν του υγρού και οιανδήποτε είσοδον ξένης ύλης στο δοχείο και πρέπει να προστατεύεται από αεριζόμενο πώμα· ή

(β) να είναι σε θέση να ανθίστανται σε εσωτερική πίεση 0,25 Μρα/(2,5 Bar) και να διαθέτουν στο άνω μέρος μηχανισμόν ασφαλείας τιθέμενον σε λειτουργίαν όταν η επί πλέον εσωτερική πίεση είναι το πολύ 0,1 Μρα (1 Bar).

(2) Τα δοχεία δεν θα πληρούνται πέραν του 90 στα εκατόν της χωρητικότητάς των.

(3) Το κόλον δεν πρέπει να ζυγίζεται άνω των 90 ΚG.

2504 Το τετρανιτρομεθάνιο (2°) θα περιέχεται σε φιάλες κατασκευασμένες από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοιο υλικό ή κατάλληλη πλαστική ύλη, με άκαυστους ανα-

στολείς, τοποθετημένους εσωτερικά ξυλίνου κιβωτίου με πλήρεις πλευρές· εύθραυστα δοχεία θα ασφαλίζονται εκεί με απορροφητικό αποσβεστικό υλικό. Τα δοχεία δεν θα πληρούνται πέραν του 93 στα εκατόν της χωρητικότητάς των.

Υπερχλωρικό οξύ σε υδάτινα διαλύματα (3°) θα περιέχεται 2505
σε γυάλινα δοχεία, τα οποία θα πληρούνται με όχι περισσότερο του 93 στα εκατόν της χωρητικότητός των. Τα δοχεία θα ασφαλίζονται με απορροφητικό και άκαυστο αποσβεστικό υλικό σε άκαυστα προστατευτικά είδη συσκευασίας αδιαπέραστα από υγρά ικανά να συγκρατούν το περιεχόμενο των δοχείων. Το κλείσιμο των δοχείων θα προστατεύεται από πώματα, εάν τα προστατευτικά είδη συσκευασίας δεν κλείουν πλήρως.

Γυάλινες φιάλες κλεισμένες με γυάλινους αναστολείς μπορούν επίσης να ασφαλίζονται με απορροφητικό και άκαυστο αποσβεστικό υλικό σε ξύλινα κιβώτια με πλήρεις πλευρές.

Κόλα περιέχοντα εύθραυστα δοχεία και μεταφερόμενα όχι ως πλήρη φορτία δεν πρέπει να ζυγίζουν περισσότερο των 75 KG και θα διαθέτουν χειρολαβή.

(1) Ύλες των 4° και 5° και διαλύματα των υλών της 4° θα 2506
συσκευάζονται σε δοχεία κατασκευασμένα από ύαλο, ή κατάλληλη πλαστική ύλη, ή μέταλλο· στερεές ύλες της 4° (β) μπορούν επίσης να εγκλείονται σε κάδους από χοντρό ξύλο.

(2) Εύθραυστα δοχεία και δοχεία κατασκευασμένα από πλαστική ύλη πρέπει να ασφαλίζονται με αποσβεστικό υλικό σε ξύλινα ή μεταλλικά προστατευτικά είδη συσκευασίας. Μπορούν επίσης να ασφαλισθούν χωριστά με άκαυστο αποσβεστικό υλικό σε άθραυστα ενδιάμεσα δοχεία τα οποία με τη σειρά τους πρέπει σταθερά να τοποθετούνται ή ασφαλίζονται με προστατευτικό υλικό σε προστατευτικά είδη συσκευασίας. Το κάθε δοχείο πρέπει να περιέχει όχι περισσότερο από 5 KG ύλης. Προκειμένου περί δοχείων των οποίων το περιεχόμενο είναι υγρό, το αποσβεστικό υλικό πρέπει να είναι απορροφητικό.

(3) Προκειμένου περί δοχείων κατασκευασμένων από πλαστικήν ύλην και περιεχόντων διαλύματα υλών της 4ο, τα προστατευτικά είδη συσκευασίας ενδέχεται να μην απαιτούνται εάν τα τοιχώματα είναι σε κάθε σημείο πάχους όχι μικρότερο των 4 MM (χιλ.), όταν τα τοιχώματα έχουν ενισχυθεί με γερές ενισχυμένες στεφάνες, τα άκρα ενισχυθούν, το άνω μέρος διαθέτει δύο γερές χειρολαβές, και οι χειρολαβές, και το άνοιγμα είναι εφοδιασμένα με κοχλιωτό κλείσιμο.

(4) Δοχεία για υγρά δεν πληρούνται πέραν του 95 τοις εκατόν της χωρητικότητάς των.

(5) Κόλα περιέχοντα εύθραυστα δοχεία ή δοχεία κατασκευασμένα από πλαστική ύλη (βλέπε (2) και (3)), εάν περιέχουν υγρά, και κόλα περιέχοντα εύθραυστα δοχεία ή δοχεία κατασκευασμένα από πλαστική ύλη (βλέπε (2)), εάν περιέχουν μόνον στερεές ύλες και μεταφέρονται όχι ως πλήρες φορτίο, δεν πρέπει να ζυγίζουν πάνω από 75 KG. Κόλα μεταφερόμενα όχι ως πλήρες φορτίο θα διαθέτουν χειρολαβήν.

(6) Κόλα που μπορούν να κυλιθούν δεν πρέπει να ζυγίζουν περισσότερο από 400 KG· εάν ζυγίζουν περισσότερο των 275 KG πρέπει να διαθέτουν κυλιόμενες στεφάνες (Rolling Hoops).

(7) Δοχεία περιέχοντα στερεά χλωρικά άλατα πλην των αναφερομένων υπό το στοιχείον (8) δεν πρέπει να περιέχουν καύσιμο υλικό πλην μικρού παρεμβύσματος από κηρόχαρτο.

(8) Εάν το χλωρικόν άλας είναι υπό μορφήν δισκίων, μετά ή άνευ καταλλήλου συνδετικής ύλης, και συσκευάζεται σε φιάλες περιέχουσες όχι άνω των 200 γραμ., επαρκής ποσότητα βαμβακο-ερίου μπορεί να χρησιμοποιείται για να εμποδισθεί η υπερβολική μετακίνηση των δισκίων στην φιάλη. Οι φιάλες θα συσκευάζονται σε κυτία από ινοσανίδα τοποθετούμενα σε ενδιάμεση συσκευασία χωριστά από την εξωτερική συσκευασία.

Η ενδιάμεση συσκευασία δεν θα περιέχει άνω του 1 KG ή το κόλον άνω των 6 KG χλωρικού άλατος.

(1) Οι ύλες των 6°, 7°, και 8° θα συσκευάζονται: (α) σε βα- 2507
ρέλια ή κιβώτια· ή

(β) σε γερούς σάκκους κατασκευασμένους από στενά υφασμένο ύφασμα ή από γερό χαρτί τουλάχιστο πεντάφυλλο ή, σε ποσότητες μη υπερβαίνουσες τα 50 KG, σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη επαρκούς πάχους και γερής ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

Εάν η ύλη είναι περισσότερο υγροσκοπική από το νιτρικό
νάτριο, οι σάκκοι οι κατασκευασμένοι από στενά υφασμένο ύφασμα ή από γερό χαρτί πεντάφυλλο πρέπει να επευδύονται με κατάλληλη πλαστική ύλη ή να καθίστανται αδιαπέραστοι δια καταλλήλου μέσου.

Κόλα τα οποία μπορούν να κυλιθούν δεν πρέπει να ζυγίζουν περισσότερο από 400 KG, εάν ζυγίζουν πάνω από 275 KG πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (Rolling Hoops).

(1) Οι ύλες της 9° (α) θα συσκευάζονται: 2508

(α) σε βαρέλια από χάλυβα· ή

(β) σε δοχεία κατασκευασμένα από φύλλο-μετάλλου, φύλλο σιδήρου επενδεδυμένο με μόλυβδο, ή από λευκοσίδηρο ασφαλιζόμενα σε ξύλινα κιβώτια συσκευασίας έχοντα μεταλλικήν επένδυση καταστάσαν στεγανήν, π.χ. με μολυβοσυγκόλληση.

Όταν μεταφέρονται, ως πλήρες φορτίο οι ύλες της 9° (α) 2506
πρέπει να συσκευάζονται σε δοχεία από πλάκα κασσιτέρου τοποθετημένα αποκλειστικώς σε προστατευτικούς σιδηρούς καλάθους (Iron Hampers).

(2) Δοχεία περιέχοντα ύλες της 9° (α) πρέπει να είναι έτσι κλεισμένα και στεγανά, ώστε να αποφεύγεται η είσοδος υγρασίας.

(3) Ύλες της 9° (β) και (γ) θα συσκευάζονται:

(α) σε άκαυστα δοχεία εφοδιασμένα με άκαυστο ερμητικό κλείσιμο. Εάν τα άκαυστα δοχεία είναι εύθραυστα, το καθένα θα ασφαλίζεται χωριστά με αποσβεστικό υλικό σε ξύλινο δοχείο επενδεδυμένο με γερό χαρτί· ή

(β) σε κάδους από σκληρό ξύλο με στενά εφαρμοσμένες σανίδες, επενδεδυμένους με γερό χαρτί.

(4) Κόλα περιέχοντα εύθραυστα δοχεία και μεταφερόμενα όχι ως πλήρη φορτία δεν πρέπει να ζυγίζουν πάνω από 75 KG και θα διαθέτουν χειρολαβήν.

Κόλα ικανά να κυλήσουν δεν πρέπει να ζυγίζουν πάνω από 400 KG· πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (Rolling Hoops) εάν ζυγίζουν πάνω από 275 KG.

(1) Το τριοξείδιο του χρωμίου (10°) θα συσκευάζεται: 2509

(α) σε δοχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής ή παρόμοια υλικά, σφιχτά ασφαλισμένα σε ξύλινο κιβώτιο με αδρανές και απορροφητικό αποσβεστικό υλικό· ή

(β) σε μεταλλικά βαρέλια.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μεταφερόμενα όχι ως πλήρες φορτίο δεν πρέπει να ζυγίζουν περισσότερο από 75 KG και θα είναι εφοδιασμένα με χειρολαβή.

Κόλα ικανά να κυλίουν δεν πρέπει να ζυγίζουν περισσότερο από 400 KG· πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες (Rolling Hoops) εάν ζυγίζουν περισσότερο από 275 KG.

3. Μικτή συσκευασία

(1) Ύλες ομαδοποιημένες υπό το αυτό γράμμα μπορούν 2510
να συμπεριλαμβάνονται στο ίδιο κόλον. Οι εσωτερικές συσκευασίες θα συμφωνούν με ό,τι προβλέπεται για κάθε ύλη, και η εξωτερική συσκευασία θα είναι η οριισθείσα για τις ύλες του στο θέμα αριθμού είδους.

(2) Εάν οι μικρότερες ποσότητες δεν προβλέπονται υπό του άρθρου του τιτλοφορούμενου «Συσκευασία μιας ύλης», οι ύλες της παρούσας Κλάσεως, σε ποσότητες μη υπερβαίνουσες τα 6 KG προκειμένου περί στερεών ή τα 3 λίτρα προκειμένου περί υγρών για όλες τις ύλες τις αναγραφόμενες υπό τον αυτόν αριθμόν είδους ή το αυτό γράμμα, μπορούν να εγκλείονται στο αυτό κόλον είτε με τις ύλες άλλου αριθμού είδους είτε άλλου γράμματος της αυτής Κλάσεως, ή με επικίνδυνες ύλες ανήκουσες σε άλλες Κλάσεις (εάν μικτή συσκευασία επιτρέπεται ομοίως προκειμένου περί τοιούτων υλών), ή με άλλα εμπορεύματα, υπό την επιφύλαξη των παρακάτω ειδικών όρων.

Οι εσωτερικές συσκευασίες πρέπει να πληρούν τους γενικούς και ειδικούς όρους συσκευασίας. Επιπροσθέτως, οι γενικές διατάξεις των περιθωρίων 2001(5) και 2002(6) και (7) πρέπει να τηρούνται.

Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 150 KG, ή περισσότερο από 75 KG εάν περιέχει εύθραυστα δοχεία.

Ειδικοί όροι:

Αρ. Είδους	Περιγραφή ύλης	Ανωτάτη Ποσότητα ανά δοχείο	ανά κόλον	Ειδικές Διατάξεις
1°	Υπεροξείδιο υδρογόνου και υδάτινα διαλύματα υπεροξειδίου του υδρογόνου περιέχοντα άνω των 60% υπεροξειδίου του υδρογόνου.	Μικτή συσκευασία δεν επιτρέπεται.		
2°	Τετρανιτρομεθάνιο			
3°	Υπερχλωρικό οξύ			
4°	Διαλύματα υλών της 4ο			
4°(α)	Χλωρικά Άλατα			Δεν πρέπει να συσκευάζονται με ασθενώς εμπλουτισμένη νιτροκυτταρίνη, κόκκινο φωσφόρο, άλατα υδροφθορικού οξέος, υγρές αλογονοποιημένες ερεθιστικές ουσίες, υδροχλωρικό οξύ, θειϊκό οξύ, χλωροσουλφανικά οξέα, οξικό οξύ, βενζοϊκό οξύ, σαλικυλικόν οξύ, μυρμηκικόν οξύ, νιτρικόν οξύ, ελεύθερα σουλφονικά οξέα, μικτά αζωτούχα οξέα, θείον, υδραζίνη. Πρέπει να χωρίζονται από μη συνδεδυασμένο άνθρακα (υπό οποιαδήποτε μορφή), υποφωσφορώδη άλατα, αμμωνία και ενώσεις αυτής, τα αιθανολαμίνη, ανιλίνη, ξυλιδίνη, τολοϋδίνη ή εύφλεκτα υγρά έχοντα σημείο αναφλέξεως κάτω των 21° C.
	– σε εύθραυστα δοχεία	1 KG	2.75 KG	
	– σε άλλα δοχεία	5 KG	5 KG	
4°(β) & 5°	Υπερχλωρικά Άλατα	5 KG	5 KG	Δεν πρέπει να συσκευάζονται μαζί με ασθενώς εμπλουτισμένη, με άζωτο νιτροκυτταρίνη, κόκκινο φωσφόρο, διφθοριούχα, υγρές αλογονοποιημένες ερεθιστικές ουσίες, υδροχλωρικό οξύ θειϊκό οξύ, χλωροσουλφονικό οξύ, νιτρικό οξύ, μικτά αζωτούχα οξέα, ανιλίνη, πυριδίνη, ξυλιδίνη, τολοϋδίνη, θείον, υδραζίνη.
4°(γ) & (δ)	Όλες οι ύλες			Δεν πρέπει να συσκευάζονται μαζί με ασθενώς εμπλουτισμένη με άζωτο νιτροκυτταρίνη ή κόκκινο φωσφόρο.
6°, 7°, 8°				
9°(α)	Υπεροξείδια			Οι ίδιες ύλες που απαγορεύονται προκειμένου περί υπερχλωρικών αλάτων, ως και: κόνις αργιλίου, πυρίτιο ή κόκκοι, οξικό οξύ· υδάτινα υγρά, εύφλεκτα υγρά των Κλάσεων 3 και 6.1, ύλες της Κλάσεως 4.1· τα μεταλλικά υπεροξείδια δεν πρέπει να συσκευάζονται στο ίδιο κόλον με τα διαλύματα του υπεροξειδίου του υδρογόνου. Ο περιορισμός των 2.5 KG ισχύει για τα υπεροξείδια της 9ο (α) και (β) για όλες τις ύλες αυτές. Η χρήση πριονιδίου ή άλλων οργανικών υλών γεμίσματος απαγορεύεται.
και (β)	– σε εύθραυστα δοχεία	500 γρ.	2.5 KG	
	–σε άλλα δοχεία	5 KG	5 KG	
9°(γ)	Υπερμαγγανικά Άλατα	5 KG	5 KG	Οι ίδιες ύλες που απαγορεύονται προκειμένου περί χλωρικών αλάτων ως και: διαλύματα υπεροξειδίου του υδρογόνου, γλυκερίνη και γλυκόλη. Πρέπει να χωρίζονται από τις ίδιες ύλες ως ορίζεται στην περίπτωση των χλωρικών αλάτων.
10°	Χρωματικός ανυδρίτης (χρωμικό οξύ)	4.5 KG	4.5 KG	Η χρήση πριονιδίου ή άλλων οργανικών υλών πληρώσεως απαγορεύεται.

4. Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκην Α.9)

(1) Κόλα περιέχοντα ύλες της Κλάσεως 5.1 θα φέρουν ετικέτα του μοντέλου No. 5. Εν τούτοις, κόλα περιέχοντα ύλες της 1° εώς 5° ή της 8° - 10° θα φέρουν δύο ετικέτες σύμφωνα προς το μοντέλο No. 5.

Κόλα περιέχοντα ύλες της 3° θα φέρουν επιπροσθέτως ετικέτα σύμφωνα προς το μοντέλο No. 8.

(2) Κόλα περιέχοντα εύθραυστα δοχεία μη ορατά από έξω θα φέρουν ετικέτα σύμφωνα με το μοντέλο No. 12. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα, επιπροσθέτως, εκτός προκειμένου περί σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνα προς το μοντέλο No. 11· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

Β. - Στοιχεία του εγγράφου μεταφοράς

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με μία των ονομασιών των υπογραμμισμένων στο περιθώριο 2501· πρέπει να υπογραμμίζεται με κόκκινο και ακολουθείται από τα στοιχεία της Κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), και τα αρχικά «ADR» ή «RID» (π.χ. 5.1 4° (α), ADR).

Γ. - Κενές συσκευασίες

(1) Κενές συσκευασίες, ακαθάριστες του 11° θα πρέπει να κλείνονται κατά τον ίδιο τρόπο και να αποκλείεται κάθε διαρροή, στον ίδιο βαθμό, σαν να ήσαν πλήρεις.

(2) Κενές συσκευασίες του 11°, ακαθάριστες, θα πρέπει να φέρουν τις ίδιες προειδοποιητικές πινακίδες σαν να ήσαν πλήρεις.

(3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να είναι σύμφωνη με ένα από τα ονόματα που προγραμματίζονται στο 11°, π.χ. Κενή συσκευασία, 5,1,11° ADR. Το κείμενο αυτό πρέπει να υπογραμμίζεται. Σε περίπτωση κενών βυτιοφόρων ή δεξαμενοφόρων οχημάτων, κενών αποσυνδεομένων δεξαμενών - κοντέηνερς και κενών μικρών κοντέηνερς χύμα φορτίου, ακαθαρίστων, η παρούσα περιγραφή θα πρέπει να συμπληρώνεται με την προσθήκη της φράσεως: «Τελευταίο φορτίο» μαζύ με το όνομα και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν για τελευταία φορά, π.χ. Τελευταίο φορτίο: υπεροξείδιο υδρογόνου, 1°.

(4) Κενοί υφασμάτινοι σάκκοι, ακαθάριστοι, που περιείχαν νιτρικό νάτριο του 7°(α) υπόκεινται στις διατάξεις της Κλάσεως 4.2. (βλέπε περιθώριο 2441).

ΚΛΑΣΗ 5.2 ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ

1. Κατάσταση υλών

Μεταξύ των υλών και ειδών των καλυπτομένων υπό τον τίτλον της Κλάσεως 5.2, μόνον τα αναγραφόμενα εις περιθώριον 2551 είναι δεκτά για μεταφορά, και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη της ADR.

Σημείωση: - Οργανικά υπεροξείδια τα οποία μπορούν να εκραγούν σε επαφή με φλόγα ή τα οποία είναι περισσότερον ευαίσθητα στην κρούση και την τριβή από το δινιτροβενζόλιο δε γίνονται δεκτά για μεταφορά εκτός εάν ειδικώς αναγράφονται στη Κλάση 1α (βλέπε περιθώριο 2101, 10° και Προσθήκην Α.1, περιθώριο 3112· επίσης περιθώριο 2551, Ομάς Ε κατωτέρω).

Ομάς Α

1° Υπεροξείδιο διτριτογενούς βουτυλίου (DITERTIARY BUTYL PEROXIDE).

2° Υδροϋπεροξείδιο τριτογενούς βουτυλίου (TERTIARY BUTYL HYDROPEROXIDE) με όχι λιγότερο του 20 στα εκατόν υπεροξειδίου διτριτογενούς βουτυλίου και όχι λιγότερο του 20 στα εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

Σημείωση: - Υδροϋπεροξείδιο τριτογενούς βουτυλίου TERTIARY BUTYL HYDROPEROXIDE) με όχι λιγότερο

2511 του 20 στα εκατόν υπεροξειδίου διτροτιγενούς βουτυλίου αλλά χωρίς αδρανοποιητική ουσία αναγράφεται υπό στοιχείον 31°.

3° Υπεροξικόν τριτογενές βουτύλιο (TERTIARY BUTYL PERACETATE) με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας.

4° Υπερβενζοϊκό τριτογενές βουτύλιο (TERTIARY BUTYL PERBENZOATE).

5° TERTIARY BUTYL PERMALEATE με όχι λιγώτερο του 50 στα εκατόν αδρανοποιητικής ουσίας.

6° Διϋπερφθαλικόν διτριτογενές βουτύλιο (DITERTIARY BUTYL DIPERPHTALATE) με όχι λιγώτερο του 50 στα εκατόν αδρανοποιητικής ουσίας.

7° 2,2 - BIS (TERTIARY BUTYL PEROXY) BUTANE με όχι λιγώτερο του 50 στα εκατόν αδρανοποιητικής ουσίας.

8° Υπεροξείδιο Βενζοΰλιου:

2512 (α) με όχι λιγώτερο του 10 στα εκατόν ύδωρ·

2513 (β) με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας.

Σημειώσεις: - 1. - Το υπεροξείδιο του βενζοϋλίου σε ξηράν κατάσταση ή με λιγώτερο του 10 στα εκατόν ύδωρ ή λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας είναι ύλη της Κλάσεως 1α (βλέπε περιθώριο 2101 10° (α).

2. - Υπεροξείδιο του βενζοϋλίου περιέχον όχι λιγώτερο του

2514 70 στα εκατόν ξηρά και αδρανή στερεά δεν υπόκειται στις

-2520 διατάξεις της ADR.

2521 9° Υπεροξείδια κυκλοεξανόλης (Ι - HYDROXY - Ι? - HYDROPEROXY DICYCLOHEXYL PEROXIDE AND BIS (I-HYDROXY CY CLOHEXYL) υπεροξείδιο και μίγματα των δύο αυτών ενώσεων)): -

(α) με όχι λιγώτερο του 5 στα εκατόν ύδωρ·

(β) με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας.

Σημειώσεις: - 1. - Υπεροξείδια κυκλοεξανόλης και τα μίγματά τους σε ξηρά κατάσταση ή με λιγώτερο του 5 στα εκατόν ύδωρ ή λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας είναι ύλες της Κλάσεως 1α (βλέπε περιθώριο 2101, 10° (β)).

2. - Υπεροξείδια κυκλοεξανόλης και τα μίγματά τους περιέχονται όχι λιγώτερο του 70 στα εκατόν ξηρά και αδρανή στερεά δεν υπόκεινται στις διατάξεις της ADR.

10° α.α - DIMETHYLBENZYL HYDROPEROXIDE (υδροϋπεροξείδιο διμεθυλοβενζυλίου) (CUMYL HYDROPEROXIDE) με περιεχόμενο σε υπεροξείδιο μη υπερβαίνον το 95 στα εκατόν.

11° Υπεροξείδιο DILAUROYL.

12° 1,2,3,4 - TETRANYDRO - 1 - NAPHTYL HYDROPEROXIDE.

2522

-2549 13° 2,4 - DICHLOROBENZOYL PEROXIDE (υπεροξείδιο διχλωροβενζοϋλίου).

(α) με όχι λιγώτερο του 10 στα εκατόν ύδωρ·

2550 (β) με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

14° P-MENTHANYL HYDROPEROXIDE με περιεχόμενον εις υπεροξείδιο μη υπερβαίνον το 95 στα εκατόν (υπόλοιπον: αλκοόλαι και κετόναι).

15° 8,6,6 - TRIMETHYL NORPINANYLE HYDROPEROXIDE (PINANYL HYDROPEROXIDE· PINANE HYDROPEROXIDE) με περιεχόμενο εις υπεροξείδιο μη υπερβαίνον το 95 στα εκατόν (υπόλοιπον: αλκόλαι και κετόναι).

16° DI-(a,a - DIMETHYLEBENZYL) PEROXIDE με περιεχόμενον εις υπεροξείδιο μη υπερβαίνον το 95 στα εκατόν.

Σημείωσις: - DI - (A, OC-DIMETHYLBENZYL).

2551 Το υπεροξείδιο του DICUMYL περιέχον 60 στα εκατόν ή και περισσότερον στερεά και αδρανή στερεά δεν υπόκειται στις διατάξεις της ADR.

17° PARACHLOROBENZOYL RPEROXIDE Υπεροξείδιο (Παραχλωροβενζοϋλίου (: -

(α) με όχι λιγώτερο του 10 στα εκατόν ύδωρ·

(β) με όχι λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

Σημείωση: - 1. - Το υπεροξείδιο παραχλωροβενζοϋλίου σε ξηρά κατάσταση ή με λιγώτερο του 10 στα εκατόν ύδωρ ή

λιγώτερο του 30 στα εκατόν αδρανοποιητικής ουσίας είναι ύλη της Κλάσεως 1α (βλέπε περιθώριο 2101, 10° (γ)).

2. - Το υπεροξείδιο παραχλωροβενζοϋλίου περιέχον 70 τοις εκατόν ή περισσότερον ξηρά και αδρανή στερεά δεν υπόκειται στις διατάξεις της ADR.

18° DI-ISOPROPYLBENZENE HYDROPEROXIDE (ISOPROPYLCUMYL HYDROPEROXIDE) με 45 τοις εκατόν μίγμα αλκοόλης και ακετόνης.

19° 4-METHYLPENTAN - 2 - ONE PEROXIDE (ISOBUTYLMETHYLKETONE PEROXIDE) με όχι λιγώτερο του 40 στα εκατόν αδρανοποιητικής ουσίας.

20° TERTIARY BUTYL (a,a -) - DIMETHYLBENZYL) PEROXIDE με όχι περισσότερο από 95 στα εκατόν υπεροξείδιο.

21° Υπεροξείδιο DIACETYL (Διακετυλίου) με όχι λιγώτερο του 75 στα εκατόν αδρανοποιητικής ουσίας (PHLPGMATIZER).

22° Υπεροξείδιο ακετυλο-βενζοϋλίου (ACETYL BENZOYL PEROXIDE) με όχι λιγώτερο του 60 στα εκατόν αδρανοποιητικής ουσίας.

Σημείωσις: - Περί 1° έως 22°. Ύλες που είναι αδρανείς σε οργανικά υπεροξείδια και έχουν σημείον αναφλέξεως όχι χαμηλότερο των 100°C και σημείον βρασμού όχι χαμηλοτερο των 150° C θεωρούνται ότι είναι αδρανοποιητικές ύλες. Οι ύλες της Ομάδος Α μπορούν επίσης να αραιωθούν με διαλύτας που είναι αδρανείς στις ύλες αυτές.

Ομάς Β

30° Υπεροξείδιο Βουτανονίου (αιθυλο-μεθυλο-κετον-υπεροξείδιο) (BUTANONE PEROXIDE (ETHYL METHYL KETONE PEROXIDE).

(α) με όχι λιγώτερο του 50 στα εκατόν αδρανοποιητικής ουσίας (PHLPGMATIZER)·

(β) σε διαλύματα περιέχοντα όχι άνω του 12 στα εκατόν του υπεροξειδίου αυτού σε διαλύτες που είναι αδρανείς εις τούτο.

31° Υδροϋπεροξείδιο Τριτογενούς Βουτυλίου (TERTIARY BUTYL HYDROPEROXIDE):-

(α) με όχι λιγώτερο του 20 στα εκατόν υπεροξειδίου τριτογενούς βουτυλίου, χωρίς αδρανοποιητική ουσία (PHLEGMATIZER)·

(β) σε διαλύματα περιέχοντα όχι περισσότερο του 12 στα εκατόν του υπεροξειδίου αυτού σε διαλύτες που είναι αδρανείς εις τούτο.

Σημείωση: - Περί 30° και 31°. Ύλες που είναι αδρανείς σε οργανικά υπεροξείδια και έχουν σημείον αναφλέξεως όχι χαμηλώτερο των 100°C και σημείον βρασμού όχι χαμηλώτερο των 150°C θεωρούνται ως αδρανοποιητικές ύλες.

Ομάς Γ

35° Υπεροξικό οξύ περιέχον όχι περισσότερο του 40 στα εκατόν υπεροξικό οξύ και όχι λιγώτερο του 45 στα εκατόν οξικό οξύ και όχι λιγώτερο του 45 στα εκατόν οξικό οξύ και όχι λιγώτερο του 10 στα εκατόν ύδωρ.

Σημείωση: - Περί Ομάδων Α, Β και Γ. Μίγματα προϊόντων αναφερομένων στις Ομάδες Α, Β και Γ γίνονται δεκτά για μεταφορά υπό την επιφύλαξη των όρων της Ομάδος Γ εάν περιέχουν υπεροξικό οξύ, και σε άλλες περιπτώσεις υπό την επιφύλαξη των όρων της Ομάδος Β.

Ομάς Δ

40° Δείγματα αδρανοποιηθέντων οργανικών υπεροξειδίων μη αναγραφομένων στις Ομάδες Α, Β ή Γ, ή στα διαλύματα αυτών, γίνονται δεκτά σε ποσότητες μη υπερβαίνουσες το 1 KG ανά κόλον υπό τον όρον ότι η σταθερότητά τους εν αποθηκεύσει είναι τουλάχιστον ίση προς εκείνην των υλών των αναγραφομένων στις Ομάδες Α και Β.

Ομάς Ε

Σημείωση: - Η Ομάς Ε περιλαμβάνει οργανικά υπεροξείδια τα οποία αποσυντίθεται ευχερώς σε συνήθη θερμοκρασία και επομένως πρέπει να μεταφέρονται μόνον υπό συνθήκας καταλλήλου ψύξεως. Μολονότι εκρηκτικής φύσεως ως ορίζονται υπό της Σημειώσεως της Κλάσεως 5.2, ολίγα οργανικά υπεροξείδια συμπεριλαμβάνονται στην Ομάδα Ε διότι μπορούν να μεταφερθούν ασφαλώς σε κατεψυγμένη κατάσταση και δια να αποφεύγεται οποιαδήποτε σύγχυσις αναφορικά με τον χειρισμό τους.

45° Υπεροξείδιο DIOCTANOYL (υπεροξείδιο DICAPRYLYL) τεχνικής καθαρότητος.

46° Υπεροξείδιο ACETYL CYCLOHEXANE SULPHONYL: -

(α) περιέχον όχι λιγώτερο του 30 στα εκατόν ύδωρ·

(β) σε διάλυμα όχι λιγώτερο του 80 στα εκατόν διαλύτου·

(γ) σε διάλυμα όχι λιγώτερο του 70 στα εκατόν αδρανοποιητικής ουσίας (PHLEGMATIZER).

47° Υπεροξυδιανθρακικό Διϊσοπροπύλιο (DIISOPROPYL PEROXYDICARBONATE):

(α) τεχνικής καθαρότητος·

(β) σε διάλυμα με όχι λιγώτερο του 50 στα εκατόν αδρανοποιητικήν ουσίαν ή διαλύτην

48° Υπεροξείδιο Διπροπιονυλίου (DIPROPIONYL PEROXIDE) σε διάλυμα με όχι λιγότερο του 75 στα εκατόν διαλύτην.

49° TERTIARY BUTYL PERPIVALATE:-

(α) τεχνικής καθαρότητος·

(β) σε διάλυμα με όχι λιγώτερο του 25 στα εκατόν αδρανοποιητικήν ουσίαν ή διαλύτην.

50° Υπεροξείδιο BIS - (3,5,5 - TRIMETHYLHEXANOYL) σε διάλυμα με όχι λιγώτερο του 20 στα εκατόν αδρανοποιητικήν ουσίαν (PHLEGMATIZER).

51° Υπεροξείδιο Διπελαργονυλίου (DIPELARGONYL PEROXIDE), τεχνικής καθαρότητος.

52° TERTIARY BUTYL PER - 2 - ETHYLHEXANOATE τεχνικής καθαρότητος.

53° DI-2-ETHYLHEXYL - PEROXYDI CARBONATE σε διάλυμα με όχι λιγώτερο του 55 στα εκατόν αδρανοποιητικήν ουσίαν (PHLEGMATIZER) ή διαλύτην.

54° Υπεροξείδιο DIDECANOYL τεχνικής καθαρότητος.

55° TERTIARY BUTYL PERISOBUTYRATE σε διάλυμα με όχι λιγώτερο του 25 στα εκατόν διαλύτην.

Σημειώσεις: - 1. - Ύλες που είναι αδρανείς σε οργανικά υπεροξείδια και έχουν σημείον - αναφλέξεως όχι χαμηλώτερον των 100°C και σημείον βράσμού όχι χαμηλώτερον των 150° C θεωρούνται ως αδρανοποιητικές ύλες (PHLEGMATIZING SUBSTANCES).

2. - Οι αναφερθέντες διαλύτες είναι ύλες οι οποίες είναι αδρανείς σε οργανικά υπεροξείδια και οι οποίες επίσης πληρούν ένα των παρακάτω όρων:-

(α) δεν είναι εύφλεκτοι και έχουν σημείον βρασμού όχι χαμηλότερο των 85°C· ή

(β) δεν είναι εύφλεκτοι και έχουν σημείον βρασμού κάτω των 85°C αλλά όχι κάτω των 60°C, οπότε πρέπει να χρησιμοποιούνται υποδοχείς (δοχεία) ερμητικώς κλεισμένα ή

(γ) έχουν σημείον - αναφλέξεως όχι κάτω των 21°C και σημείον βρασμού όχι κάτω των 85°C. ή

(δ) έχουν σημείον - αναφλέξεως κάτω των 21°C αλλά όχι κάτω των 5°C και σημείο βρασμού όχι κάτω των 60°C, οπότε πρέπει να χρησιμοποιούνται ερμητικώς κλεισμένοι υποδοχείς (δοχεία).

Ομάδα ΣΤ

99° Κενά είδη συσκευασίας, ακαθάριστα, και κενές δεξαμενές, ακαθάριστες, που περιείχαν ύλες της Κλάσεως 5.2.

2.Διατάξεις

Α. Κόλα

1. - Γενικοί όροι συσκευασίας

(1) Τα υλικά από τα οποία τα είδη συσκευασίας και τα κλεισίματα των κατασκευάζονται δεν πρέπει να κινδυνεύουν να προσβληθούν από το περιεχόμενο ή να σχηματίζουν με αυτό επιβλαβείς ή επικινδύνους ενώσεις. 2552

(2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη τους ώστε να αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και να πληρούν τους συνήθεις όρους μεταφοράς. Οι εσωτερικές συσκευασίες θα ασφαλίζονται σταθερά στις εξωτερικές συσκευασίες. Εκτός εάν άλλως ορίζεται στο άρθρο το τιτλοφορούμενο «Συσκευα-

σία μιάς ύλης», οι εσωτερικές συσκευασίες, μπορούν να εγκλείονται σε εξωτερικές συσκευασίες είτε μία - μία είτε ομαδικά.

(3) Το αποσβεστικό υλικό δεν πρέπει να είναι ευχερώς εύφλεκτο· επιπροσθέτως θα ταιριάζει στη φύση του περιεχομένου και δεν πρέπει να προκαλεί την αποσύνθεση των υπεροξειδίων.

2. - Συσκευασία μιάς ύλης.

α. - Συσκευασία υλών της Ομάδος Α

Τα δοχεία θα είναι έτσι κλεισμένα και στεγανά ώστε να 2553
αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

(1) Ύλες των 1° έως 7°, 8° (β), 9° (β), 10° έως 12°, 13° 2554
(β), 14° έως 16°, 17° (β) και 18° έως 22° και τα διαλύματά τους πρέπει να συσκευάζονται:-

(α) σε κασσιτερωμένα δι' εμβαπτίσεως εν θερμώ δοχεία ή σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) όχι λιγότερο του 99.5 στα εκατόν καθαρό· ή

(β) σε δοχεία, κατασκευασμένα από κατάλληλη πλαστική ύλη, τα οποία θα τοποθετούνται σε προστατευτικές συσκευασίες· ή

(γ) όχι άνω των 2 λιτρών ανά φιάλην, σε σφιχτά - κλειστές γυάλινες φιάλες που θα ασφαλίζονται με αποσβεστικό υλικό σε προστατευτική συσκευασία εις τρόπον ώστε να προστατεύονται από το σπάσιμο.

(2) Ύλες των 1° έως 3°, 5° έως 7°, 8° (β), 9° (β), 10° έως 12°, 13° (β), 16°, 18° και 20° μπορούν επίσης να συσκευάζονται σε γαλβανισμένα (HOT -TIPPED GALBANIZED) δοχεία.

(3) Οι ύλες των 8° (α), 13° (α) και 17° (α) θα περιέχονται, όχι περισσότερες των 5 KG ανά είδος συσκευασίας, σε υδατοστεγανά είδη συσκευασίας τοποθετούμενα σε ξύλινο κιβώτιο.

(4) Γλοιώδη (σαν ζυμάρι) και στερεά υπεροξείδια μπορούν επίσης να συσκευάζονται σε σάκκους, κατασκευασμένους από κατάλληλη πλαστική ύλη, τοποθετουμένους σε κατάλληλα προστατευτικά είδη συσκευασίας. Το πάχος του υλικού συσκευασίας θα είναι επαρκές ώστε να εμποδίζεται οποιαδήποτε απώλειά του περιεχομένου από τους σάκκους κατά τη συνήθη μεταφορά. Τα στερεά υπεροξείδια μπορούν να συσκευάζονται, όχι περισσότερο του 1 KG ανά δοχείον, σε δοχεία από ινοσανίδα επιχρισμένη με κηρόν παραφίνης τοποθετούμενα σε ξύλινο κιβώτιο· εν τούτοις, προκειμένου περί υπεροξειδίων κυκλοεξανόνης της 9° (α) το περιεχόμενο του δοχείου θα περιορίζεται στα 500 γραμμ.

(5) Οι ύλες της 10° και 14° εώς 18° μπορούν επίσης να συσκευάζονται σε δοχεία κατασκευασμένα από φύλλο - μετάλλου.

(6) Με εξαίρεση σάκκους κατασκευασμένους από πλαστική ύλη, τα δοχεία τα περιέχοντα υγρά ή γλοιώδη (σαν ζυμάρι) οργανικά υπεροξείδια δεν πρέπει να πληρούνται πέραν του 93 τοις εκατόν της χωρητικότητός των.

(7) Το κόλον δεν πρέπει να ζυγίζει περισσότερο των 50 KG. Κόλα ζυγίζοντα πάνω από 15 KG θα είναι εφοδιασμένα με χειρολαβήν.

β. Συσκευασία υλών της Ομάδος Β 2555

(1) Δοχεία γεμισμένα με ύλες της 30° (α) και 31°(α) θα είναι εφοδιασμένα με μηχανισμόν εξαερισμού επιτρέποντα αντιστάθμιση μεταξύ της εσωτερικής πιέσεως και της ατμοσφαιρικής πιέσεως και σε κάθε περίπτωση - ακόμη και στη περίπτωση εκτονώσεως του υγρού δια θερμάνσεως- εμποδίζοντα το υγρό να εκτιναχθεί καθώς και ακαθαρσίες να εισέλθουν στο δοχείο. Για ύλες της 30° (β) και 31° (β), μόνον δοχεία έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου θα γίνονται δεκτά.

(2) Τα κόλα θα είναι εφοδιασμένα με βάση η οποία να τα κρατά όρθια χωρίς τον κίνδυνον να πέσουν.

(1) Οι ύλες των 30° (α) και 31° (α) θα συκευάζονται:- 2556

(α) σε εμβαπτισμένα εν θερμώ κασσιτερωμένα ή εμβαπτισμένα εν θερμώ γαλβανισμένα δοχεία ή σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) όχι λιγότερο του 99.5 τοις εκατόν καθαρό. ή

(β) σε δοχεία, κατασκευασμένα από κατάλληλο πλαστική ύλη, τοποθετούμενα σε προστατευτικές συσκευασίες. Η αντοχή των δοχείων αυτών θα είναι επαρκής ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου κατά τη συνήθη μεταφορά· ή

(γ) όχι άνω των 2 λιτρών ανά φιάλην, σε γυάλινες φιάλες, που θα ασφαλίζονται με αποσβεστικό υλικό σε προστατευτικές συσκευασίες ώστε να προστατεύονται από το σπάσιμο.

(2) Δοχεία περιέχοντα υγρά ή γλοιώδη (σαν ζυμάρι) οργανικά υπεροξείδια δεν πρέπει να γεμίζονται πέραν του 90 στα εκατόν της χωρητικότητός των.

(3) Το κόλον δεν πρέπει να ζυγίζει περισσότερο από 40. KG. Κόλα ζυγίζοντα περισσότερο από 15 KG θα είναι εφοδιασμένα με χειρολαβήν.

(4) Οι ύλες της 30° (β) και 31° (β) μπορούν να αποστέλονται μόνον σε ποσότητες μη υπερβαίνουσες τα 5 KG σε δοχεία ως ορίζεται εις (1) αλλά χωρίς να είναι εφοδιασμένα με μηχανισμόν εξαερισμού (σε γυάλινες φιάλες, μόνον σε ποσότητες μη υπερβαίνουσες το 1.5 λίτρο). Τα δοχεία δεν πρέπει να πληρούνται πέραν του 75 στα εκατόν της χωρητικότητός των.

γ. - Συσκευασία υλών της Ομάδος Γ

(1) Οι ύλες της 35° και μίγματα περιέχοντα υπεροξικό οξύ 2557
θα συσκευάζονται, όχι περισσότερο από 25 KG ανα δοχείο, σε γυάλινα δοχεία με χονδρό τοίχωμα, ή σε δοχεία κατασκευασμένα από κατάλληλο πλαστική ύλη, εφοδιασμένα με ειδικό κλείσιμο κατασκευασμένο από κατάλληλη πλαστικη ύλη ικανό να σφραγισθεί (στεγανοποιηθεί), σε επικοινωνία με την ατμοσφαίρα δι' ανοίγματος κειμένου άνωθι της στάθμης του υγρού, και σε κάθε περίπτωση - ακόμη και στη περίπτωση εκτονώσεως του υγρού διαθερμάνσεως - εμποδίζοντας το υγρό να εκτιναχθεί και ακαθαρσίες να εισέλθουν στο δοχείο.

(2) Τα γυάλινα δοχεία θα ασφαλίζονται σταθερά, με κόνιν (άλευρο) καθαράς μίκας ή υαλο-έριο χρησιμοποιούμενα ως αποσβεστικό υλικό, σε προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο - χάλυβος ή αργύλιο, ικανά να κλείνουν, και εφοδιασμένα με χειρολαβήν και βάση διατηρούσα αυτά όρθια χωρίς τον κίνδυνον να πέσουν· τα δοχεία θα ασφαλίζονται ακόμη και εάν τα τοιχώματα των προστατευτικών συσκευασιών δεν είναι πλήρη. Δοχεία κατασκευασμένα από κατάλληλο πλαστική ύλη πρέπει να τοποθετούνται σε κλειστής - εφαρμογής προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο - χάλυβα και ικανά να κλείνουν.

δ. - Συσκευασία υλών της Ομάδος Δ

Οι ύλες της Ομάδος Δ θα συσκευάζονται, σε ποσότητες μη 2558
υπερβαίνουσες το 1 KG ανά κόλον, σε κασσιτερωμένα δι' εμβαπτίσεως εν θερμώ δοχεία, ή σε δοχεία κατασκευασμένα από αργύλιο (αλουμίνιο) όχι λιγότερο του 99.5 στα εκατόν καθαρό, ή σε φιάλες κατασκευασμένες από κατάλληλο πλαστική ύλη καλουπιασμένες δι' εγχύσεως ή φυσημένες και έχουσαι κατάλληλον πάχος τοιχώματος, ή σε γυάλινες φιάλες τοποθετημένες σε προστατευτικά είδη συκευασίας κατασκευασμένα από φύλο - χάλυβος, αλουμίνιο ή ξύλο. Οι γυάλινες φιάλες θα ασφαλίζονται σταθερά στα προστατευτικά είδη συσκευασίας με κόνη (άλευρον) καθαράς μίκας ή υαλο-έριο χρησιμοποιούμενα ως αποσβεστικό υλικό. Στερεές ενώσεις μπορούν επίσης να συσκευάζονται σε σάκκους, κατασκευασμένους από κατάλληλο πλαστική ύλη επαρκούς πάχους, τοποθετούμενοι ομοίως σε προστατευτικά είδη συσκευασίας κατασκευασμένα από φύλλο-χάλυβος, αλουμίνιο ή ξύλο. Εάν τα υπεροξείδια βγάζουν αέρια σε θερμοκρασία κάτω των 40°C, τα δοχεία πρέπει να πληρούν τους όρους του περιθωρίου 2555.

ε. - Συσκευασία υλών της Ομάδας Ε

(1) Κόλα περιέχουντα ύλες της Ομάδας Ε θα είναι εφοδια- 2559
σμένα με μηχανισμόν εξαερισμού επιτρέποντα την αντιστάθμιση μεταξύ της εσωτερικής πιέσεως και της ατμοσφαιρικής πιέσεως και σε κάθε περίπτωση - ακόμη και στη περίπτωση εκτονώσεως του υγρού δια θερμάνσεως - εμποδίζοντα το υγρό να εκτιναχθεί και ακαθαρσίες να εισέλθουν στο δοχείο.

(2) Δοχεία περιέχοντα υγρά οργανικά υπεροξείδια δεν πρέπει να πληρούνται πέραν του 95 στα εκατόν της χωρητικότητός των.

(1) Ύλες της 45°, 51° και 54° θα συσκευάζονται, όχι πε- 2560
ρισσότερο από 50 KG ανά δοχείον ή σάκκον, σε δοχεία ή σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη, τα οποία ή οι οποίοι θα τοποθετούνται σε κατάλληλα προστατευτικά είδη συσκευασίας σε ποσότητες μη υπερβαίνουσες τα 50 KG ανά έδος συσκευασίας.

(2) Ύλες της 46° (α) θα συσκευάζονται, όχι περισσότερο από 5 KG ανά σάκκον, σε σάκκους κατασκευασμένους από κατάλληλη πλαστική ύλη, οι οποίοι θα τοποθετούνται, όχι άνω 20 KG ανά είδος συσκευασίας και είτε ένας - ένας είτε ομαδικά, σε κατάλληλα προστατευτικά είδη συσκευασίας.

(3) Ύλες της 47° (α) θα συσκευάζονται:-

(α) όχι περισσότερον του 1 KG ανά δοχείον, σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη·

(β) όχι περισσότερον των 3 KG ανά μπώλ, σε μπωλ κατασκευασμένα από αργύλιον (αλουμίνιον) όχι λιγότερο των 99.5 στα εκατόν καθαρόν, με πλαστικά πώματα.

Το προστατευτικό είδος συσκευασίας δεν πρέπει να περιέχει περισσότερα των 10 KG της ύλης.

(4) Οι ύλες των 46° (β) και (γ), 47° (β), 48°, 49° (β), 50°, 52°, 53° και 55° θα συσκευάζονται, όχι άνω των 25 KG ανά δοχείο, σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη, τα οποία θα τοποθετούνται, όχι άνω των 50 KG ανά συσκευασίαν (αλλά όχι άνω των 25 KG ανά συσκευασίαν προκειμένου περί υλών της 52°), σε προστατευτικές συσκευασίες.

(5) Οι ύλες της 49° (α) θα συσκευάζονται, όχι άνω των 10 KG ανά δοχείο, σε δοχεία κατασκευασμένα από κατάλληλη πλαστική ύλη, τα οποία θα τοποθετούνται, όχι άνω των 40 KG ανά συσκευασίαν, σε προστατευτικές συσκευασίες.

(6) Κόλα ζυγίζοντα άνω των 35 KG τα οποία περιέχουν ύλες της Ομάδας F, θα είναι εφοδιασμένα με χειρολαβήν.

στ. - Συσκευασία υλών σε μικρές ποσότητες

Ύλες των 1° έως 22°, 30° και 31°, αποστελόμενες σε μικρές ποσότητες, μπορούν επίσης να συσκευάζονται ως κάτωθι:

(α) υγρά

όχι άνω του 1 KG ανά κόλον, σε φιάλες, κατασκευασμένες από αργύλιον (αλουμίνιον), κατάλληλη πλαστική ύλη, ή ύαλο, με αναστολείς, κατασκευασμένους από κατάλληλη πλαστική ύλη, ή με κλεισίματα μοχλού ή κοχλιωτά κλεισίματα, έχοντα, και στη μία και στην άλλη περίπτωση, ελαστικό παρέμβασμα. Οι φιάλες θα ασφαλίζονται με άλευρον καθαράς μίκας ή υαλοέριο χρησιμοποιούμενα ως αποσβεστικό υλικό σε κυτία ινοσανίδος ή ξύλινα. Το υλικό πληρώσεως πρέπει να είναι επαρκές σε ποσότητα για να απορροφήσει ολόκληρο το υγρό. Οι φιάλες δεν πρέπει να γεμίζονται πέραν του 75 στα εκατόν της χωρητικότητάς των· 2561

(β) σε κατάσταση ζύμης ή κονιοποιημένες ύλες

όχι άνω του 1 KG ανά κόλον, σε κυτία από αλουμίνιο ή από ινοσανίδα ή ξύλινα (των δύο τελευταίων επενδεδυμένων με αλουμίνιον ή με κατάλληλη πλαστική ύλη) με γερό κλείσιμον. Ελεύθερος χώρος εκ 10 στα εκατόν θα αφήνεται στα είδη συσκευασίας.

3. - Μικτή συσκευασία

Ύλες της Κλάσεως 5.2 μπορούν να εγκλείονται στο αυτό κόλον είτε με άλλες ύλες ή είδη της ADR είτε με άλλα εμπορεύματα. Ύλες της Ομάδας Γ δεν πρέπει να συμπεριλαμβάνονται στο αυτό κόλον με ύλες των Ομάδων Α, Β ή F. 2562

4. Ενδείξεις (Μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκην Α.9) 2563

(1) Κάθε κόλον περιέχον ύλες της Κλάσεως 5.2 θα φέρει ετικέτα σύμφωνα προς το μοντέλο No. 5.

Κόλα περιέχοντα ύλες των 46° (α), 47° (α) και 49° (α) θα φέρουν επίσης ετικέτα σύμφωνη προς το μοντέλο No. 1.

(2) Κόλα περιέχοντα εύθραυστα δοχεία αόρατα από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο No. 9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα επιπροσθέτως, με εξαίρεση τις σφραγισμένες αμπούλες, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο No. 8· κόλα περιέχοντα ύλες των 30°, 31°, 35°, 40° και 45° έως 55° θα φέρουν επίσης ετικέτες σύμφωνες με το μοντέλο No. 8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

Β. Στοιχεία του εγγράφου μεταφοράς 2564

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί προς μίαν των ονομασιών των υπογραμμισμένων στο περιθώριο 2551· πρέπει να υπογραμμίζεται και να ακολουθείται από τα στοιχεία της Κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα), και τα αρχικά «ADR» ή «RID» (π.χ. 5.2, 8° (α), ADR). 2565

2566
-2569

Γ. Κενές συσκευασίες

(1) Κενές συσκευασίες του 99°, ακαθάριστες, θα κλείονται με τον ίδιο τρόπο και χωρίς διαρροές, σαν να ήσαν πλήρεις. 2570

(2) Κενές συσκευασίες του 99°, ακαθάριστες, θα φέρουν τις ίδιες πινακίδες κινδύνου σαν να ήσαν πλήρεις.

(3) Η περιγραφή στο έγγραφο μεταφοράς πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στο 99° π.χ. Κενή συσκευασία, 5.2, 99° ADR. Το κείμενο αυτό πρέπει να υπογραμμίζεται. Σε περίπτωση κενών βυτιοφόρων οχημάτων, κενών δεξαμενών και κενών κοντέηνερς ακαθαρίστων, η περιγραφή αυτή θα συμπληρώνεται με την προσθήκη της φράσεως: «Τελευταίο φορτίο» μαζί με το όνομα και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. Τελευταίο φορτίο: 2,6,6 -TREMETHYL NORPIRANYL HYDROPEROXIDE, 5.2,15.

2571
-2599

ΚΛΑΣΗ 6.1. ΤΟΞΙΚΕΣ ΟΥΣΙΕΣ

1. Κατάλογος Ουσιών

(1) Μεταξύ των ουσιών και διαφόρων ειδών που καλύπτονται από την Κλάση 6.1./.1.- εκείνες που αναφέρονται στο περιθώριο 2601 ή καλύπτονται από συλλογικό τίτλο του περιθωρίου αυτού, υπόκεινται στους όρους που εκτίθενται στα περιθώρια 2600(2) έως 2622 και στις διατάξεις του παρόντος Παραρτήματος και του Παραρτήματος Β. Τότε θεωρούνται σαν ουσίες της ADR, και 2.- 2600

Ουσίες της Κλάσεως 6.1 (εκτός των ουσιών των άρθρων 1 έως 3) που είναι ταξινομημένες στα διάφορα άρθρα του περιθωρίου 2601, θα υπάγονται σε μια από τις ακόλουθες ομάδες που καθορίζονται με το γράμμα (α), (β) ή (γ) ανάλογα με το βαθμό τοξικότητός των:

γράμμα α): Εξαιρετικά τοξικές ουσίες.

γράμμα β): Τοξικές ουσίες.

γράμμα γ): Επιβλαβείς ουσίες.

Όταν, σαν αποτέλεσμα προσθηκών, ουσίες της κλάσεως 6.1, περνούν σε κατηγορίες τοξικότητος ή σημείου βρασμού άλλες από εκείνες που ανήκουν οι ουσίες οι καθοριζόμενες στο περιθώριο 2601, τα μίγματα αυτά ή τα διαλύματα θα ταξινομούνται στα άρθρα ή τα ψηφία στα οποία ανήκουν βάσει του τωρινού βαθμού τοξικότητος ή σημείου βρασμού των.

Όταν, σαν αποτέλεσμα προσθηκών, ουσίες της Κλάσεως 6.1. περνούν σε κατηγορία που έχει σημείο αναφλέξεως κάτω από 21°C, τα μίγματα αυτά και τα διαλύματα θα ταξινομούνται στα αντίστοιχα στοιχεία και γράμματα (κεφαλαία ή ψηφία) της Κλάσεως 3, λαμβανομένης υπ' όψη της τοξικότητός των.

Όταν, σαν αποτέλεσμα προσθηκών ουσιών της Κλάσεως 8, ουσίες της Κλάσεως 6.1 αποκτούν επικράτηση διαβρωτικών ιδιοτήτων, τα μίγματα αυτά και τα διαλύματα θα πρέπει να ταξινομούνται στα αντίστοιχα άρθρα και ψηφία της Κλάσεως 8.

ΣΗΜΕΙΩΣΗ: Τοξικά αναφλέξιμα υγρά έχοντα σημείο αναφλέξεως κάτω των 21°C εκτός από το υδροκυανικό οξύ και τα διαλύματά του και τα καρβονύλια μετάλλων, είναι ουσίες της Κλάσεως 2301, 11° έως 20°.

1. Η επικεφαλίδα της Κλάσεως 6.1. καλύπτει τις τοξικές για τις οποίες είναι γνωστό από εμπειρία ή σχετικά με τις οποίες συνάγεται από πειράματα επί ζώων, ότι σε σχετικά μικρή ποσότητα είναι δυνατόν με μια μόνη επίδραση ή με επίδραση σύντομης διάρκειας, να προκαλέσουν βλάβη στην ανθρώπινη υγεία ή και θάνατο με την εισπνοή, με απορρόφηση από το δέρμα ή με την κατάποση.

Ουσίες –συμπεριλαμβανομένων των παρασιτοκτόνων του 71° έως 88°– που δεν αναφέρονται ρητά και ειδικά, θα πρέ-

1. Βλέπε σελ. 140 έως σελ. 142.

2. Για ποσότητες ουσιών του περιθωρίου 2601 που δεν υπόκειται στις διατάξεις της παρούσης Κλάσεως ή στο παρόν Παράρτημα ή στο Παράρτημα Β, βλέπε περιθώριο 2601α.

πει να ταξινομούνται στο κατάλληλο άρθρο και ψηφίο σύμφωνα με τις ακόλουθες διατάξεις:

Για να γίνει εκτίμηση του τοξικού κινδύνου, θα πρέπει να ληφθεί υπ' όψιν η ανθρώπινη εμπειρία σε περιπτώσεις τυχαίας δηλητηριάσεως και των ειδικών ιδιοτήτων που έχει καθεμιά ουσία, όπως η υγρή κατάσταση, η μεγάλη πτητικότης, οποιαδήποτε πιθανότης απορροφήσεως από το δέρμα και διάφορες βιολογικές επιδράσεις.

Αν δεν υπάρχουν παρατηρήσεις επί ανθρώπων, ο τοξικός κίνδυνος πρέπει να υπολογιστεί χρησιμοποιώντας διαθέσιμα στοιχεία από πειράματα ζώων, σύμφωνα με τον κατωτέρω πίνακα.

Υποδιαίρεση Σε ομάδες Άρθρου:		Στοματική Τοξικότης LD_{50} χσγρ/κιλό	Δερματική Τοξικότης LD_{50}	Τοξικότης Εισπνοής Σκόνης & ατμών σγρ/λίτ.
Εξαιρετικά τοξική	(α)	⩽5	⩽40	⩽0.5
Τοξική	(β)	>5-50	>40-200	>0.5–2
Επιβλαβής	(γ)	στερεά: >50-200 υγρά: >50-500	>200-1000	>2–10

Όπου μια ουσία παρουσιάζει διαφορετικούς βαθμούς τοξικότητος για δύο ή περισσότερα είδη εκθέσεως, θα πρέπει να ταξινομείται στον υψηλότερο απο τους βαθμούς τοξικότητος.

Ουσίες, οι οποίες λόγω των κριτηρίων τοξικότητός των κανονικά θα εταξινομούντο στην κατηγορία «επιβλαβείς», ταξινομούνται σαν τοξικές αν η πίεση των ατμών των σε θερμοκρασία 20°C είναι επαρκής για να δημιουργήσει μια ατμόσφαιρα που προκαλεί στα μάτια ερεθιστικό δακρυγόνο αποτέλεσμα, παρόμοι με τα δακρυγόνα αέρια.

Τιμή LC_{50} για οξεία στοματική τοξικότητα

Η δόση εκείνη της χορηγουμένης ουσίας θα έχει μεγάλη πιθανότητα να προκαλέσει θάνατο εντός 14 ημερών στο ήμισυ αρσενικών και θηλυκών ενηλίκων λευκών κουνελιών. Ο αριθμός των ζώων που δοκιμάστηκαν θα πρέπει να είναι επαρκής για να δώσει στατιστικά σημαντικό αποτέλεσμα και θα πρέπει να είναι σύμφωνο με καλές φαρμακολογικές πρακτικές. Το αποτέλεσμα εκφράζεται σε χσγρ. ανά κιλό μάζη σώματος.

Τιμή LC_{50} για οξεία δερματική τοξικότητα

Η δόση εκείνη της ουσίας η οποία χορηγουμένη με συνεχή επαφή για 24 ώρες στο γυμνό δέρμα λευκών κουνελιών, έχει μεγάλη πιθανότητα να προκαλέσει θάνατο εντός 14 ημερών στο ήμισυ των ζώων που δοκιμάστηκαν. Ο αριθμός ζώων που δοκιμάστηκαν πρέπει να είναι επαρκής για να δώσει στατιστικά σημαντικό αποτέλεσμα και θα πρέπει να είναι σύμφωνα με τις καλές φαρμακολογικές πρακτικές. Το αποτέλεσμα εκφράζεται σε χσγρ. ανά κιλό μάζη σώματος.

Τιμή LC_{50} για οξεία τοξικότητα στην εισπνοή.

Η συμπύκνωση εκείνη ατμού, αχλύος ή σκόνης, η οποία, χορηγουμένη με συνεχή εισπνοή επί μία ώρα τόσο σε αρσενικά όσο και σε θηλυκά ενήλικα λευκά ποντίκια έχει μεγάλη πιθανότητα να προκαλέσει θάνατο εντός 14 ημερών στα μισά από τα δοκιμασθέντα ζώα. Αν η ουσία αυτή χορηγήθηκε στα ζώα σαν σκόνη ή αχλύς, το 90% τουλάχιστον των διαθεσίμων για εισπνοή μοριδίων πρέπει να έχουν διάμετρο το πολύ 10 μM, με την προϋπόθεση πως θα μπορεί εύλογα να προβλεφθεί πως τέτοιες συμπυκνώσεις θα μπορούν να συναντήσουν οι άνθρωποι κατά την διάρκεια της μεταφοράς. Το αποτέλεσμα εκφράζεται σε χσγρ. ανά λίτρο αέρος για τις σκόνες και αχλύες και σε χιλιοστόλιτρα ανά κυβικό μέτρο αέρος (μέρη στο εκατομμύριο) για τους ατμούς.

Τα κριτήρια για τοξικότητα εισπνοής σκόνης και αχλύος βασίζονται στα στοιχεία LC_{50} σχετικά με εκθέσεις επί 1 ώρα και όπου υπάρχουν διαθέσιμα τέτοια στοιχεία θα πρέπει να χρησιμοποιούνται. Ωστόσο, όπου υπάρχουν διαθέσιμα μόνο στοιχεία σχετικά με έκθεση 4 ωρών σε σκόνη και αχλύ, οι αριθμοί αυτοί μπορούν να πολλαπλασιάζονται με το 4 και το γινόμενο να υποκαθίσταται στα ανωτέρω κριτήρια π.χ. LC_{50} (4 ωρών) × 4 θεωρείται σαν αντίστοιχο του LC_{50} (1 ώρας).

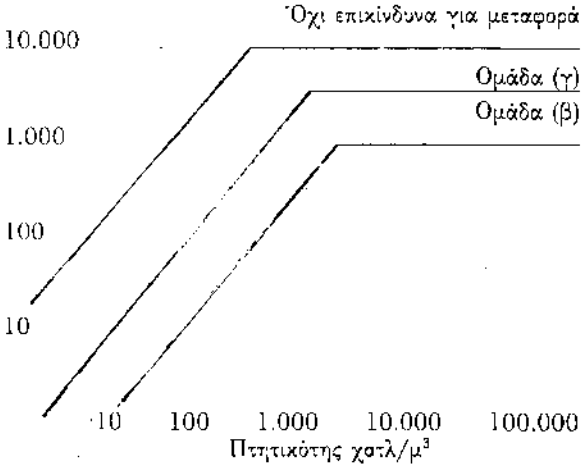
Τοξικότητα εισπνοής ατμών.

Θα πρέπει να χρησιμοποιούνται τα εξής κριτήρια για την ταξινόμηση σε ομάδες (α) και (γ) που εκλύουν τοξικούς ατμούς, (όπου «V» είναι κεκορεσμένη συμπύκνωση ατμού σε χστλ/$μ^3$ αέρος σε 20°C και σε σταθερή συνήθη ατμοσφαιρική πίεση):

ΥΠΟΔΙΑΙΡΕΣΗ ΣΕ ΟΜΑΔΕΣ ΣΤΟ ΙΔΙΟ ΣΤΟΙΧΕΙΟ:		
Εξαιρετικά τοξικό	(α)	Όπου V ⩾ 10 LC_{50} και LC_{50} ⩽1000 χστλ/$μ^3$
Τοξικό	(β)	Όπου V ⩾ LC_{50} ⩽3.000 χστλ/$μ^3$ και δεν συγκεντρώνονται τα κριτήρια για (α)
Επιβλαβές	(γ)	Όπου V ⩾ 1/5 LC_{50} και LC_{50} ⩽5.000 χστλ/$μ^3$ και δεν συγκεντρώνονται τα κριτήρια για (α) ή (β).

Τα ανωτέρω κριτήρια για τοξικότητα εισπνοής ατμών βασίζονται σε στοιχεία LC_{50} σχετικά με εκθέσεις επί 1 ώρα και όπου υπάρχει διαθέσιμη μια τέτοια πληροφορία, πρέπει να χρησιμοποιείται. Ωστόσο, όπου υπάρχουν διαθέσιμα στοιχεία μόνον LC_{50} σχετικά με τετράωρες εκθέσεις σε ατμούς, οι αριθμοί αυτοί μπορούν να πολλαπλασιάζονται επί δύο και το γινόμενο να υποκαθίσταται στα ανωτέρω κριτήρια, π.χ.: LC_{50} (4 ωρών) × 2 θεωρείται το αντίστοιχο του LC_{50} (1 ώρα).

ΤΟΞΙΚΟΤΗΣ ΕΙΣΠΝΟΗΣ
ΟΡΙΑΚΕΣ ΓΡΑΜΜΕΣ ΟΜΑΔΟΣ ΣΥΣΚΕΥΑΣΙΑΣ



Στον ανωτέρω πίνακα τα κριτήρια εκφράζονται με γραφική παράσταση σαν βοήθημα για εύκολη ταξινόμηση. Ωστόσο, επειδή όταν χρησιμοποιούνται γραφικές παραστάσεις είναι αναπόφευκτο να υπάρχουν προσεγγίσεις, για ουσίες που εμπίπτουν πάνω ή κοντα σε οριακές γραμμές ομάδων συσκευασίας, πρέπει να γίνεται έλεγχος με αριθμητικά κριτήρια.

2) Για απαιτήσεις συσκευασίας των περιθωρίων 2605(2), 2606(3) και 2607(2), ουσίες και μίγματα ουσιών με σημείο τήξεως πάνω από 45°C θεωρούνται στερεές.

3) Οι χημικά ασταθείς ουσίες της Κλάσεως 6.1 θα γίνονται δεκτές για μεταφορά μόνον αν ελήφθησαν τα αναγκαία μέτρα για πρόληψη επικίνδυνης αποσυνθέσεώς των ή πολυμερισμού των κατά την μεταφορά. Για τον σκοπό αυτό, ιδιαίτερη φροντίδα πρέπει να παίρνεται για να εξασφαλιστεί ότι οι συσκευασίες δεν περιέχουν καμμιά ουσία που μπορεί να υποβοηθήσει τις αντιδράσεις αυτές. 2600

4) Το σημείο αναφλέξεως που αναφέρεται κατωτέρω θα πρέπει να προσδιορίζεται με τον τρόπο που περιγράφεται στο Παράρτημα Α.3.

ΣΗΜΕΙΩΣΗ: Ακόμη και όπου καμμία ουσία δεν είναι καταχωρισμένη υπό τα ψηφία (α), (β) ή (γ) των διαφόρων ειδών, ουσιών, διαλυμάτων, μιγμάτων και παρασκευασμά- 2601

των, μπορεί να ταξινομείται υπό τα ψηφία αυτά με τα κριτήρια που εκτίθενται στο περιθώριο 2600.

Α. Εξαιρετικά τοξικές ουσίες που έχουν σημείο αναφλέξεως κάτω από 21°C και σημείο βρασμού κάτω από 200°C χωρίς να είναι ουσίες της Κλάσεως 3.

Ι. Υδροκυανικό οξύ περιέχουν το πολύ 3% νερό (τελείως απορροφηθέν από αδρανή πορώδη ουσία ή σε υγρή κατάσταση), με τον όρο η πλήρωση των δοχείων έγινε το πολύ προ ενός έτους.

ΣΗΜΕΙΩΣΕΙΣ:

1. Ειδικοί όροι συσκευασίας εφαρμόζονται για την ουσία αυτή (βλέπε περιθώριο 2603(1)).

2. Υδροκυανικό οξύ που δεν ικανοποιεί τις προϋποθέσεις αυτές δεν πρέπει να γίνεται δεκτό για μεταφορά.

2. Τα εξής διαλύματα υδροκυανικού οξέος:

Υδατικά διαλύματα υδροκυανικού οξέος περιέχοντα το πολύ 20% καθαρού οξέος.

Αλκοολικά διαλύματα υδροκυανικού οξέος περιέχοντα το πολύ 45% καθαρού οξέος σε μεθανόλη.

Αλκοολικά διαλύματα υδροκυανικού οξέος περιέχοντα το πολύ 40% οξέος σε αιθανόλη.

ΣΗΜΕΙΩΣΕΙΣ: 1) Ειδικοί όροι συσκευασίας εφαρμόζονται για τις ουσίες αυτές (βλέπε περιθώριο 2603(2)).

2) Υδατικά διαλύματα υδροκυανικού οξέος περιέχοντα πλέον του 20% καθαρού οξέος, αλκοολικά διαλύματα υδροκυανικού οξέος περιέχοντα πλέον του 45% καθαρού οξέος σε μεθανόλη και αλκοολικά διαλύματα υδροκυανικού οξέος περιέχοντα πλέον του 40% καθαρού οξέος σε αιθανόλη δεν θα πρέπει να γίνονται δεκτά για μεταφορά.

3. Τα εξής μεταλλικά καρβονύλια:

Πενταπαρβονύλιο σιδήρου, τετρακαρβονύλιο νικελίου.

ΣΗΜΕΙΩΣΕΙΣ: 1) Ειδικοί όροι συσκευασίας εφαρμόζονται για τις ουσίες αυτές (βλέπε περιθώριο 2604).

2) Για μεταλλικά καρβονύλια έχοντα σημείο αναφλέξεως 21°C και άνω, βλέπε άρθ. 36. Άλλα μεταλλικά καρβονύλια με σημείο αναφλέξεως κάτω από 21°C δεν θα πρέπει να γίνονται δεκτά για μεταφορά.

Β. Οργανικές ουσίες με σημείο αναφλέξεως 21°C και άνω ή μη αναφλέξιμες.

ΣΗΜΕΙΩΣΗ: Οργανικές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν παρασιτοκτόνα είναι ουσίες των 71° έως 77° και 81° έως 83°.

ΙΙ. Αζωτούχες, ουσίες με σημείο βρασμού κάτω των 200°C όπως:

α) κυανοϋδρική ακετόνη,

β) ανιλίνη, βενζονιτρίλιο, διαμεθυλο - αμινο - ακετονιτρίλιο, Ν, Ν-διμεθυλο-ανιλίνη, διμεθυλο-πυριδίνη, λακτονιτρίλιο, μεθοξυ - προπριονι - τρίλιο, (μονο)χλωρο - ακετονιτρίλιο, τριχλωρο - ακετονιτρίλιο.

δ) διαιθυλο - αμινο - ακετονιτρίλιο. Ν-μεθυλανιλίνη.

ΣΗΜΕΙΩΣΗ: Ισοκυανικά με σημείο ζέσεως κάτω των 200°C είναι ουσίες του 18°.

12. Αζωτούχες ουσίες με σημείο ζέσεως από 200° και άνω, όπως:

α) – – – –

β) 2-αμινο-βενζονιτρίλιο, αμινο - τρινιτρο - βενζονιτρίλιο, βενζιδίνη, βρωμο-ανιλίνες, Ν-βουτυλ-ανιλίνες, χλωρο - νιτρο - βενζένια, διχλωρο - ανιλίνες, βενζιδίνη διϋδροχλωριούχος, διμεθυλο - αμινο - βοράνιο, δινιτρο - ανιλίνες, δινιτρο - βενζένια, δινιτρο - τολουένια, αιθυλο - λουϊδίνες, νιτρο - βενζο - τρι - φθορίδια, 3 - νιτρο - 4 - χλωρο - βενζοτρι - φθορίδιο, μονο - χλωρο - ανιλίνες, μονο - νιτροανιλίνες, μονονιτρο - τολουένια, βήτα - ναφθυλαμίνη, νιτρο - βενζένιο, νιτροξυλένια, φαινυλο-δραζίνη, θειϊκή βενζιδίνη, τολουϊδίνες, χυλιδίνες.

γ) ακρυλαμίδιο, λιπονιτρίδιο, αμινοφαινόλες, ανισιδίνες, βενζυλ - κυανίδιο (φαινυλακετονιτρίλιο), διαμινο - διφαινυλο - μεθάνιο, Ν, Ν - διαιθυλαμιλίνη, αιθυλανιλίνες, Ν - αιθυλο - Ν - βενζυλανιλίνη, άλφα - ναφθυλαμίνη νιτροκρεοζόλες, νιτροφαινόλες, φαινετιδίνες, φαινυλο - ενεδιαμίνες, 2,4 - τολουϋλενεδιαμίνη.

ΣΗΜΕΙΩΣΗ: Ισαοκυανικά με σημείο ζέσεως 200°C και άνω είναι ουσίες του 19°.

13. Οξυγονωμένες ουσίες με σημείο ζέσεως 200°C και κάτω, όπως:

α) Αλλυλ-αλκοόλη, θειϊκό διμεθύλιο,

β) αλδόλη (βήτα υδροξυβουτυραλδεϋδη), φαινόλη, θειϊκό χλωρο-διμεθύλιο,

γ) φουρφουρυλική αλκοόλη, βορικό τριαλύλιο, μονοβουτυλιακός αιθήρ αιθυλενικής γλυκόλης, οξαλικό αιθύλιο,

14. Οξυγονωμένες ουσίες με σημείο βρασμού 200°C και άνω, όπως:

α) . . .

β) βενζοκινόνη, χοληστερόλες, κρεοζόλες, θειϊκό διαιθύλιο, ξυλενόλες.

γ) αλκυλοξυ-φαινόλες, αλκυλοφαινόλες (με αλύσεις C2 έως C8), υδροκινόνη, πυροκατεχόλη, κινυδρόνη, ρεζορσινόλη.

15. Αλογονοποιημένοι υδρογονάνθρακες με σημείο βρασμού κάτω των 200°C, όπως:

α) . . .

β) βρωμιούχιο βενζύλιο, βρώμιούχο αιθύλιο, χλωροφόρμιο, χλωριούχο βενζύλιο, διβρωμιούχο αιθυλένιο (SYM.-διβρωμοαιθάνιο), ιωδιούχο μεθύλιο, πενταχλωραιθάνιο, 1,1,1,2 - τετραχλωραιθάνιο, 1,1,2,2, - τετραχλωραιθάνιο (τετραχλωριούχος ασετυλίνη), τετραχλωριούχο άνθραξ.

ΣΗΜΕΙΩΣΗ: Μίγματα διβρωμιούχου αιθυλενίου (CYM. διβρωμοαιθανίου) με βρωμιούχο μεθύλιο, έχοντα σε 50°C πίεση ατμών μεγαλύτερη από 300 KPa (3 BAR), είναι, ουσίες της Κλάσεως 2 (βλέπε περιθώριο 2201, 4° (β τ)).

γ) βρωμοφόρμιο, χλωριούχο μεθυλένιο (διχλωρο - μεθάνιο). 1,2 - διχλωρο - βενζένιο, τετραβρωμιούχος άνθραξ, τετραχλωρο - αιθυλένιο (υπερχλωρο - αιθυλένιο), τριχλωρο - αιθυλένιο, 1, 1, 1 - τριχλωροαιθάνιο, τριχλωρο - προπάνιο.

ΠΑΡΑΤΗΡΗΣΗ: Μίγματα χλωριούχου μεθυλίου με χλωριούχο μεθυλένιο έχοντα σε 50°C πίεση ατμών μεγαλύτερη από 300 KPa (3 BAR) είναι ουσίες της Κλάσεως 2 (βλέπε περιθώριο 2201, 4 (β, τ)).

16. Άλλες αλογονοποιημένες ουσίες με σημείο βρασμού κάτω των 200°C, όπως:

α) χλωροπικρίνη, χρωρο - τριθυρο - πυριμιδίνη επιβρωμο - υδρίνη, υπερχλωρο - μεθυλο - μερκαπτάνη.

ΣΗΜΕΙΩΣΕΙΣ: 1. Μίγματα χλωροπικρίνης με βρωμιούχο μεθύλιο ή χλωριούχο μεθύλιο, έχοντα σε 50°C πίεση ατμών μεγαλύτερη από 300 KPa (3 BAR), είναι ουσίες της Κλάσ. 2 (βλέπε περιθώριο 2201 4° (α τ) ή 4° (β τ)).

2. Συμμετρικός διχλωρο - διμεθυλαιθήρ δεν θα γίνεται δεκτός για μεταφορά.

β) χλωρο - ακετυλ - αλδεϋδη, οξικό αιθυλοβρώμιο οξικό μεθυλοβρώμιο, βρωμιο - ακετόνη, οξικό αιθυλοχλώριο, οξικό μεθυλοχλώριο, χλωροακετόνη, χλωροφορμικό κυκλο - εξύλιο, χλωροφορμικό 2 - αιθυλεξύλιο, χλωροφορμικό φαινύλιο, 1 - χλωρο - 1 - νιτροπροπάνιο, 1 - χλωρο - 2 - προπανόλη, 1,2 - διβρωμο - 3 - βουτανόνη, συμ. - διχλωρο - ακετόνη, 1,3 - διχλωροϋδρίνη (1,3 - διχλωρο - 2 - προπανόλη), 1,1 - διχλωρο - 1 - νιτροαιθάνιο, επιχλωρο - υδρίνη, 2,2 - διχλωραιθυλικός αιθήρ, διχλωροϊσο - προπυλικός αιθήρ, 3 - αμινοβενζοτριφθοριούχο, αιθυλενική χλωρο - υδρίνη (2 - χλωρο - αιθανόλη), πενταφθοριο - βενζαλδεϋδη, τριχλωρο - ακετυλ - αλδεϋδη (CHLORAL), τριχλωρο - νιτρο - αιθάνιο.

ΣΗΜΕΙΩΣΗ: Χλωροφορμικά άλατα που έχουν κυρίως διαβρωτικές ιδιότητες είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 64°).

γ) 2 - χλωροφαινόλη, 3 - χλωρο - προπανόλη, διχλωρο - οξικό μεθύλιο, τριχλωρο - οξικό μεθύλιο.

17. Αλογονοποιημένες ουσίες που έχουν σημείο ζέσεως 200°C και άνω, όπως:

α) χλωριούχος φαινυλ - καρμπουλαμίνη, κυανιούχο άλφα - βρωμοβενζύλιο.

β) βρωμιούχο φαινακύλιο (ωμέγα - βρωμο - ακετοφαινόνη), βρωμιούχο νιτροβενζύλιο, βρωμιούχο ξυλύλιο, χλωριούχο φαινακύλιο, (ωμέγα - χλωρο - ακετοφαινόνη), χλωριούχο βενζυλιδένιο, ένυδρη εξαφθοριοακετόνη, ιωδιούχο βενζύλιο, πενταχλωρο - φαινικό νάτριο, τριχλωροβουτένιο.

γ) χλωρο - ανισιδίνες, χλωροβενζαλδεϋδη, τριτοταγές - βουτυλ - κυκλο - εξυλ - χλωρο - μυρμηκικό, χλωρο - νιτρο - ανιλίνες, χλωρο - νιτρο - τολουόλια, 3 - χλωρο - φαινόλη, 4 - χλωροφαινόλη, χλωρο - τολουϊδίνες, χλωριούχο βρωμοβενζύλιο, χλωριούχα χλωροβενζύλια, διχλωροφαινόλες, διχλωρο - τολουϊδίνες, εξαχλωρο - ακετόνη, εξαχλωροβενζέ-

νιο, εξαχλωρο - βουταδιένιο, εξαχλωρο - αιθάνιο, μονο - χλωρο - οξικό νάτριο, 1, 1, 2, 2 - τετραβρωμοαιθάνιο (τετραβρωμιούχο ακετυλένιο), τετραχλωροβενζένια, τετραχλωροφαινόλες, τριχλωροβενζένια, τριχλωροφαινόλες.

ΣΗΜΕΙΩΣΕΙΣ: 1. Χλωροφορμικά άλατα που έχουν κυρίως διαβρωτικές ιδιότητες είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 64°).

2. η 2, 3, 7, 8 - τετραχλωρο - διβενζο - ρ - διοξίνη (TCDD) σε συμπυκνώσεις που θεωρούνται εξαιρετικά τοξικές βάσει των κριτηρίων του περιθωρίου 2600 (1) υποσημ. 1. - δεν θα γίνεται δεκτή για μεταφορά.

18. Ισοκυανικές ενώσεις με σημείο βρασμού κάτω των 200°C όπως:

α) . . .

β) ισοκυανικό χλωραιθύλιο, ισοκυανικό κυκλο - αιθύλιο, ισοκυανικό φαινύλιο, ισοκυανικό τολύλιο, διαλύματα ισοκυανικών του 18°(β) και 19°(β) έχοντα σημείο αναφλέξεως 21°C και άνω.

ΣΗΜΕΙΩΣΗ: Διαλύματα των εν λόγω ισοκυανικών ενώσεων με σημείο αναφλέξεως κάτω των 21°C είναι ουσίες της Κλάσεως 3 (βλέπε περιθώριο 2301, 14°(β)).

γ) . . .

19. Ισοκυανικές ενώσεις με σημείο βρασμού 200°C και άνω, όπως:

α) . . .

β) δι-ισοκυανικό εξαμεθυλένιο, δι-ισοκυανικο 2, 4 - τολυϋλένιο και ισομετρικά μίγματα, ισοκυανικό 3 - χλωρο - 4 μεθυλοφαινύλιο, ισοκυανικό τριχλωροφαινύλιο, ισοκυανικό 4 - χλωροφαινύλιο, σιοκυανικό 3, 4 - διχλωροφαινύλιο, ισοκυανικό άλφα - ναφύλιο, ισοκυανικό τοσύλιο.

ΣΗΜΕΙΩΣΕΙΣ: 1. Διαλύματα των ανωτέρω ισοκυανικών ενώσεων με σημείο αναφλέξεως κάτω των 21°C είναι ουσίες της Κλάσεως 3 (βλέπε περιθώριο 2301, 14°(β)).

2. Διαλύματα των ανωτέρω ισοκυανικών ενώσεων με σημείο αναφλέξεως 21°C και άνω, είναι ουσίες της 18° (β).

γ) ισοκυανικό 4, 4 - διαφινυλομεθάνιο, δ-σοκυανικό ισοφορόνιο (ισοκυανικό 3 - ισοκυανικομεθυλικό - 3, 5, 5 - τριμεθυλο - κυκλοεξύλιο), δι - ισοκυανικό 1, 5 - ναφθυλένιο, δι - ισοκυανικό τριμεθυλο - εξαμεθυλένιο, και ισομερή μίγματα αυτών, ισοκυανικό στεαρύλιο, διαλύματα ισοκυανικών του 19° (γ) με σημείο αναφλέξεως 21°C και άνω.

20. Ουσίες περιέχουσες θείο και που έχουν σημείο ζέσεως κάτω των 200°C όπως:

α) θειοφαινόλη.

β) 2 - αιθυλο - θειοφαίνιο, φουρφουρυλομερκαπτάντη, ισοθειοκυανικό αλλύλιο, ισοθειοκυανικό αιθύλιο, μερκαπτο - αιθανόλη (τρι-γλυκόλη), θειοφωσγένιο, διαλύματα των ισοθειοκυανικών της 20°(β) με σημείο αναφλέξεως 21°C και άνω.

ΣΗΜΕΙΩΣΗ: Διαλύματα των εν λόγω ισοθειοκυανικών έχοντα σημείο αναφλέξεως κάτω των 21°C είναι ουσίες της Κλάσεως 3 (βλέπε περιθώριο 2301, 18°(β)).

γ) ισοθειο - κυανικό μεθύλιο, 4 - τριαπεντανάλη.

21. Ουσίες περιέχουσες θείο και έχουσες σημείο ζέσεως 200°C και άνω, όπως:

α) . . .

β) 2 - ακετυλο - θειοφαίνιο, αμινοθειοφαινόλη.

γ) . . .

22. Ουσίες περιέχουσες φωσφόρο και έχουσες σημείο ζέσεως κάτω των 200°C όπως:

α) . . .

β) τριαιθυλική φωσφίνη.

γ) . . .

23. Ουσίες περιέχουσες φωσφόρο και που έχουν σημείο ζέσεως 200°C και άνω, όπως:

α) . . .

β) αιθυλο - διφαινυλο - φωσφίνη, οξείδιο τριφαινυλο - φωσφίνης, φωσφορικό τρικρεσύλιο με πλέον του 3% ορθο - ισομερή, τριαιθυλενο - φωσφοραμίδη.

γ) . . .

24. Οργανικές ενώσεις που δεν μπορούν να ταξινομηθούν σε άλλες συλλογικές κατηγορίες, όπως:

α) . . .

β) κυανιούχο βενζοϋλιο.

γ) 1, 5, 9 - κυκλο - δωδεκα - τριένιο.

Γ. Οργανομεταλλικές ενώσεις και καρβονύλια.

ΣΗΜΕΙΩΣΕΙΣ: 1. Τοξικές οργανομεταλλικές ενώσεις χρησιμοποιούμενες σαν παρασιτοκτόνα είναι ουσίες της 78° έως 80°.

2. Αυτομάτως αναφλεγόμενες οργανομεταλλικές ενώσεις είναι ουσίες της Κλάσεως 4.2 (βλέπε περιθώριο 2431 3°). Οργανομεταλλικές ενώσεις οι οποίες, σε επαφή με νερό εκλύουν αναφλέξιμα αέρια είναι ουσίες της Κλάσεως 4.3 (βλέπε περιθώριο 2471, 2° (ε)).

31. Οργανομεταλλικές ενώσεις όπως:

α) τετρα - αιθυλικός μόλυβδος, τετραμεθυλικός μόλυβδος, μίγματα αλκυλίων μολύβδου με αλογονομένες οργανικές ενώσεις, π.χ. υγρό αιθύλιο (αντικρουστικό πρόσθετο καυσίμων κινητήρων).

32. Οργανικές κασσιτερο - ενώσεις όπως:

α) . . .

β) χλωριούχος διβουτυλικός κασσίτερος, χλωριούχος διμεθυλικός κασσίτερος.

γ) χλωριούχες ενώσεις μονο - αλκυλικού κασσιτέρου, άλλες ενώσεις διβουτυλικού κασσιτέρου.

ΣΗΜΕΙΩΣΗ: Ο τριχλωριούχος βουτυλικός κασσίτερος είναι μία ουσία της Κλάσεως 8 (βλέπε περιθώριο 2801, 21(β)).

33. Οργανικές υδραργυρικές ενώσεις όπως:

α) . . .

β) . . .

γ) . . .

34. Οργανικές ενώσεις αρσενικού, όπως:

α) . . .

β) . . .

γ) . . .

35. Λοιπές οργανομεταλλικές ενώσεις όπως:

Οργανικές ενώσεις αντιμονίου, καδμίου, χρωμίου, κοβαλτίου και Θαλλίου:

α) . . .

β) . . .

γ) . . .

36. Καρβονύλια, όπως:

α) . . .

β) . . .

γ) καρβονύλιο χρωμίου, καρβονύλιο κοβαλτίου.

ΣΗΜΕΙΩΣΗ: Το πενταπαρβονύλιο σιδήρου και το πενταπαρβονύλιο νικελίου είναι ουσίες του 3°.

Δ. Ανόργανες ουσίες που μπορεί να ελκύσουν τοξικά αέρια σε επαφή με νερό (ή ατμοσφαιρική υγρασία), υδρατικά διαλύματα ή οξέα.

41. Ανόργανα κυανιούχα, όπως:

α) στερά κυανιούχα, όπως κυανιούχο βάριο, κυανιούχο ασβέστιο, κυανιούχο κάλιο, κυανιούχο νάτριο, διαλύματα ανοργάνων κυανιούχων, παρασκευάσματα ανοργάνων κυανιούχων. Σύμπλοκα κυανιούχα σε στερεή μορφή, όπως: χαλκοκυανιούχο νάτριο, κυανιούχο υδραργυρικό κάλιο, διαλύματα συμπλόκων κυανιούχων.

β) στερεά κυανιούχα, όπως κυανιούχος υδράργυρος.

Σύμπλοκα κυανιούχα σε στερεή μορφή, όπως χαλκοκυανιούχο κάλιο.

γ) . . .

ΣΗΜΕΙΩΣΗ: Σιδηρι - κυανιούχα, σιδηρο - κυανιούχα, αλκαλικά θειοκυανιούχα και θειοκυανικό αμμώνιο, υπόκεινται στις διατάξεις της ADR.

42. Αζίδια, όπως:

α) αζίδιο βαρύου με τουλάχιστον 50% νερό ή αλκοόλες.

β) υδατικά διαλύματα αζιδίου βαρύου και αζιδίου νατρίου.

γ) . . .

ΣΗΜΕΙΩΣΕΙΣ: 1. Αζίδια που μπορεί να εκραγούν σε επαφή με φλόγα ή που είναι περισσότερο ευαίσθητα σε κρούση ή τριβή από το τρινιτρο - βενζένιο, δεν πρέπει να γίνονται δεκτά για μεταφορά, εκτός αν είναι ειδικά καταχωρισμένα στην Κλάση 1α.

2. Αζίδιο βαρύου σε ξηρή κατάσταση ή με λιγώτερο από 50% νερό ή αλκοόλες δεν θα πρέπει να γίνεται δεκτό για μεταφορά.

43. Παρασκευάσματα φωσφιδίων περιέχοντα προσθήκες που σταματούν αυτόματη ανάφλεξη, όπως:

α) φωσφορούχο αργίλιο, φωσφορούχο μαγνήσιο.

β) φωσφορούχος ψευδάργυρος.

γ) . . .

ΣΗΜΕΙΩΣΕΙΣ: 1. Τα παρασκευάσματα αυτά δεν πρέπει να γίνονται δεκτά για μεταφορά αν δεν περιέχουν προσθήκες που παρεμποδίζουν την αυτόματη ανάφλεξη.

2. Παρασκευάσματα φωσφορούχου νατρίου, φωσφορούχου ασβεστίου και φωσφορούχου στροντίου είναι ουσίες της Κλάσεως 4.2 (βλέπε περιθώριο 2431 2°).

44. (β) Σιδηρο-σιλικόνη και μαγγανο - σιλικόνη με πλέον των 30% και λιγώτερη των 70% σιλικόνη, κράματα σιδηρο - σιλικόνης με αλουμίνιο, μαγγάνιο, ασβέστιο ή με περισσότερα του ενός από τα μέταλλα αυτά, με συνολική περιεκτικότητα σιλικόνης και στοιχείων άλλων πλην σιδήρου και μαγγανίου πλέον του 30% αλλά λιγώτερη από 70%.

γ) . . .

Ουσίες της 44° θα γίνονται δεκτές για μεταφορά μόνον αν έχουν αποθηκευτεί για χρονικό διάστημα μικρότερο των τριών ημερών σε ξηρό και αεριζόμενο μέρος.

ΣΗΜΕΙΩΣΕΙΣ: 1. Μπρικέττες σιδηρο - σιλικόνης και μαγγανο - σιλικόνης, με οποιοδήποτε περιεχόμενο σιλικόνης, δεν θα υπόκεινται στις διατάξεις του ADR.

2. Ουσίες της 44° δεν θα υπόκεινται στις διατάξεις της ADR αν δεν είναι υποκείμενες σε έκλυση επικινδύνων αερίων με την επίδραση υγρασίας κατά την μεταφορά και τούτο το πιστοποιεί ο αποστολέας στο έγγραφο μεταφοράς.

Ε. Άλλες ανόργανες ουσίες.

51. Ενώσεις αρσενικού, όπως:

α) αρσενικό οξύ (υγρό), υγρές ενώσεις αρσενικού, τριχλωριούχο αρσενικό.

β) αρσενικό οξύ (στερεό), τριοξείδιο αρσενικού (λευκό αρσενικό), πεντοξείδιο αρσενικού, αρσενικικό ασβέστιο, αρσενικικό αγνήσιο, αρσενικικό κάλιο, αρσενικικό νάτριο, αρσενιώδες κάλιο, αρσενιώδες νάτριο βρωμιούχο αρσενικό.

γ) . . .

ΣΗΜΕΙΩΣΗ: Ουσίες και παρασκευάσματα περιέχοντα αρσενικό και χρησιμοποιούμενα σαν παρασιτοκτόνα, είναι ουσίες της 84°.

52. Ενώσεις υδραργύρου, όπως:

β) οξειδός υδράργυρος, χλωριούχος υδράργυρος.

γ) . . .

ΣΗΜΕΙΩΣΕΙΣ: 1. Ουσίες και παρασκευάσματα που περιέχουν υδράργυρο και χρησιμοποιούνται σαν παρασιτοκτόνα, είναι ουσίες της 86°.

2. Το κιννάβαρι και ο χλωριούχος υδράργυρος (καλομέλας) δεν υπόκεινται στις διατάξεις της ADR.

3. Ο βροντώδης υδράργυρος δεν θα γίνεται δεκτός για μεταφορά.

4. Το κυανιούχο υδραργυρικό κάλιο και ο κυανιούχος υδράργυρος είναι ουσίες της 41°.

53. Ενώσεις θαλλίου, όπως:

β) . . .

γ) . . .

ΣΗΜΕΙΩΣΗ: Ουσίες και ενώσεις ή παρασκευάσματα που περιέχουν θάλλιο και χρησιμοποιούνται σαν παρασιτοκτόνα είναι ουσίες της 88°.

54. Βηρύλλιο και ενώσεις βηρυλλίου, όπως:

β) βηρύλλιο σε σκόνη.

γ) . . .

55. Σελήνιο και ενώσεις σεληνίου, όπως:

α) σεληνικά και σεληνιούχα άλατα.

β) διθειούχο σελήνιο, διοξείδιο σεληνίου.

γ) μεταλλικό σελήνιο.

ΣΗΜΕΙΩΣΗ: Το σεληνικό οξύ είναι ουσία της Κλάσεως 8 (βλέπε περιθώριο 2801, 11° (α)).

56. Ενώσεις οσμίου, όπως:

α) τετροξείδιο οσμίου.

β) . . .

γ) . . .

57. Ενώσεις τελλουρίου, όπως:

β) διοξείδιο τελλουρίου, τελλουριούχο αλουμίνιο, τελλουριούχο κάδμιο, τελλουριούχος ψευδάργυρος.

γ) . . .

58. Ενώσεις βαναδίου, όπως:

β) πεντοξείδιο βαναδίου, βαναδικά άλατα

γ) . . .

ΣΗΜΕΙΩΣΕΙΣ: 1. Οξυ - τριχλωριούχο βανάδιο, τετραχλωριούχο βανάδιο και τριχλωριούχο βανάδιο είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 21° & 22°).

2. Χλωρικό και υπερχλωρικό βανάδιο είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501, 4°).

59. Ενώσεις αντιμονίου, όπως:

γ) οξείδια αντιμονίου, άλατα αντιμονίου.

ΣΗΜΕΙΩΣΕΙΣ: Πενταχλωριούχο αντιμόνιο, τριχλωριούχο αντιμόνιο και πενταφθοριούχο αντιμόνιο είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 21°, 22°.& 26°).

2. Χλωρικό αντιμόνιο και υπερχλωρικό αντιμόνιο είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501, 4°).

3. Οξείδια αντιμονίου με περιεκτικότητα αρσενικού που δεν υπερβαίνει το 0.5% της συνολικής μάζας και τριθειούχου αντιμονίου, δεν υπόκεινται στις διατάξεις της ADR.

60. Ενώσεις βαρύου, όπως:

γ) ανθρακικό βάρυο, χλωριούχο βάρυο, φθοριούχο βάρυο, υδροξείδιο βαρύου, οξείδιο βαρύου, θειούχο βάρυο.

ΣΗΜΕΙΩΣΕΙΣ: 1. Χλωρικό βάρυο, νιτρικό βάρυο, νιτρώδες βάρυο, υπερχλωρικό βάρυο, υπερμαγγανικό βάρυο και υπεροξείδιο βαρύου είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501, 4°, 7°, 8° και 9°).

2. Το αξίδιο βαρύου είναι ουσία της 42°.

3. Στεαρικό βάρυο, θειϊκό βάρυο και τιτανικό βάρυο δεν υπόκεινται στις διατάξεις της ADR.

61. Ενώσεις καδμίου, όπως:

γ) οξεικό βάρυο, ανθρακικό βάρυο, νιτρικό βάρυο, θειϊκό βάρυο.

ΣΗΜΕΙΩΣΗ: Χρωστικές καδμίου, όπως θειούχες ενώσεις βαρύου, σουλφοσεληνιούχες ενώσεις καδμίου και άλατα καδμίου ανωτέρων λιπαρών οξέων (π.χ. στεαρικό κάδμιο) δεν υπόκεινται στις διατάξεις της ADR.

62. Ενώσεις μολύβδου, όπως:

γ) οξείδια μολύβδου, όπως λευκός μόλυβδος και χρωμικός μόλυβδος, άλατα μολύβδου, συμπεριλαμβανομένου οξεικού μολύβδου.

ΣΗΜΕΙΩΣΕΙΣ: 1. Χλωρικός μόλυβδος, νιτρικός μόλυβδος και υπερχλωρικός μόλυβδος είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501, 4° και 7°).

2. Άλατα μολύβδου και χρωστικές μολύβδου που δεν είναι διαλυτά σε 0.1 N υδροχλωρικό οξύ, δεν υπόκεινται στις διατάξεις της ADR.

63. Κατάλοιπα και απόβλητα περιέχοντα ενώσεις αντιμονίου ή μολύβδου ή και των δύο, όπως:

γ) ιλύς μολύβδου περιέχουσα λιγώτερο από 3% ελεύθερο θειϊκό οξύ, τέφρες αντιμονίου ή μολύβδου ή αντιμονίου και μολύβδου.

ΣΗΜΕΙΩΣΗ: Ιλύς μολύβδου περιέχουσα πλέον του 3% ελευθέρου θειϊκού οξέος είναι ουσία της Κλάσεως 8 (βλέπε περιθώριο 2801, 1° (β)).

64. Άλατα υδραζίνης, όπως:

γ) διϋδροβρωμιούχος υδραζίνη, διϋδροχλωριούχος υδραζίνη, μονο - υδροβρωμιούχος υδραζίνη, μονο - υδροχλωριούχος υδραζίνη θειϊκή υδραζίνη.

65. Φθοριούχες ενώσεις διαλυτές στο νερό, όπως:

γ) φθοριούχο αμμώνιο, φθοριούχο κάλιο, φθοριούχο νάτριο.

ΣΗΜΕΙΩΣΗ: Διαβρωτικές φθοριούχες ενώσεις είναι ουσίες της Κλάσεως 8 (βλέπε περιθώριο 2801, 25° & 26°).

66. Σιλικοφθοριούχα, όπως:

γ) σιλικοφθοριούχο αμμώνιο.

67. γ) Οξαλικά άλατα διαλυτά σε νερό.

68. Ανόργανες ενώσεις που δεν μπορούν να ταξινομηθούν σε άλλες συλλογικές κατηγορίες, όπως:

α) . . .

β) . . .

γ) χλωριούχο κοβάλτιο, χλωριούχος χαλκός, τριοξείδιο μολυβδενίου.

ΣΗΜΕΙΩΣΗ: Ουσίες και παρασκευάσματα περιέχοντα χαλκό και χρησιμοποιούμενες σαν παρασιτοκτόνα, είναι ουσίες της 87°.

Ζ. Ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν παρασιτοκτόνα

ΣΗΜΕΙΩΣΕΙΣ: 1. Αναφλέξιμες υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν παρασιτοκτόνα και

που είναι εξαιρετικά τοξικές, τοξικές ή επιβλαβείς και έχουν σημείο αναφλέξεως κάτω των 21°C, είναι ουσίες της Κλάσεως 3 (βλέπε περιθώριο 2301, 6° ή 19°).

2. Είδη διαποτισμένα με ουσίες και παρασκευάσματα χρησιμοποιούμενα σαν παρασιτοκτόνα της 71° έως 88°, όπως πλάκες ινοσανίδας, λωρίδες χαρτιού, μπάλλες βαμβακιού, φύλλα πλαστικών κλπ., σε αεροστεγείς και ερμητικά κλεισμένους φακέλλους, δεν υπόκεινται στις διατάξεις της ADR.

71-88: Τα είδη αυτά κατατάσσονται στα:

ψηφίο (α): Εξαιρετικά τοξικές ουσίες και παρασκευάσματα.

ψηφίο (β): Τοξικές ουσίες και παρασκ.

ψηφίο (γ): Βλαβερές ουσίες & παρασκευάσμ.

ΣΗΜΕΙΩΣΕΙΣ: 1. Όλες οι δραστικές ουσίες και τα παρασκευάσματά των που χρησιμοποιούνται σαν παρασιτοκτόνα θα πρέπει να ταξινομούνται στα 71° έως 88° (α), (β), και (γ) σύμφωνα με την υποσημείωση 1. - στο περιθώριο 2600 (1).

2. Αν είναι γνωστή μόνον η τιμή του LD_{50} της δραστικής ουσίας και όχι των παρασκευασμάτων της, τότε τα τα παρασκευάσματα μπορούν να ταξινομούνται στα 71° έως 88° (α), (β) και (γ) χρησιμοποιώντας τους κατωτέρω πίνακες, στους οποίους οι αριθμοί που αναγράφονται στις στήλες (α), (β) και (γ) των 71° έως 88° παριστούν το ποσοστό % της δραστικής παρασιτοκτόνου ουσίας που περιέχουν τα παρασκευάσματα.

3. Για ουσίες που δεν αναφέρονται στον κατάλογο και για τις οποίες είναι γνωστή η τιμή του LD_{50} της δραστικής ουσίαες και όχι των διαφόρων παρασκευασμάτων, η ταξινόμηση ενός παρασκευάσματος μπορεί να προσδιοριστεί από τον πίνακα της υποσημειώσεως 1. - του περιθωρίου 2600 (1) χρησιμοποιώντας την τιμή του LD_{50} που παίρνομε πολλαπλασιάζοντας την τιμή του LD_{50} της δραστικής ουσίας επί 100/X όπου X το ποσοστό % της δραστικής ουσίας κατά μάζα, σύμφωνα με τον ακόλουθο τύπο:

$$\text{αξία } LD_{50} \text{ παρασκευάσματος} = \frac{\text{αξία } LD_{50} \text{ δραστ. ουσίας X 100}}{\text{ποσοστό \% δραστ. ουσ. κατά μάζα}}$$

4. Η ταξινόμηση σύμφωνα με τις σημειώσεις 2 & 3 ανωτέρω δεν θα χρησιμοποιείται όταν τα παρασκευάσματα περιέχουν προσθήκες που επιδρούν στην τοξικότητα της ενεργού ουσίας ή όταν το παρασκεύασμα περιέχει πλέον της μιάς δραστικής ουσίας. Σε τέτοιες περιπτώσεις η ταξινόμηση θα βασίζεται στην τιμή LD_{50} του εν λόγω παρασκευάσματος, σύμφωνα με τα κριτήρια της υποσημειώσεως 1. του περιθωρίου 2600(1). Αν η τιμή της LD_{50} δεν είναι γνωστή, η ουσία θα ταξινομείται σαν (α) των 71° έως 88°.

71° Οργανοφωσφορούχες ενώσεις όπως:	71°(α) %	71°(β) %	71°(γ) στερεό	% υγρό
ACEPHATE	–	–	–	100-40
AMICITHION	–	–	–	100-30
AZINPHOS-ETHYL	–	100-25	25-2	25-0.5
AZINPHOS-METHYL	–	100-20	20-2	20-0.5
BROMOPHOS-ETHYL	–	–	100-10	100-3
CARBOPHENITHION	–	100-20	20-2	20-0.5
CHLORFEVINPHOS	–	100-20	20-2	20-0.5
CHLORMEPHOS	–	100-15	15-1	15-0
CHLORPYRIPHOS	–	–	100-15	100-4
CHLORTHIOPHOS	100-40	40-5	5-0	5-0
CROTOXYPHOS	–	–	100-15	100-3
CRUFOMATE	–	–	100-90	100-20
DEMEPHIO (O&S)	100-0	–	–	–
DEMETON	100-30	30-3	3-0	3-0
DEMETON-O-METHYL-LO-THIO-ISOMER	–	–	100-10	100-3
THIONO-ISOMER	–	–	100-35	100-5
DEMETON-S-METHYL	–	–	100-10	100-3
DIALIFOS	–	–	100-10	100-2
DIAZINON	–	–	100-15	100-4
DICHLOFENTHION	–	–	100-50	100-10
DICHLORVOS	–	100-35	35-5	35-5
DICROTOPHOS	–	100-25	25-3	25-0.5
DIMEFOX	100-20	20-2	2-0	2-0
DIMETHOATE	–	–	100-30	100-10
DIOXATHION	–	100-40	40-4	40-1
DISULPHOTON	–	100-15	15-2	15-0
DITHIANON	–	–	–	100-50
ENDOTHION	–	100-45	45-5	45-1
ERVN	100-75	75-15	15-3	15-3
ETHION	–	100-25	25-2	25-0.5
ETHOATE-METHYL	–	–	100-25	100-5
ETHOPROPHOS	100-65	65-10	10-3	10-3
FENITROTHION	–	–	100-45	100-10
FENSULFOTHION	100-40	40-4	4-0	4-0
FENTHION	–	–	100-60	100-15
FONOFOS	100-60	60-6	6-0	6-0
FORMOTHION	–	–	100-65	100-15
MALATHION	–	–	–	100-30
MECARBAM	–	100-30	30-3	30-0.5
MEPHOSFOLAN	100-25	25-5	5-50	5-50
METHIDATHION	–	100-40	40-4	40-1
METHYLTRITHION	–	–	100-15	100-4
MEVINPHOS	100-60	60-5	5-0	5-0
MONOCROTOPHOS	–	100-25	25-3	25-0.5
NALED	–	–	100-50	100-10
OMETHOATE	–	–	100-10	100-3
OXYDEMETON-METHYL	–	100-90	90-9	90-2
OXYDISULFOTON	100-70	70-5	5-0	5-0
PARATHION	100-40	40-4	4-0	4-0
PARATHION-METHYL	–	100-15	15-1	15-0
PHENKAPTON	–	–	100-10	100-2
PHORATE	100-20	20-2	2-0	2-0
PHOSALON	–	–	100-20	100-5
PHOSFOLAN	–	100-15	15-2	15-0.5
PHOSMET (PHTHALOPHOS)	–	–	100-15	100-4
PHOSPHAMIDON	–	100-30	30-3	30-0.5
PIRIMIPHOS-ETHYL	–	–	100-30	100-5
PHOTHOATE	–	100-15	15-1	15-0
PYRAZOPHOS	–	–	100-55	100-15
PYRAZOLON	100-80	80-5	5-0	5-0
SULFOTEP	–	100-10	10-0	10-0
TEMEPHOS	–	–	–	100-50
TEPP	100-10	10-0	–	–
TERBUFOS	10-15	15-3	3-0	3-0
THIOMETON	–	100-50	50-5	50-1
THIONAZIN	100-70	70-5	5-0	5-0
TRIAMIPHOS	–	100-20	20-2	20-0.5
TRICHLORFON	–	–	100-80	100-20
TRICHLORNAT	–	100-30	30-3	30-0.5
VAMIDOTHION	–	–	100-10	100-3
72. Χλωρικοί υδατάνθρακες, όπως:	72°(α) %	72°(β) %	72°(γ) στερεό	% υγρό
ALDRIN	–	100-75	75-7	75-2
CAMPHECHLOR (TOXAPHENE)	–	–	100-10	100-3
CHLORDANE	–	–	100-55	100-10
CHLORDIMEFORM	–	–	100-50	100-10
DDT	–	–	100-20	100-5
1,2-διβρωμο-3-χλωροπροπάνιο	–	–	100-30	100-5
DIELDRIN	–	100-90	90-10	90-2
ENDOSULFAN	–	100-80	80-8	80-2
ENDRIN	100-60	60-5	5-0	5-0
HEPTACHLOR	–	100-80	80-8	80-2
ISODRIN	–	100-10	10-1	10-0
LINDANE	–	–	100-20	100-5
PENTACHLOROPHENOL	–	100-50	50-5	50-1
73. Χλωρο-φαινοξυ-οξεικά παράγωγα όπως:				
2,4-D	–	–	100-75	100-15
2,4-DB	–	–	–	100-35
DICHLORPROP	–	–	–	100-40
FENOPROP	–	–	–	100-30
FORMETANATE	–	100-40	40-4	40-1
MCPA	–	–	–	100-35
MCPB	–	–	–	100-30
MECOPROP	–	–	–	100-30
2,4,5-T	–	–	100-60	100-15
74. Αλογοναποιημένες οργανικές ενώσεις μη ταξινομημένες στα 72° ή 73° όπως:				
ALLIDOCHLOR		–	100-35	100-35
BENZOYLPROP-ETHYL		–	–	100-75
BROMOXYNIL		–	100-35	100-10
CHLORDECONE	–	–	100-15	100-4
CHLORMEQUAT	–	–	–	100-30
CHLOROBENZILATE	–	–	–	100-35
DICAMBA	–	–	–	100-50
DICHLONE	–	–	–	100-80
DICOFOL	–	–	–	100-25
IOXYNIL		–	100-20	100-5
ISOBENZAN	100-5	5-1	1-0	1-0
MIREX	–	–	100-60	100-15
PROPACHLOR	–	–	–	100-35
PROPANIL	–	–	–	100-25
TETRADIFON	–	–	–	100-25
75. Αζωτούχος οργανικές ενώσεις μη ταξινομημένες σε άλλα άρθρα όπως:				
VENQUINOL	–	–	100-25	100-5
BINAPACRYZ	–	–	100-25	100-5
BUTOCARBOXIN	–	–	100-30	100-5
CHINOMETHIONATE	–	–	–	100-55

CYANAZINE	–	–	100-35	100-10
CYCLOHEXIMIDE	–	–	100-10	100-3
DINOBUTON	–	–	100-10	100-2
DINOSEB	–	100-40	40-5	40-5
DINOSEB ACETATE	–	–	100-10	100-3
DINOTERB	–	100-50	50-5	50-1
DINOTERB ACETATE	–	–	100-10	100-3
DIPHENAMID	–	–	100-55	100-10
DNOC	–	100-50	50-5	50-1
DODINE	–	–	–	100-25
DRAZOXOLON	–	–	100-25	100-5
MEDINOTERB	–	100-80	80-8	80-2
METHYL ISOTHIOCYANATE	–	–	100-35	100-8
NITROFEN	–	–	–	100-30
TERBUMETON	–	–	–	100-20
TRIDEMORPH	–	–	–	100-30
76. Καρβονικά και Θειοκαρβονικά, όπως:				
ALDICARB	100-15	15-1	1-0	1-0
AMINOCARB	–	100-60	60-6	60-1
BARBAN	–	–	–	100-30
BENDIOCARB	–	100-65	65-5	65-1
CARBARYL	–	–	100-80	100-20
CARBOFURAN	–	100-10	10-1	10-0
DI-ALLATE	–	–	100-80	100-20
DIMETILAN	–	100-50	50-5	50-1
DIOXACARB	–	–	100-10	100-3
EPTC	–	–	–	100-80
ISOLAN	–	100-20	20-2	20-0.5
MERCAPTO-DIMETHUR	–	–	100-10	100-3
METAM-SODIUM	–	–	100-50	100-10
METHOMYL	–	100-30	30-3	30-0.5
MEXACARBATE	–	100-25	25-2	25-0
MOLINATE	–	–	–	100-25
NABAM	–	–	100-80	100-20
OXAMYL	–	100-10	10-1	10-0
PENDIMETHALIN	–	–	–	100-50
PIRIMICARB	–	–	100-75	100-20
PROMECARB	–	–	100-15	100-3
PROPOXUR	–	–	100-15	100-4
SULFALLATE	–	–	–	100-40
THIRAM	–	–	–	100-25
TRI-ALLATE	–	–	–	100-30
77. Αλκαλοειδή, όπως:				
ΝΙΚΟΤΙΝΗ	–	–	100-10	100-2
ΣΤΡΥΧΝΙΝΗ	100-20	20-0	–	–
78. Οργανικές ενώσεις υδραργύρου, όπως:				
PHENYLMERCURIC ACETATE (PMA)	–	10-60	60-6	60-1.5
CHLOROLMETHOXYETHYL PHENYLMERCURY PYROCATECHIN (PMB)	–	100-40	40-4	40-2
	–	100-60	60-6	60-1,5
79. Οργανικές ενώσεις ψευδαργύρου, όπως:				
FENTIN ACETATE	–	–	100-25	100-5
CYHEXATIN (TRICYCLOHEXYL - TIN HYDROXIDE)	–	–	100-55	100-10
FENTIN HYDROXIDE	–	–	100-20	100-5
80. Άλλες οργανομεταλλικές ενώσεις που δεν μπορούν να ταξινομηθούν στα 78 & 79, όπως:				
– – – ...	– ..	– ..	– ..	– ..
81. Ποντικοκτόνα, όπως:				
CHLOROPHACINONE	100-40	40-4	4-0	4-0
COUMACHLOR	–	–	100-10	100-2
COUMAFURYL	–	–	100-80	100-20
COUMAPHOS	–	100-30	30-3	30-0.5
CRIMIDINE	100-25	25-2	2-0	2-0
DICOUMAROL	–	–	100-10	100-2
DIPHACINONE	100-25	25-2	2-0	2-0
WARFARIN	100-20	20-2	2-0	2-0
82. Παράγωγα του διπυριδυλίου, όπως:				
DIQUAT	–	–	100-45	100-10
MORFAMQUAT	–	–	100-65	100-15
PARAQUAT	–	100-40	40-4	40-4
83. Οργανικές ενώσεις που δεν μπορούν να ταξινομηθούν σε συλλογική κατηγορία από 71° έως 81°, όπως:				
ALLETHRIN	–	–	–	100-30
BENTAZONE	–	–	–	100-50
DAZOMET	–	–	–	100-25
DESMETRYN	–	–	–	100-65
DIFENZOQUAT	–	–	100-90	100-20
DIMEXANO	–	–	100-45	100-10
ENDOTHAL-SODIUM	–	100-75	75-5	75-2
FLUORACETAMIDE	–	100-10	10-1	10-0
PINDONE	–	–	100-55	100-10
PYRETHRINE	–	–	–	100-30
ROTENONE	–	–	100-25	100-6
84. Ανόργανες ενώσεις αρσενικού, όπως:				
ΤΡΙΟΞΕΙΔΙΟ ΑΡΣΕΝΙΚΟΥ	–	100-40	40-4	40-1
ΑΡΣΕΝΙΚΟ ΑΣΒΕΣΤΙΟ	–	100-40	40-4	40-1
ΑΡΣΕΝΙΚΟΥΧΟ ΝΑΤΡΙΟ	–	100-20	20-2	20-0.5
85. Ανόργανες ενώσεις φθορίου, όπως:				
Σιλικο-φθοριούχο βάριο	–	–	100-35	100-8
Σιλικο-φθοριούχο νάτριο	–	–	100-25	100-5
86. Ανόργανες ενώσεις υδραργύρου, όπως:				
Χλωριούχος υδράργυρος	–	100-70	70-7	70-1.5
Οξείδιο υδραργύρου.	–	100-35	35-5	35-0.5
87. Ανόργανες ενώσεις χαλκού, όπως:				
Οξυ-χλωριούχος χαλκός	–	–	–	100-35
Θειϊκός χαλκός	–	–	100-20	100-10
88. Ανόργανες ενώσεις Θαλλίου, όπως:				
Θειϊκό θάλλιο	–	100-30	30-3	30-0.5

89. (γ) Σπόροι δημητριακών, κατεργασμένοι σπόροι και άλλες ουσίες φυτικής προελεύσεως, διαποτισμένες με ένα ή περισσότερα παρασιτοκτόνα ή άλλες ουσίες της Κλάσεως 6.1

Γ. Δραστικές ουσίες προοριζόμενες για εργαστήρια και πειράματα ή για βιομηχανική παραγωγή φαρμακευτικών προϊόντων, αν δεν αναφέρονται σε άλλα άρθρα της παρούσης Κλάσεως.

90. Δραστικές ουσίες, όπως:

α) COLCHICINE, DIGITOXIN

β) Αδρεναλίνη

γ) PHENOBARBITAL. 2601

ΣΗΜΕΙΩΣΕΙΣ: 1. Οι δραστικές ουσίες και πολτοποιήσεις ή μίγματα των ουσιών αυτών του 90° με άλλες ουσίες πρέπει να ταξινομούνται σύμφωνα με την τοξικότητά των (βλέπε υποσημείωση 1 στο περιθώριο 2600(1)).

2. Φαρμακευτικά προϊόντα έτοιμα για χρήση (δισκία, χάπια, αμπούλες κλπ.) που περιέχουν ουσίες του 90° δεν υπόκεινται στις διατάξεις της ADR.

Η. Κενές συσκευασίες

ΣΗΜΕΙΩΣΗ: Κενές συσκευασίες με κατάλοιπα από προηγούμενα περιεχόμενά των κολλημένα στο έξω μέρος δεν θα γίνονται δεκτές για μεταφορα.

91. Κενές συσκευασίες, κενά βυτιοφόρα οχήματα, κενές δεξαμενές, κενές δεξαμενές κοντέηνερς και κενά κοντέηνερς χύμα εμπορ. ακαθάριστα, που περιείχαν ουσίες της Κλάσεως 6.1.

Ουσίες των 11° - 24°, 32° - 36°, 41° - 44°, 51° - 68°, 71° - 88° και 90°, μεταφερόμενες σύμφωνα με τις κατωτέρω διατάξεις, δεν υπόκεινται ούτε στις διατάξεις της παρούσης Κλάσεως που περιέχονται στο παρόν Παράρτημα, ούτε στις διατάξεις που περιέχονται στο Παράρτημα Β. 2601α

α) Ουσίες ταξινομούμενες στο (α) κάθε άρθρου - είδους, δεν καλύπτονται από το παρόν περιθώριο.

β) Ουσίες ταξινομούμενες στο (β) κάθε είδους: Υγρα: όχι πλέον των 500 χλστ. σε κάθε εσωτερική συσκευασία και όχι πλέον των 2 λίτρων κατά συσκευασία.

Στερεά: όχι πλέον του 1 κιλού σε κάθε εσωτερική συσκευασία και το πολύ 4 κιλά κατά συσκευασία.

γ) Ουσίες ταξινομούμενες στο (γ) κάθε είδους: Υγρά: το πολύ 3 λίτρα κατά εσωτερ. συσκευασία και το πολύ 12 λίτρα κατά συσκευασία.

Στερεά: Το πολύ 6 κιλά κατά εσωτερική συσκευασία και το πολύ 24 κιλά κατά συσκευασία.

Οι ποσότητες αυτές ουσιών πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που τουλάχιστον πληρούν τους όρους του περιθωρίου 3538.

Θα πρέπει να τηρούνται οι «Γενικοί όροι συσκευασίας» του περιθωρίου 3500(1) (2) και (4) έως (7).

2. Διατάξεις

1. Γενικοί όροι συσκευασίας

1) Τα κολα θα πρέπει να πληρούν τους όρους του Προσαρτήματος Α5 εκτός αν στα περιθώρια 2603 - 2609 προδιαγράφονται ειδικοί όροι για τη συσκευασία ωρισμένων ουσιών.

2) Σύμφωνα με τις διατάξεις του περιθωρίου 2600 (1) και

του περιθωρίου 3511 (2), θα πρέπει να χρησιμοποιούνται τα εξής:

Κόλα της ομάδας συσκευασίας 1, μαρκαρισμένα με το γράμμα «Χ» για τις εξαιρετικά τοξικές ουσίες που ταξινομούνται με το γράμμα (α) καθενός είδους. 2602

Κόλα της ομάδος συσκευασίας ΙΙ ή Ι μαρκαρισμένα με το γράμμα «Υ» ή «Χ» για τις τοξικές ουσίες που ταξινομούνται στο γράμμα (β) κάθε είδους.

Κόλα της ομάδος συσκευασίας ΙΙΙ, ΙΙ ή Ι μαρκαρισμένα με το γράμμα «Ζ», «Υ» ή «Χ» για τις επιβλαβείς ουσίες ταξινομούμενες στο γράμμα (γ) κάθε είδους.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά ουσιών της Κλάσεως 6.1 με βυτιοφόρα οχήματα, αποσυνδεόμενες δεξαμενές ή δεξαμενές κοντέηνερς και για τη χύμα μεταφορά υγρών της Κλάσεως αυτής, βλέπε Παράρτημα Β.

2. Ειδικοί όροι για συσκευασία ωρισμένων ουσιών

1) Το υδροκυανικό οξύ του 1° πρέπει να συσκευάζεται: 2603

α) όταν είναι τέλεια απορροφημένο από αδρανή πορώδη ουσία: σε ανθεκτικά μετάλλινα δοχεία περιεκτικότητος το πολύ 7.5 λίτρων, τοποθετημένα σε ξύλινα κιβώτια κατά τέτοιο τρόπο ώστε να μη μπορούν να έλθουν σε επαφή μεταξύ των. Αυτός ο συνδυασμός συσκευασίας πρέπει να πληροί τους εξής όρους:

1. Τα δοχεία πρέπει να δοκιμάζονται σε πίεση τουλάχιστον 0.6 MPα (6BAR).

2. Τα δοχεία πρέπει να είναι εντελώς γεμάτα με το πορώδες υλικό, το οποίο δεν πρέπει να κλυδωνίζεται ούτε να σχηματίζει επικίνδυνα κενά, ακόμη και μετά παρατεταμένη χρήση ή μετά κρούση, έστω και αν η θερμοκρασία φθάσει έως 50°C. Στο καπάκι κάθε δοχείου θα πρέπει να αναγράφεται ανεξίτηλα η ημερομηνία πληρώσεως.

3. Η συνδυασμένη συσκευασία πρέπει να ελεγχθεί και εγκριθεί σύμφωνα με την Προσθήκη Α.5 για την ομάδα συσκευασίας 1. Το κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 120 κιλά.

β) όταν είναι υγρό, αλλά όχι απορροφημένο από πορώδες υλικό: σε κυλίνδρους ανθρακούχου χάλυβος ανθεκτικούς σε πίεση, που θα ικανοποιούν τους εξής όρους:

1. Προτού χρησιμοποιηθούν για πρώτη φορά, οι ανθεκτικοί σε πίεση κύλινδροι θα πρέπει να υποβάλλονται σε δοκιμασία πιέσεως τουλάχιστον 10 MPA (100 BAR). Η δοκιμασία πιέσεως θα πρέπει να επαναλαμβάνεται ανά διετία και θα πρέπει να περιλαμβάνει λεπτομερή προσεκτικό έλεγχο του εσωτερικού του δοχείου και έλεγχο του αποβάρου.

2. Οι κύλινδροι πρέπει να είναι σύμμορφοι προς τις σχετικές διατάξεις της Κλάσεως 2 (βλέπε περιθώρια 2211, 2212, (1) (α), 2213, 2215 και 2218).

3. Εκτός των ενδείξεων που προδιαγράφονται στο περιθώριο 2218 (1) (α), (β), (δ), (ε) και (η), θα πρέπει να αναγράφεται και η ημερομηνία της πλέον προσφάτου πληρώσεως (μήνας/έτος).

Μεγίστη επιτρεπομένη μάζα περιεχομένου: 0.55 κιλού κατά λίτρο περιεκτικότητος.

2) Διαλύματα υδροκυανικού οξέος του 2° πρέπει να συσκευάζονται σε γυάλινες αμπούλες κλεισμένες σε φλόγα, που να περιέχουν το πολύ 50 γρ. ή σε γυάλινες φιάλες έτσι κλεισμένες ώστε να μην μπορεί να γίνει διαρροή και που περιέχουν το πολύ 250 γρ.

Οι αμπούλες ή φιάλες πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που να πληρούν τους εξής όρους:

α) Οι αμπούλες και οι φιάλες θα πρέπει να στερεώνονται με ανασχετικά αντιθλιπτικά υλικά σε αλουμινένια ή χαλύβδινα εξωτερικά περιβλήματα χωρίς διαρροές. Κάθε κόλον θα πρέπει να ζυγίζει το πολύ 15 κιλά, ή:

β) Οι αμπούλες και οι φιάλες θα πρέπει να στρέφωνται με ανασχετικά αντιθλιπτικά υλικά σε ξύλινα κιβώτια με επένδυση φύλλου επιφευδαργυρωμένου χωρίς διαρροές. Κάθε κόλον δεν θα πρέπει να ζυγίζει πλέον των 75 κιλών.

Οι συνδυασμένες συσκευασίες που αναφέρονται στο (α) και (β) θα πρέπει να έχουν δοκιμαστεί και εγκριθεί, σύμφωνα με το Προσάρτημα Α.5 για την ομάδα συσκευασίας 1.

Μεταλλικά καρβονύλια της 3° θα πρέπει να συσκευάζονται ως εξής: 2604

1) Σε χυτές φιάλες χωρίς ραφή κατασκευασμένες από καθαρο αλουμίνιο χωρητικότητος το πολύ 1 λίτρου και πάχους τοιχώματος τουλάχιστον 1 χστ., που θα πρέπει να δοκιμαστεί σε πίεση τουλάχιστον 1 MPα (10 BAR). Οι φιάλες θα πρέπει να κλείονται με μεταλλικό βιδωτό πώμα με αδρανή φλάντζα που θα πρέπει να βιδώνει αφικτά στο λαιμό της φιάλης για να αποκλειστεί κάθε χαλάρωση κάτω από κανονικές συνθήκλες μεταφοράς.

Το πολύ τέσσαρες αλουμινένιες φιάλες του τύπου αυτού μπορούν να συσκευάζονται σε εξωτερικές συσκευασίες από ξύλο, ινοσανίδα με άφλεκτα ανασχετικά αντιθλιπτικά υλικά. Μία τέτοια συνδυασμένη συσκευασία θα πρέπει να είναι σύμμορφη με σχεδιαστικό τύπο που έχει δοκιμαστεί και εγκριθεί για ομάδα συσκευασίας Ι, σύμφωνα με το Προσάρτημα Α.5.

Κάθε κόλον θα πρέπει να ζυγίζει το πολύ 10 κιλά.

2) Σε μεταλλικά δοχεία εφωδιασμένα με τελείως αντιδιαρροϊκα συστήματα τα οποία θα πρέπει εν ανάγκη να είναι ασφαλισμένα από κάθε μηχανική ζημία με προστατευτικά καλύμματα. Χαλύβδινα δοχεία χωρητικότητος το πολύ 150 λίτρων θα πρέπει να έχουν πάχος τοιχώματος τουλάχιστον 3 χστ. ενώ μεγαλύτερα χαλύβδινα δοχεία και δοχεία κατασκευασμένα από άλλα υλικά θα πρέπει να έχουν τοιχώματα αρκετού πάχους ώστε να εξασφαλίζουν ανάλογη μηχανική αντοχή. Μεγίστη επιτρεπομένη χωρητικότης δοχείων: 250 λίτρα. Η μάζα των περιεχομένων θα πρέπει να είναι το πολύ 1 κιλό κατά λίτρο περιεκτ.

Προτού χρησιμοποιηθούν για πρώτη φορά, τα δοχεία θα πρέπει να δοκιμάζονται με υδραυλική πίεση τουλάχιστον 1 MPα (10 BAR). Η δοκιμασία πιέσεως θα πρέπει να επαναλαμβάνεται κάθε πέντε χρόνια και θα πρέπει να περιλαμβάνει και λεπτομερή προσεκτική επιθεώρηση του εσωτερικού του δοχείου ως και έλεγχο του αποβάρου. Μεταλλικά δοχεία θα πρέπει να αναγράφουν τα εξής στοιχεία με ευανάγνωστα και ανεξίτηλα γράμματα:

α) το όνομα της ουσίας ολογράφως (τα ονόματα και των δύο ουσιών μπορούν επίσης να αναφέρονται δίπλα - δίπλα σε περίπτωση εναλλακτικής χρήσεως.

β) το όνομα του ιδιοκτήτη του δοχείου.

γ) το απόβαρο του δοχείου, συμπεριλαμβανομένων και των όποιων εξαρτημάτων και συσκευών, όπως βαλβίδες, προστατευτικά καλύμματα κλπ.

δ) την ημερομηνία (μήνας, έτος) της αρχικής δοκιμασίας και τη σφραγίδα του εμπειρογνώμονα που έκαμε τη δοκιμασία.

ε) τη μεγίστη επιτρεπτή μάζα του περιεχομένου του δοχείου σε κιλά.

ζ) την εσωτερική πίεση (πίεση δοκιμασίας) που θα ασκείται κατά το τέστ υδραυλικής πιέσεως.

1) Ουσίες ταξινομούμενες στην παρ. α) των διαφόρων άρθρων - ειδών του περιθωρίου 2601 θα πρέπει να συσκευάζονται: 2605

α) σε χαλύβδινα βαρέλια με μη αφαιρούμενες κεφαλές, σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια με μη αφαιρούμενες κεφαλές, σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθώριο 3522, ή:

δ) σε πλαστικά βαρέλια με μη αφαιρούμενες κεφαλές το πολύ 60 λίτρων, ή σε πλαστικά μπιτόνια, σύμφωνα με το περιθώριο 3526 ή:

ε) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδυασμένες συσκευασίες με εσωτερική συσκευασία από γυαλί, πλαστικό ή μέταλλο, σύμφωνα με το περιθώριο 3538.

2) Στερεές ουσίες κατά την έννοια του περιθωρίου 2600 (2) μπορούν επίσης να συσκευάζονται:

α) σε βαρέλια με αφαιρουμένη κεφαλή σύμφωνα με το περιθώριο 3520 (χαλύβδινα), 3521 (αλουμινένια), 3523 (χόντρα-πλακέ), 3525 (ινοσανίδα) ή 3526 για πλαστικά υλικά, εν ανάγκη με ένα ή περισσοτέρους πυκνοϋφασμένους εσωτερικούς σάκκους, ή:

β) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθώριο 3538, με ένα ή περισσοτέρους πυκνοϋφασμένους εσωτερικούς σάκκους.

1) Ουσίες ταξινομούμενες στο (β) των διαφόρων άρθρων - ειδών του περιθωρίου 2601 θα πρέπει να συσκευάζονται:

α) σε χαλύβδινα βαρέλια, σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα μπιτόνια, σύμφωνα με το περιθώριο 3522, ή:

δ) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια, σύμφωνα με το περιθώριο 3526, ή:

ε) σε συνδυασμένες συσκευσίες (από πλαστικό υλικό), σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδυασμένες συσκευασίες, σύμφωνα με το περιθώριο 3538.

ΣΗΜΕΙΩΣΗ στα (α), (β) και (δ): Βαρέλια με αφαιρουμένη κεφαλή επιτρέπονται μόνο για ιξώδεις ουσίες που έχουν βαθμό ιξώδους πάνω από 200 χστ.^{2} σε 23°C και για στερεά.

2) Ουσίες ταξινομούμενες στο 15° (β) μπορούν επίσης να συσκευάζονται σε συνδυασμένες συσκευασίες (γυαλί πορσελάνη ή κεραμικά), σύμφωνα με το περιθώριο 3539.

3) Στερεές ουσίες κατά την έννοια του περιθ. 2600(2) μπορούν να συσκευάζονται:

α) σε βαρέλια με αφαιρουμένη κεφαλή, σύμφωνα με το περιθ. 3523 (για κόντρα-πλακέ) ή 3525 (για ινοσανίδα), εν ανάγκη και με ένα ή περισσοτέρους πυκνοϋφασμένους εσωτερικούς σάκκους, ή:

β) σε ανθεκτικούς στο νερό σάκκους, σύμφωνα με το περιθώριο 3533 (για ύφασμα), 3534 (για πλεκτό πλαστικό υλικό), 3535 (για πλαστικό φύλλο) ή 3536 για ανθεκτικό σε νερό χαρτί· με την προϋπόθεση πως τα εμπορεύματα αποστέλλονται σαν πλήρες φορτίο ή σακκοι ασφαλίζοντα σε πελάτες.

2606 1) Ουσίες ταξινομούμενες στο (γ) των διαφόρων ειδών του περιθωρίου 2601 θα πρέπει να συσκευάζονται:

α) σε χαλύβδινα βαρέλια σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια σύμφωνα με το περιθώριο 3521, ή:

γ) σε χαλύβδινα μπιτόνια, σύμφωνα με το περιθώριο 3522. ή:

δ) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθώριο 3526, ή:

ε) σε συνδυασμένη συσκευασία σύμφωνα με το περιθώριο 3538, ή:

ζ) σε συνδυασμένες συσκευασίες (γυαλί, πορσελάνη ή κεραμικά) σύμφωνα με το περιθώριο 3539, ή:

η) σε λεπτές μεταλλικές συσκευασίες σύμφωνα με το περιθώριο 3540.

ΣΗΜΕΙΩΣΗ: στο (α), (β), (δ) και (η): Βαρέλια με αφαιρούμενες κεφαλές σύμφωνα με (α), (β) και (4) και λεπτές μεταλλικές συσκευασίες σύμφωνες με (η) επιτρέπονται μόνο για ιξώδεις ουσίες με βαθμό ιξώδους πάνω από 200 χστ. ^{2} σε 23°C και για στερεά.

2) Στερεές ουσίες κατά την ένοια του περιθ. 2600(2) μπορούν επίσης να συσκευαστούν:

α) σε βαρέλια με αφαιρουμένη κεφαλή, σύμφωνα με περιθ. 3523 για κόντρα-πλακέ ή 3525 για ινοσανίδα, εν ανάγκη με ένα ή περισσοτέρους πυκνοϋφασμένους εσωτερικούς σάκκους, ή:

β) σε ανθεκτικούς στο νερό σάκκους σύμφωνα με τα περιθώρια 3533 για υφάσματα, 3534 (για πλαστικό ύφασμα), 3535 για πλαστικό φύλλο ή 3536 για ανθεκτικό στο νερό χαρτί.

Τα ανοίγματα των συσκευασιών, εκτός από τιζυγάλινες αμπούλες κάτωτους κυλίνδρους υπό πίεση, για μεταφορά υγρών με ιξώδες κάτω από 200 χστ.^{2}/S σε 23° θα πρέπει να μπορούν να κλείνουν έτσι ώστε να αποκλείονται διαρροές, με δύο συσκευές τοποθετημένες σε σειρά, η μία από τις οποίες θα βιδώνει ή θα ασφαλίζεται κατά ανάλογο τρόπο.

2609 Συσκευασίες περιέχουσες διμεθυλο-αμινο-βοράνιο του 12°(β) θα πρέπει νε είναι εφοδιασμένες με εξαεριστήρα σύμφωνα με το περιθώριο 3500(8).

3. Μικτή συσκευασία:

2610 1) Ουσίες που παλύπτονται από τον ίδιο αριθμό είδους 2611 μπορούν να συσκευαστούν μαζύ σε συνδυασμένη συσκευασί, σύμφωνα με το περιθώριο 3538.

2) Ουσίες διαφορετικών ειδών της Κλάσεως 6.1. σε ποσότητες που δεν υπερβαίνουν, κατά συσκευασία, τα τρία λίτρα προκειμένου για υγρά και/ή τα 5 κιλά για στερεά, μπορούν να συσκευάζονται μαζύ και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις της ADR σε συνδυασμένες συσκευασίες σύμφωνα με το περιθ. 3538, εφ' όσον δεν αντιδρούν επικίνδυνα μεταξύ των.

3) Εκτός αν άλλως ειδικά προβλέπεται κατωτέρω, ουσίες της Κλάσεως 6.1 σε ποσότητες που δεν υπερβαίνουν κατά δοχείο τα 3 λίτρα προκειμένου για υγρά και/ή τα 5 λίτρα προκειμένου για στερεά, μπορούν να συσκευάζονται μαζύ σε συνδυασμένη συσκευασί σύμφωνα με το περιθ. 3538, με ουσίες ή αντικείμενα άλλων κλάσεων, με την προϋπόθεση πως επιτρέπεται ή μικτή συσκευασία και για τις ουσίες ή είδη των κλάσεων αυτών, και/ή με εμπορεύματα τα οποία δεν υπόκεινται στις διατάξεις της ADR, με την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ των.

4) Οι επόμενες θεωρούνται επικίνδυνες αντιδράσεις:

α) καύση και/ή ανάδοση σημαντικής θερμότητος

β) έκλυση αναφλεξίμων και/ή τιξικών αερίων

γ) σχηματισμός διαβρωτικών υγρών

δ) σχηματισμός ασταθών ουσιών.

5) Η μικτή συσκευασία οξέων ουσιών με βασικές ουσίες σε μία συσκευασία δεν θα επιτρέπεται αν οι δύο αυτές ουσίες είναι συσκευασμένες σε εύθραυστα δοχεία.

6) Θ πρέπει νε εφαρμόζονται και να τηρούνται οι διατάξεις των περιθωρίων 2001(7), 2002(6) και (7) και 2602.

7) Αν χρησιμοποιούνται ξύλινα ή ινοσανιδένια κιβώτια, κάθε κόλον πρέπει να ζυγίζει πλέον των 100 κιλών.

2607 Ειδικοί Όροι

Αρ. Είδους	Περιγραφή της ουσίας	Μεγίστη Ποσότης κατά δοχείο	κόλον	Ειδικές Διατάξεις
1° 3°	Υδροκυανικό οξύ Πενταχαρονύλιο σιδήρου και τετρακαρβουνύλιο νικελίου	Δεν επιτρέπεται		μικτή συσκευασία
2°	Υδροκυανικό οξύ σε διαλύμματα Υγρά ταξινομούμενα στο (α) κάθε είδους	0,5 λιτ.	1 λιτρ.	Δεν πρέπει να συσκευάζεται με ουσίες ή είδη των Κλάσεων Ια, Ιβ, Ιγ, 5.2 ή 7

4. Μαρκάρισμα και πινακίδες κινδύνου στα κόλα.
(Βλέπε Προσάρτημα Α.9).

2612 1) Κόλα περιέχοντα ουσίες των 1° έως 3° ή ουσίες ταξινομούμενες στο (α) ή (β) άλλων ειδών, θα πρέπει να φέρουν πινακίδα σύμφωνα με το υποδ. Νο 6.1

Αν, ουσίες του 15°(β) είναι συσκευασμένες σε συνδυασμένες συσκευασίες (από γυαλί, πορσελάνη ή κεραμεικά) σύμφωνα με το περιθ. 3539, περιεκτικότητος το πολύ 5λίτρων, τα κόλα θα πρέπει πάντων να φέρουν δύο πινακίδες σύμφωνα
2607 με το υπόδειγμα Νο 6.1. (βλέπε περιθ. 3901(2).

2) Κόλα περιέχοντα ουσίες ταξινομούμενες στο (γ) κάθε είδους θα πρέπει να φέρουν πινακίδα σύμφωνα με το υπόδειγμα Νο 6.ΙΑ. Ωστόσο, αν είναι συσκευασμένα υγρά σε συνδυασμένες συσκευασίες (γυαλί, πορσελάνη κεραμεικά) σύμφωνα με το περιθώριο 3539, χωρητικότητος το πολύ 5 λίτρων, τα κόλα πρέπει να φέρουν δύο πινακίδες σύμφωνα με το υπόδειγμα Νο 6.ΙΑ (βλέπε περιθ. 3901 (2).

2628 3) Κόλα περιέχοντα ουσίες με σημείο αναφλέξεως κάτω των 55°, θα πρέπει επιπλέον να φέρουν πινακίδα σύμφωνα με το υπόδειγμα Νο3, ενώ κόλα περιέχοντα χλωροφορμιούχες ενώσεις των 16° ή 17° θα πρέπει επί πλέον να φέρουν πινακίδα σύμφωνα με το υπόδ. Νο 8.

2609 4) Κόλα περιέχοντα εύθραυστες συσκευασίες που δεν παίνονται απ' έξω, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές πινακίδα σύμφωνα με το υπόδ. Νο 12.

2610 5) Κόλα περιέχοντα υγρά σε συσκευασίες των οποίων τα
2611 κλεισίματα δεν φαίνονται απ' έξω, επίσης κόλα περιέχοντα συσκευασίες με εξαεριστήρες και συσκευασίες με εξαεριστή-

ρες αλλά χωρίς εξωτερική συσκευασία, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές πινακίδα σύμφωνα με το υπόδ. Νο 11.

Β. Στοιχεία στο έγγραφο μεταφοράς:

1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να είναι σύμφωνα με ένα από τα ονόματα που υπογραμμίζονται στο περιθ. 2601. Αν η ουσία δεν αναφέρεται ονομαστικά, θα πρέπει να αναγράφεται η χημική ονομασία Ι./ Η περιγραφή των εμπορευμάτων θα πρέπει να υπογραμμίζεται και να επακολουθούν στοιχεία της κλάσεως, ο αριθμός είδους (μαζύ με το - τυχόν - γράμμα) και τα αρχικά «ADR» (ή RID) π.χ. 6.1, II° (α) ADR.

2) Για υδροχουανικό αξύ του 1° ο αποστολέας θα πρέπει να πιστοποιεί στο έγγραφο μεταφοράς: «Το είδος των εμπορευμένων και η συσκευασί είναι σύμφωνα με τις διατάξεις της ADR».

3) Για ουσίες του 44°, ο αποστολέας θα πρέπει να πιστοποιεί στο έγγραφο μεταφοράς: «Αποθηκευμένα σε ανοικτό και ξηρό μέρος επί 3 ημέρες τουλάχιστον».

4) Για αποστολές χημικώς ασταθών ουσιών, ο αποστολέας θα πρέπει να πιστοποιεί στο έγγραφο μεταφοράς: «Ελήφθησαν μέτρα σύμφωνα με το περιθ. 2600(3)».

Κενές Συσκευασίες

1) Αν οι κενές συσκευασίες, ακαθάριστες, του 91° είναι σάκοι, αυτοί θα πρέπει να τοποθετούνται σε κιβώτια ή σε υδατοστεγείς σάκκους για να προληφθεί διαρροή ουσίας.

2) Άλλες ακαθάριστες κενές συσκευασίες του 91° θα πρέπει να κλείνονται με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητος, σαν να ήσαν πλήρεις.

3) Κενές συσκευασίες, ακαθάριστε, του 91° θα πρέπει να φέρουν τις ίδιες πινακίδες κινδύνου σαν να ήσαν πλήρεις.

4) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στην 91° π.χ.: Κενή σσκευασία, 61, 91° ADR. Η περιγραφή αυτή θα πρέπει να υπογραμμίζεται. Σε περίπτωση κενών βυτιοφόρων οχημάτων, κενών δεξαμενών, κενών κοντέηνερο και κενών μικρών κοντέηνερς χύμα εμπ/των, ακαθαρίστων, η περιγραφή αυτή θα συπληρώνεται με την προσθήκη της φράσεως: «τελευταίο φορτίο» μαζύ με το όνομα και αριθμό είδους των εμπορευμάτων που φορτώθηκαν την τελευταία φορά, π.χ. τελευταίο φορτίο: PHENOL, 13°(β).

1. Σε περίπτωση παρασιτοκτόνων, το όνομα που θα γράφεται, θα πρέπει να είναι εκείνο που δίδεται στο ISO STANDARD R. 1750 - 1981 αν είναι καταχωρισμένο.

ΚΛΑΣΗ 6.2. ΑΠΕΧΘΕΙΣ ΥΛΕΣ ΚΑΙ ΥΛΕΣ ΠΟΥ ΜΠΟΡΟΥΝ ΝΑ ΠΡΟΚΑΛΕΣΟΥΝ ΜΟΛΥΝΣΗ

1. ΚΑΤΑΛΟΓΟΣ ΥΛΩΝ

Μεταξύ των υλών και ειδών που καλύπτονται υπό τον τίτλον Κλάση 6.2., μόνον εκείνες που αναγράφονται στο περιθώριο 2651 γίνονται δεκτές προς μεταφοράν, και μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και του Παραρτήματος Β. Οι ύλες αυτές και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θεωρούνται ως ύλες και είδη της ADR.

1. (α) Νωποί τένοντες, ξακρίδια νωπών δερμάτων, μη ασβεστωμένων ή αλατισμένων, απορρίματα από νωπούς τένοντες ή από ξακρίδια νωπών δερμάτων·

Σημείωση: Ξακρίδια υγρών νωπών δερμάτων, ασβεστομένων ή αλατισμένων, δεν υπόκεινται στις διατάξεις της ADR.

β) νωπά κρέατα, ή οπλές μη καθαρισμένες από κόκκαλο και μαλακά συναφή μέρη, νωπά κόκκαλα μη καθαρισμένα από το κρέας ή άλλα μαλακά συναφή μέρη·

γ) ακατέργαστες γουρουνότριχες και μαλλί·

2. Νωπά δέρματα, μη αλατισμένα ή αλατισμένα, από τα οποία προκλητικές ποσότητες αίματος ή άλμης στάζουν.

Σημείωση: Κανονικώς αλατισμένα δέρματα περιέχοντα μικράν μόνον ποσότητα υγρασίας δεν υπόκεινται στις διατάξεις της ADR.

3. Καθαρισμένα ή ξηραμένα κόκκαλα, καθαρισμένα ή ξηραμένα κέρατα και οπλές.

Σημείωση: Ξηρά κόκκαλα από τα οποία αφαιρέθηκε το λίπος, μη αναδύοντα βρώμικη (σάπια) οσμή, δεν υπόκεινται στις διατάξεις της ADR .

2613 4. Νωπές ρενέτες μοσχαριού, καθαρισμένες από όλα τα
2614 ίχνη εδωδίμου ύλης.

Σημείωση: Ξηραμένες ρενέτες μοσχαριού (CALF RENNETS) που δεν αναδύουν προκλητικήν οσμήν δεν υπόκεινται στις διατάξεις της ADR.

5. Πεπιεσμένα υπολείμματα εκ της κατασκευής δερματόκολλας (ασβεστούχα υπολείμματα, υπολείμματα από το ασβέστωμα ξακριδιών δερμάτων, ή υπολείμματα χρησιμοποιούμενα ως λιπάσματα).

6. Μη πεπιεσμένα υπολείμματα εκ της κατασκευής δερματόκολλας.

7. Μη μολυνθέντα ούρα προστατευόμενα κατα της αποσυνθέσεως.

8. Ανατομικά τεμάχια, εντόσθια και αδένες.

α) μη – μολυνθέντα

β) μολυνθέντα

9. Κοπριά

10. Περιττώματα

11. Άλλες ύλες ζώων, απεχθείς ή δυνάμενες να προκα-
2615 λέσουν μόλυνσιν, μη ήδη ειδικώς αναφερθείσαι εις 1° έως
-2621 10°.

12. Κενά είδη συσκευασίας και κενοί σάκκοι που περιείχαν
2622 ύλες των 1° έως 8°, 10° και 11° και φύλλα που χρησιμοποιήθηκαν για κάλυμμα των υλών της Κλάσεως 6.2.

Σημείωση: Εάν δεν εκκαθαρίσθηκαν, τα είδη αυτα της συσκευασίας, σάκκοι και φύλλα δεν γίνονται δεκτά για μεταφορά.

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας 2652

1) Τα είδη συσκευασίας θα είναι έτσι κλεισμένα και στεγανά ώστε να αποφεύγεται οποιαδήποτε απώλεια του περιεχομένου.

2) Τα είδη συσκευασίας, συμπεριλαμβανομένων των κλεισιμάτων των, πρέπει να είναι επαρκώς άκαμπτα και γερά σε όλα τα μέρη τους για νά αποφεύγεται οποιαδήποτε χαλάρωση διαρκούσης της μεταφοράς και πρέπει να τηρούν τους συνήθεις όρους μεταφοράς. Ειδικώτερα οσάκις οι ύλες είναι σε υγρά κατάσταση ή είναι υποκείμενες σε ζυμώσεις, τα δοχεία και τα κλεισίματα αυτών πρέπει, εκτός εάν το άρθρο το
2623 τιτλοφορούμενο «Συσκευασία μιας ύλης», προβλέπει άλλω-
-2649 στε, να είναι σε θέση να ανθίστανται σε οποιαδήποτε πίεση η οποία, λαμβανομένης επίσης υπόψη της παρουσίας του αέρος, ενδέχεται να εγερθεί εσωτερικώς των δοχείων κατα την συνήθη μεταφοράν. Για τον σκοπόν αυτόν ελεύθερος χώρος πρέπει να αφήνεται, λαμβανομένης υπόψη της διαφοράς μεταξύ της θερμοκρασίας των υλών κατά τον χρόνον της πλη-
2650 ρώσεως και της ανωτάτης μέσης θερμοκρασίας την οποίαν ενδέχεται να φθάσουν διαρκούσης της μεταφοράς.

3) Ουδέν ίχνος του περιεχομένου πρέπει να κολλά στο εξωτερικό των κόλων.

2. Συσκευασία μιας ύλης 2653

Οι ύλες της 1° θα συσκευάζονται:

(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:

1. σε μεταλλικά δοχεία εφοδιασμένα με ασφαλές κλείσιμο ικανό να λειτουργεί σε εσωτερική πίεση, ή σε κάδους, μικρά βυτία (λεκάνες) ή κιβώτια· ή

2651 2. στη περίπτωση των υλών της 1° (γ) σε ξηρά κατάσταση, επίσης σε σάκκους, υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως. Στη περίπτωση υλών όχι σε ξηρά κατάσταση, η συσκευασία σε σάκκους επιτρέπεται μόνον από της 1ης Νοεμβρίου μέχρι της 15ης Απριλίου·

β) εάν αποστέλλονται ως πλήρες φορτίο:

1. σε είδη συσκευασίας οριζόμενα εν (α) 1, ανωτέρω· ή

2. υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως, σε σάκκους εμποτισμένους με καταλληλα απολυμαντικά.

Οι ύλες της 2° θα συσκευάζονται: 2654

(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:

1. σε κάδους, μικρές λεκάνες ή κιβώτια· ή

2. κατά τους μήνες από Νοεμβρίου μέχρι Φεβρουαρίου συμπεριλαμβανομένων, σε σάκκους εμποτισμένους με κα-

τάλληλα απολυμαντικά, υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως·

β) εάν αποστέλλονται ως πλήρες φορτίο:

1. σε είδη συσκευασίας οριζόμενα εν (α) 1. ανωτέρω·

2. υπό τον όρον ότι η κακή οσμή μπορεί να αφαιρεθεί δι' απολυμάνσεως, σε σάκκους εμποτισμένους με κατάλληλα απολυμαντικά.

Οι ύλες της 3ης θα συσκευάζονται σε κάδους, μικρές λεκάνες, κιβώτια, μεταλλικά δοχεία ή σάκκους.

Οι ύλες της 4ης θα συσκευάζονται:

(α) εάν δεν αποστέλλονται ως πλήρες φορτίο:

σε κάδους, μικρές λεκάνες, κιβώτια, μεταλλικά δοχεία ή σάκκους·

β) εάν αποστέλλονται ως πλήρες φορτίο: σε οποιαδήποτε κατάλληλα είδη συσκευασίας.

Οι ύλες της 5ης και 6ης θα συσκευάζονται σε κάδους (βυτία, βαρέλια), μικρές λεκάνες, κιβώτια ή μεταλλικά δοχεία.

Οι ύλες της 7ης θα συσκευάζονται σε ερμητικώς κλεισμένα δοχεία κατασκευασμένα από γαλβανισμένο φύλλο–μετάλλου.

1) Οι ύλες της 8ης θα συσκευάζονται σε μεταλλικά δοχεία εφοδιασμένα με κατάλληλο κλείσιμο ικανό να λειτουργεί σε εσωτερική πίεση, σε κάδους ή μικρές λεκάνες· οι ύλες της 8ης (α) μπορούν επίσης να συσκευασθούν σε κιβώτια.

2) Οι ύλες της 8ης μπορούν επίσης να συσκευάζονται ως κάτωθι:

α) ύλες της 8ης (α), σε δυχεία κατασκευασμένα από ύαλο, πορσελάνη, είδη κεραμεικής, μέταλλο ή κατάλληλο πλαστική ύλη. Τα δοχεία αυτά θα τοποθετούνται, είτε ένα – ένα είτε ομαδικά, σε γερό ξύλινο κιβώτιο, με απορροφητικό αποσβεστικό υλικό εάν τα δοχεία είναι εύθραυστα. Εάν οι προς μεταφοράν ύλες έχουν εμβυθισθεί σε διατηρητικό ρευστό, οι απορροφητικές ύλες θα είναι επαρκούς ποσότητος ώστε να απορροφηθεί όλο το ρευστό. Το διατηρικό ρευστό δεν πρέπει να είναι εύφλεκτο. Κόλα ζυγίζοντα πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβάς·

β) ύλες της 8ης (β), σε κατάλληλα δοχεία τοποθετημένα με αποσβεστικό υλικό σε γερό ξύλινο κιβώτιο έχον μεταλλικήν επένδυση καταστάσαν στεγανήν π.χ. δια συγκολλήσεως. Κόλα ζυγίζονται πάνω από 30 KG θα είναι εφοδιασμένα με χειρολαβάς·

Οι ύλες της 9ης θα αποστέλλονται μόνον χύμα.

Οι ύλες της 10ης θα συσκευάζονται σε δοχεία κατασκευασμένα από φύλλο – μετάλλου.

Οι ύλες της 11ης θα συσκευάζονται σε μεταλλικά δοχεία εφοδιασμένα με κλείσιμο ασφαλείας ικανό να λειτουργεί σε εσωτερική πίεση, ή σε κάδους, μικρές λεκάνες ή κιβώτια.

3. Μικτή συσκευασία

Ύλες αναγραφόμενες υπό αριθμόν είδους του περιθωρίου 2651 μπορούν να συμπεριληφθούν στο αυτό κόλον μόνον με ύλες αναγραφόμενες υπό τον αυτόν αριθμόν είδους, και τότε μόνον υπό τον όρον ότι θα χρησιμοποιηθούν τα είδη συσκευασίας τα προβλεπόμενα υπό των άρθρων Α.Ι. και 2 ανωτέρω.

4. Ενδείξεις (μαρκάρισμα) και ετικέτες κινδύνου επί των κόλων (βλέπε Προσθήκην Α.9)

Κόλα περιέχοντα εύθραυστα δοχεία αόρατα από έξω θα φέρουν ετικέτα σύμφωνον προς το μοντέλο Νο 9. Εάν τα εύθραυστα δοχεία περιέχουν υγρά, τα κόλα, επιπροσθέτως, εκτός της περιπτώσεως των σφραγισμένων αμπουλών, θα φέρουν ετικέτες σύμφωνες προς το μοντέλο Νο 8· οι ετικέτες αυτές θα τοποθετούνται ψηλά σε δύο ετικέτες αντίθετες πλευρές των κιβωτίων ή κατά τρόπον ισοδύναμον όταν χρησιμοποιούνται άλλα είδη συσκευασίας.

Β. Στοιχεία εγγράφου μεταφοράς

Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με μία των ονομασιών των υπογραμμισμένων στο περιθώριο 2651. Οσάκις η ονομασία της ύλης δεν σημειούται, θα χρησιμοποιείται η εμπορική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται και ακολουθείται από τα στοιχεία της Κλάσεως, τον αριθμόν του είδους (μαζί με το, τυχόν, γράμμα) και τα αρχικά «ADR» ή «RID» (π.χ. 6.2, 1ης (α), ADR.

Γ. Κενά είδη συσκευασίας.

1) Τα είδη της 12ης θα καθαρίζονται και επεξεργάζονται με κατάλληλα απολυμαντικά.

2674
2. Η περιγραφή στο έγγραφο μεταφοράς πρέπει να είναι: -2699
«Κενή συσκευασία (ή κενός σάκκος, ή φύλλον), 6.2, 12ης, ADR (ή RID) » Η περιγραφή αυτή πρέπει να υπογραμμίζεται.

ΚΛΑΣΙΣ 7
ΡΑΔΙΕΝΕΡΓΕΙΣ ΥΛΕΣ

2655 Εισαγωγή.

(1) Αντικείμενον 2700

2656 (α) Μεταξύ των υλών με ειδικήν ενέργειαν άνω των 0.002 MICROCURIE ανά γραμμάριον και ειδών περιεχόντων τέτοιες ύλες, μόνον εκείνες και εκείνα που σημειούνται στους πίνακες του περιθωρίου 2703 γίνονται δεκτά για μεταφορά και τότε μόνον υπό τους όρους τους ανεφερομένους στους καταλλήλους πίνακες του ρηθέντος περιθωρίου και στη προ-
2657 σθήκη Α.6 (περιθώρια 3600 - 3699).

(β) Οι εν (α) ανωτέρω ύλες και είδη είναι ύλες και είδη της
2658 ADR.

ΣΗΜΕΙΩΣΙΣ: Καρδιακοί βηματοδότες περιέχοντες ραδιενεργείς ύλες, όταν έχουν χειρουργικώς εμφυτευθεί σδε
2659 ασθενείς ή μεταφέρονται ραδιοφάρμακα εντός των ασθενών κατά την ιατρικήν των θεραπείαν, δεν υπόκεινται στην ADR.

(2) Ορισμοί και επεξηγήσεις

A_1 και A_2

«A_1» σημαίνει την ανωτάτη ενέργεια ειδικής μορφής ραδιενεργών υλών που επιτρέπεται για κόλον Τύπου Α. «A_2» σημαίνει την ανωτάτη ενέργεια ραδιενεργών υλών, πλην των ειδικής μορφής ραδιενεργών υλών, που επιτρέπεται για κόλον Τύπου Α. Οι τιμές είτε απαριθμούνται στη Προσθήκη Α.6 Πίναξ XXI είτε μπορούν να εξαχθούν σύμφωνα με την διαδικασία την περιγραφομένην στα περιθώρια 3690 και 391 της Προσθήκης Α.6.

Επιτρεπτέος αριθμός κόλων

«Επιτρεπτέος αριθμός Ι/κόλων» σημαίνει τον ανώτατον αριθμόν κόλων Διασπαστής Κλάσεως ΙΙ ή Διασπαστής Κλάσεως ΙΙΙ που μπορούν να ομαδοποιηθούν σε ένα μέρος κατά την διάρκειαν της μεταφοράς ή διαρκούσης της αποθηκεύσεως κατά την διαμετακόμισιν (TRANSIT STORAGE).

Ι/ Όταν η ομάδα αποτελείται από κόλα διαφόρων σχεδίων, ο ανώτατος αριθμός κόλων θα είναι τέτοιος ώστε να
2660 ικανοποιείται ο παραπάνω τύπος.

2661 $\frac{\nu_1}{N_1} + \frac{\nu_2}{N_2} + \frac{\nu_3}{N_3} + \ldots$ δεν θα υπερβαίνει την Ι. Ατό τύπο

2662 αυτόν τα ν_1, ν_2, ν_3, ... είναι οι αριθμοί των κόλων για τα οποία οι αντίστοιχοι επιτρεπτέοι αριθμοί είναι τα N_1, N_2, N_3, ... αντιστοίχως.

2663 Σύστημα Συστολής:

«Σύστημα Συστολής» σημαίνει τα συστατικά στοιχεία της συσκευασίας τα οριζόμενα υπό του σχεδιαστού και προοριζόμενα να συγκρατήσουν την ραδιενεργό ύλη διαρκούσης της μεταφοράς

Σχέδιο

2664 «Σχέδιο» σημαίνει την περιγραφή ύλης ειδικής μορφής, ή κόλου ή συσκευασίας συγκεκριμένου είδους, η οποία παρέχει τη δυνατότητα της πλήρους αναγνωρίσεως αυτών. Η περιγραφή μπορεί να περιλαμβάνει προσδιαγραφές, μηχανικά σχέδια, εκθέσεις δεικνύουσες τη συμμόρφωση προς τους κανονιστικούς (ρυθμιστικούς) όρους, και λοιπά σχετικά έγγραφα.

Διασπαστές Ύλες

«Διασπαστή Ύλη» σημαίνει πλουτόνιο - 238, πλουτόνιο - 239, πλουτόνιο 241, ουράνιο - 233, ουράνιο 235 και όλες οι
2665 ύλες που περιέχουν οιαδήποτε των ραδιοπυρηνικών αυτών.
2666 Μη-ακτινοβόλον φυσικόν και εξασθενημένον ουράνιον δεν συμπεριλαμβάνονται στον ορισμόν αυτόν.

Χαμηλής - στάθμης στερεές ραδιενεργείς ύλες.

«Χαμηλής - στάθμης στερεές ραδιενεργός ύλη» (LLS) σημαίνει οιαδήποτε των κατωτέρω:

(α) Στερεά (π.χ. ενοποιημένα υπολείμματα, ενεργείς ύλες) στα οποία:

(Ι) η ενέργεια κατά την συνήθη μεταφοράν είναι και παραμένει κατανεμημένη σε ολόκληρο το στερεό ή τη συλλογή στερεών ή είναι και παραμένει ομοιόμορφα κατανεμημένη σε
2673 στερεό συμπαγή άγοντα συνδέσεως (όπως σκυρόδεμα, πισάσφαλτος, κεραμικόν)·

(ΙΙ) η ενέργεια είναι και παραμένει αδιάλυτη σε τρόπον ραδιενεργού ύλης ανά κόλον προερχομένη εκ των επιδράσεων του ανέμου, βροχής, κλπ., ή και από ολικής βύθισιν στο νερό να περιορίζεται κάτω των 0.Ι. A_2 σε χρονική περίοδο μιας εβδομάδας· και

(ΙΙΙ) η μέση ενέργεια ολοκλήρου της ραδιενεργού ύλης δεν υπερβαίνει 2×10^{-3} A_2/Γραμμ.

(β) Είδη μη-ραδιενεργούσης ύλης τα οποία μολύνονται με ραδιενεργόν ύλην, υπό τον όρον ότι η ραδιενεργός μόλυνση είναι μορφής μη δυναμένη ευχερώς να διασπαρεί και ότι το μέσον επίπεδον μολύνσεως σε $1m^2$ (ή σε χώρο επιφανείας εών ο χώρος είναι κάτω του $1m^2$) δεν υπερβαίνει τα:

740KB9/CM² για πομπούς β και γ και τους χαμηλής - τοξικότητας πομπούς α τους σημειουμένους στον Πίνακα XIX της Προσθήκης Α.6· και τα 74KBC/CM² για άλλους πομπούς α.

Ύλες Χαμηλής Ειδικής Ενεργείας (Ι)

«Ύλες Χαμηλής Ειδικής Ενεργείας (Ι)» (LSA) σημαίνει οιαδήποτε των κάτωθι:

(α) Μεταλλεύματα ουρανίου ή θορίου και φυσικά ή χημικά συπυκνώματα των μεταλλευμάτων αυτων·

(β) Μη-ακτινοβόλον φυσικόν ή εξασθενημένον ουράνιον ή μη-ακτινοβόλος φυσικόν θόριον·

(γ) Οξείδιο του τριτίου σε υδατώδη διαλύμματα, υπό τον όρον ότι το συμπύκνωμα δεν υπερβαίνει τα 0.37TBg/L.

(δ) Ύλες στις οποίες η ενέργεια είναι ομοιόμορφα κατανεμημένη και οι οποίες εαν εμειούντο στον κατώτατο όγκο αυτών υπό συνθήκας προφανώς αντιμετωπιζομένας κατά την μεταφορά, όπως διάλυση στο ύδωρ και μετέπειτα επανακρυστάλλωση· κατακρήμνιση (καθίζημα)· καύσις· απόξεση (εκτριβή)· κλπ., θα είχαν· μέση ειδικήν ενέργειαν όχι μεγαλυτέραν των 10^{-4} A_2/G (γραμμ.)·

(ε) Είδη μη-ραδιενεργού ύλης τα οποία μολύνονται με ραδιενεργό ύλην, υπό τον όρον ότι η μη-καθορισμένη μόλυνση επιφανείας δεν υπερβαίνει δέκα φορές τις τιμές του Πίνακος XIX της Προσθήκης Α.6 και ότι το μολυνθέν είδος ή η επ' αυτού μόλυνση, εάν εμειούτο στον κατώτατο όγκο αυτής υπό συνθήκας πιθανώς αντιμετωπιζομένας κατά την μεταφορά, όπως διάλυση στο ύδωρ και μετέπειται επανακρυστάλλωση· κατάμνιση (καθίζημα)· καύση· απόξεση (εκριβή)· κλπ. θα είχε μέσην ειδικήν ενέργειαν όχι μεγαλύτερη των 10^{-4} A_2/G (γραμμ.).

Ύλες χαμηλής ειδικής ενεργείας (ΙΙ)

«Ύλες χαμηλής ειδικής ενεργείας (ΙΙ)» σημαίνει οιονδήποτε των κατωτέρω:

(α) Ύλες στις οποίες η ενέργεια κατά την συνήθη μεταφοράν είναι και παραμένει ομοιόμορφα κατανεμημένη και στις οποίες η μέση ειδική ενέργεια δεν υπερβαίνει τα 10^{-4} A_2/G (γραμμ.)·

(β) Είδη μη-ραδιενεργού ύλης που μολύνονται με ραδιενεργόν ύλην, υπό τον όρον ότι η ραδιενεργός μόλυνσις είναι μορφής μη ευχερώς δυναμένης να διασπαρεί και ότι το επίπεδον μέσης μολύνσεως σε $1\ \mu^2$ (ή σε χώρον επιφανείας εάν ο χώρος αυτός είναι κάτω του $1\ \mu^2$) δεν υπερβαίνει τα:

37KBg/CM² για πομπούς β και γ και χαμηλής τοξικότητος πομπούς α αναφερομένους στον Πίνακα XIX της Προσθήκης Α.6· και 37KBg/CM² για άλλους πομπούς α.

Ανωτάτη πίεσις κανονικής λειτουργίας

«Ανωτάτη πίεσις κανονικής λειτουργίας» σημαίνει την ανωτάτη πίεσιν άνω της ατμοσφαιρικής πιέσεως σε μέσον επίπεδον θαλάσσης η οποία θα μπορούσε να αναπτυχθεί στο σύστημα συστολής σε χρονική περίοδον ενός έτους υπό συνθήκες θερμοκρασίας και ηλιακής ακτινοβολίας αντιστοιχούσες στις περιβαλλοντικές συνθήκες μεταφοράς ελλείψει εξαερισμού, εξωτερικής ψύξεως δι' επικουρικού συστήματος, ή μοχλών λειτουργίας κατά την διάρκεια της μεταφοράς.

Πολύπλευρος Έγκριση.

«Πολύπλευρος έγκριση» σημαίνει έγκριση της αρμόδιας αρχής της χώρας προελεύσεως και της αρμόδιας αρχής κάθε χώρας στην επιφάνεια της οποίας πρόκειται να διεξαχθεί η αποστολή.

Κόλον

«Κόλον Τύπου Α» σημαίνει συσκευασία Τύπου Α με το περιωρισμένο ραδιενεργό περιεχόμενό του. Επειδή το περιεχόμενο ενός κόλου Τύπου Α περιορίζεται σε A^1 ή A^2, ένα τέτοιο κόλον δεν χρειάζεται την έγκριαιν της αρμόδιας αρχής.

«Κόλον Τύπου BU)» σημαίνει συσκευασία Τύπου Β, μαζί με το ραδιενεργό περιεχόμενό του, το οποίον εφ' όσον έχει σχεδιασθεί σύμφωνα με καθορισμένο σχέδιο και τα κριτήρια συστολής απαιτεί ετερόπλευρον (μονόπλευρον) έγκριαιν μόνον του σχεδίου του κόλου και οιωνδήποτε όρων στοιβασίας που ενδέχεται να είναι απαραίτητοι για διάχυση της θερμότητος.

«Κόλον Τύπου Β(Μ)» σημαίνει συσκευασία Τύπου Β, μαζί με το ραδιενεργό περιεχόμενό του, εφ' όσον το σχέδιό του δεν πληροί ένα ή περισσότερα ειδικά συμπληρωματικά σχεδιάσεως για κόλα Τύπου BU) βλέπε περιθώριο 3605 της Προσθήκης Α.6) απαιτεί πολύπλευρον έγκριση του σχεδίου του κόλου και, υπό ωρισμένας συνθήκες, των όρων προωθήσεως.

Συσκευασία

«Συσκευασία» σημαίνει τη συναρμολόγηση συστατικών μερών απαραιτήτων να εξασφαλίσουν τη συμμόρφωση προς τους όρους συσκευασίας της παρούσας Κλάσεως. Μπορεί, ειδικότερα, να αποτελείται από ένα ή περισσότερα δοχεία, απορροφητικό υλικό, χωρίσματα, προστασία (θωράκισις) κατά της ακτινοβολίας, και μηχανισμούς ψύξεως, για την απορρόφηση μηχανικών κρούσεων (σοκ) και για θερμική μόνωση. Οι μηχανισμοί αυτοί περιλαμβάνουν το όχημα με το σύστημα στερεώσεως (ακινητοποιήσεως) (TIE-DOWN SYSTEM) όταν προορίζονται να αποτελέσουν αναπόσπαστον τμήμα της συσκευασίας.

«Συσκευασία Τύπου Α» σημαίνει συσκευασία η οποία κατά τη συνήθη μεταφορά είναι ικανή να εμποδίσει οιανδήποτε απώλειαν ή διασποράν του ραδιενεργού περιεχομένου και συγκρατήσει την προστατευτική του λειτουργία. Οι όροι της κανονικής μεταφοράς θα ανατυπούνται βάσει των ελέγχων των προβλεπομένων υπό του περιθωρίου 3635 και 3636 της Προσθήκης Α.6, τους οποίους ελέγχους η συσκευασία θα εικονίζει ότι διεξήλθε.

«Συσκευασία Τύπου Β» σημαίνει συσκευασία η οποία είναι ικανή να ανθέξει όχι μόνον στους όρους της κανονικής μεταφοράς, όπως η συσκευασία τύπου Α, αλλά και σε ατύχημα μεταφοράς. Οι όροι (συνθήκες) ενός τέτοιου ατυχήματος θα ανατυπούνται βάσει των ελέγχων των προβλεπομένων υπό των περιθωρίων 3635 έως 3637 της Προσθήκης Α.6, τους οποίους ελέγχους η συσκευασία, θα εικονίζεται ότι διεξήλθε υπό τας ομοίως προβλεπομένας συνθήκας (όρους).

Επίπεδον Ακτινοβολίας

«Επίπεδον Ακτινοβολίας» σημαίνει την αντίστοιχον ισοδύναμον προς ραδιενεργόν δόση τιμή εκφραζομένην εις MILLI-REM ωριαίως. Τα επίπεδα ακτινοβολίας μπορούν να καθορίζονται δι' οργάνων, σε συνδυασμό με τη χρήση πινάκων μετατροπής οσάκις απαιτείται ή με υπολογισμόν. Μετρημένες ή υπολογισθείσες πυκνότητες ροής ουδετερονίου μπορούν να μετατρέπονται σε επίπεδα ακτινοβολίας με τη χρήση των στοιχείων των διδομένων στον παρακάτω πίνακα.

Πυκνότητες ροής ουδετερονίου θεωρούμενες ως ισοδύναμες προς επίπεδο ακτινοβολίας των 10 USv/ωρ. (1 MREM/H) (ωριαίως)

Ενέργεια ουδετερονίου	Πυκνότητα ροής ισοδύναμη προς 10 Uv/h I MREM/H (N/CM² . S)
Θερμική (THERMAL)	268
5 KEV	228
20 KEV	112
100 KEV	32
500 KEV	12
1 MEV	7.2
5 MEV	7.2
10 MEV	6.8

Σημείωση: Ισοδύναμες πυκνότητες ροής για ενέργειες μεταξύ των ανωτέρω αναφερομένων θα λαμβάνονται δια γραμμικής παρεμβολής.

Ραδιενεργό περιεχόμενο

«Ραδιενεργό περιεχόμενο» σημαίνει τη ραδιενεργόν ύλην μαζί με οποιαδήποτε μολυνθέντα στερεά, υγρά ή αέρια του κόλου.

Ραδιενεργός ύλη ειδικής μορφής

«Ραδιενεργός ύλη ειδικής μορφής» σημαίνει είτε μη-δυναμένη να διασπαρεί στερεά ραδιενεργός ύλη είτε σφραγισμένη κάψουλα περιέχουσα ραδιενεργόν ύλην. Η σφραγισμένη κάψουλα θα είναι έται κατασκευασμένη ώστε να μπορεί να ανοιχθεί μόνον με την καταστροφήν αυτής. Η ραδιενεργός ύλη ειδικής μορφής θα πληροί τους κάτωθι όρους:

(α) Θα έχει τουλάχιστον μία διάσταση όχι κάτω των 5 χιλ.· και

(β) Θα πληροί τους σχετικούς όρους ελέγχου τους οριζομένους υπό των περιθωρίων 3640 έως 3642 της Προσθήκης Α.6.

Γενικώς, η έννοια «Ειδικής μορφής» παρέχει τη δυνατότητα στις ύλες που παρουσιάζουν υψηλότερον επίπεδον ενεργείας να συμπεριλαμβάνονται σε κόλον Τύπου Α.

Ειδική ενέργεια

Η «ειδική ενέργεια» ραδιοπυρηνικού σημαίνει την ενέργειαν ραδιοπυρηνικού ανά μάζαν μονάδος. Η ειδική ενέργεια ύλης στην οποία τα ραδιοπυρηνικά έχουν βασικώς ομοιομόρφως κατανεμηθεί είναι η ενέργεια της ύλης αυτής ανά μάζα μονάδος.

Δείκτης Μεταφοράς

Ο «δείκτης μεταφοράς» ενός κόλου σημαίνει:

(α) Τον αριθμόν ο οποίος εκφράζει το επίπεδον της ανωτάτης ακτινοβολίας σε MILLIREM ωριαίως σε 1 μ. εκ της εξωτερικής επιφανείας του κόλου· ή

(β) προκειμένου περί κόλων της Διασπαστής Κλάσεως ΙΙ ή Διασπαστής Κλάσεως ΙΙΙ, τον ανώτερον των παρακάτω αριθμών:

ο αριθμός ο οποίος εκφράζει το επίπεδον της ανωτάτης ακτινοβολίας, ως υπό στοιχείον (α) ανωτέρω, και ο αριθμός ο λαμβανόμενος δια διαιρέσεως του 50 με τον επιτρεπόμενον αριθμόν τοιούτων κόλων.

Ο «δείκτης μεταφοράς» δοχείου σημαίνει είτε:

το άθροισμα των δεικτών μεταφοράς όλων των κόλων εντός του δοχείου, πλην των δοχείων των μεταφερόντων κόλα Διασπαστής Κλάσεως ΙΙΙ, ο δείκτης μεταφοράς θα είναι 50 εκτός εάν το άθροισμα των δεικτών μεταφοράς των κόλων αναγκαιοί υψηλότερον αριθμόν.

είτε για δοχεία μη μεταφέροντα κόλα των Διασπαστών Κλάσεων ΙΙ ή ΙΙΙ και υπό πλήρες φορτίον, ο αριθμός ο οποίος εκφράζει το επίπεδον ανωτάτης ακτινοβολίας εις mSv/h επι 100 ή σε mrem/h σε 1 μ. εκ της εξωτερικής επιφανείας του δοχείου πολλαπλασιαζόμενος επί της τιμής του παρακάτω πίνακος της καταλλήλου δια την ανωτάτην επιφάνειαν εγκαρσίας τομής του δοχείου.

Συντελεστές Πολλαπλασιασμού

Μέγεθος φορτίου	Συντελεστής Πολλαπλασιασμού
Μέτρηση (μετρήσεις επιφανείας εγκαρσίας τομής του φορτίου καθέτως προς την ενδιαφερομένην κατεύθυνσιν)	
1 μ^2 και κάτω	1
) 1 μ^2 έως 5 μ^2	3
) 5 μ^2 έως 20 μ^2	6
)20 μ^2 έως 100 μ^2	19

(γ) Ο αριθμός ο οποίος εκφράζει το δείκτην μεταφοράς θα στρογγυλεύεται προς τα άνω μέχρι του πρώτου δεκαδικού ψηφίου.

Μη-πεπιεσμένον αέριον

«Μη-πεπιεσμένον αέριον» σημαίνει αέριον σε πίεση μη υπερβαίνουσα την ατμοσφαιρική πίεση του περιβάλλοντος όταν το σύστημα συστολής είναι κλειστό.

Ετερόπλευρος (μονόπλευρος) έγκριαις

«Ετερόπλευρος (μονόπλευρος) έγκριαις» σημαίνει την έγκρισιν της αρμόδιας αρχής της χώρας προελεύσεως και μόνον. Εάν η χώρα προελεύσεως δεν είναι συμβληθέν μέρος της ADR, η έγκρισις θα απαιτεί επικύρωσιν της αρμόδιας αρχής της πρώτης χώρας ADR εις την οποίαν θα φθάσει η αποστολή.

Μη-ακτινοβόλον ουράνιον

«Μη-ακτινοβόλον ουράνιον» σημαίνει ουράνιον περιέχον όχι άνω των 10^{-6} G (γραμμ.) πλουτονίου ανά G (γραμμ.) ουρανίου-235 και ενέργειαν προϊόντος διασπάσεως όχι μεγαλυτέραν των 0.25 MCI ανά G (γραμμ.) ουρανίου-235.

Μη ακτινοβόλον θόριον

«Μη-ακτινοβόλον θόριον» σημαίνει θόριον περιέχον όχι άνω των 10^{-7} G (γραμμ.) ουρανίου-233 ανά G (γραμμ.) θορίου-232.

Ουράνιον· εξασθενημένον, εμπλουτισμένον, φυσικόν

«Φυσικόν ουράνιον» σημαίνει χημικώς-διαχωρισμένον ουράνιον με τη φυσικώς - προκύπτουσα κατανομήν των ισοτόπων ουρανίου (περίπου 99.28 τοις εκατόν ουρανίου-238 και 0.72 τοις εκατόν ουρανίου-235). «Εξασθενημένον ουράνιον» σημαίνει ουράνιον περιέχον κάτω των 0.72 τοις εκατόν ουρανίου-235, του υπολοίπου όντος ουρανίου-238. «Εμπλουτισμένον ουράνιον» σημαίνει ουράνιον περιέχον άνω των 0.72 τοις εκατόν ουρανίου-235, του υπολοίπου όντος ουρανίου-238. Σε όλες τις περιπτώσεις υπάρχει μία πολύ μικρή ποσότητα ουρανίου-234.

(3) Απαγορεύσεις επί μικτής φορτώσεως

Ύλες της Κλάσεως 7 περιεχόμενες σε κόλα φέροντα ετικέτα σύμφωνη προς τα μοντέλα 7Α, 7Β ή 7Γ δε θα φορτώνονται στο αυτό όχημα μαζί με ύλες και είδη της Κλάσεως 1α (περιθώριο 2101), 1β (περιθώριο 2131) ή 1γ (περιθώριο 2171) περιεχόμενα σε κόλα φέροντα μίαν ή δύο ετικέτες σύμφωνες προς το μοντέλο Νο 1.

Οι ύλες και είδη της παρούσης Κλάσεως περιέχουν ένα ή περισσότερα των ραδιοπυρηνικών των αναφερομένων στο κεφάλαιον VI της Προσθήκης Α.6 (περιθώρια 3690 και 3691). 2701

Ο κατωτέρω κατάλογος καθορίζει τους διαφόρους τύπους αποστολής: 2702

1. Κενά κόλα που περιείχαν ραδιενεργείς ύλες·
2. Είδη κατασκευασμένα από φυσικόν ή εξασθενημένον ουράνιον ή φυσικόν θόριον·
3. Μικρές ποσότητες ραδιενεργών υλών·
4. Όργανα και βιομηχανοποιηθέντα είδη·
5. Ύλες χαμηλής ειδικής ενεργείας LSA (I)
6. Ύλες χαμηλής ειδικής ενεργείας LSA (II)
7. Χαμηλής στάθμης (επιπέδου) στερεές ραδιενεργείς ύλες·
8. Ραδιενεργείς ύλες σε κόλα Τύπου Α·
9. Ραδιενεργείς ύλες σε κόλα Τύπου Β(U)·
10. Ραδιενεργείς ύλες σε κόλα Τύπου Β(Μ)·
11. Διασπαστές ύλες·
12. Ραδιενεργείς ύλες μεταφερόμενες υπό ειδικήν διευθέτησιν.

Πίνακας 1 2703

1. Ύλες	Ετικέτες κινδύνου επί των κόλων
Κενά κόλα: που περιείχαν ραδιενεργείς ύλες.	Ουδεμία
2. Συσκευασία / Κόλον (α) Η συσκευασία θα είναι σύμφωνη με τους όρους του περιθωρίου 3600 της Προσθήκης Α.6, και θα κλείνεται ασφαλώς και σε καλή κατάσταση. (β) Επιτρεπόμενα επίπεδα εσωτερικής μολύνσεως: όχι περισσότερον από 100 φορές τα επίπεδα τα αναγραφόμενα στη παράγραφο 5. (γ) Οσάκις κενή συσκευασία περιλαμβάνει φυσικόν ή εξασθενημένον ουράνιον ή φυσικόν θόριον στη κατασκευή της, η επιφάνειά	Σημείωση: Οιαδήποτε ετικέτα σημειούσα κίνδυνον θα είναι καλυμμένη ή θα αφαιρείται.

της θα καλύπτεται από ουσιαστικήν, μη-ενεργόν προστασίαν από μέταλλο ή από κάποιο άλλο ανθεκτικό υλικό.

3. Ανώτατον επίπεδον ακτινοβολίας κόλου
0,5 mrem/h (ωριαίως) στην επιφάνεια του κόλου.

4. Μικτή συσκευασία
Ουδεμία διάταξη.

5. Μόλυνση επί κόλων
Μή - ωρισμένα όρια εξωτερικής μολύνσεως:

β/ γ/ χαμηλής - τοξικότητας α, πομποί	3,7Bq/cm² (10^{-4} MCI/cm²
Φυσικόν/εξασθενημένον ουράνιον/φυσικόν θόριον	37Bq/cm² 10^{-3} MCI/cm²
Άλλοι α πομποί	0.37Bq/cm² 10^{-5} MCI/cm²

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) κόλων
(α) Τα κόλα θα μαρκάρονται καθαρά και ανεξίτηλα με το βάρος εάν τούτο είναι άνω των 50 KG.
(β) Πάσα ένδειξη αναφέρουσα ραδιενεργόν κίνδυνον δεν θα είναι ορατή.

7. Έγγραφα μεταφοράς
Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (Κενά κόλα), 7, πίνακας 1, ADR», με την ονομασίαν υπογραμμισμένη.

8. Αποθήκευση και προώθηση
Ουδεμία διάταξη.

9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)
Ουδεμία διάταξη.

10. Μεταφορά σε χύμα με οχήματα και δοχεία (CONTAINERS
Δεν έχει εφαρμογήν.

12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων TANK CONTAINERS και δοχείων (CONTAINERS).
Ουδεμία

13. Απαγορεύσεις επί μικτής φορτώσεως
Ουδεμία διάταξη.

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
Ουδεμία διάταξη

15. Άλλες διατάξεις
Ουδεμία.

Πίνακας 2
Ετικέτες κινδύνου επί των κόλων

Ουδεμία

1. Ύλες
Είδη κατασκευασθέντα από φυσικό ή εξασθενημένο ουράνιο ή φυσικό θόριο.
Η εξωτερική επιφάνεια του ουρανίου ή θορίου θα καλύπτεται από ουσιαστικήν, ανενεργόν προστασίαν (θωράκισιν) από μέταλλο ή κάποιο άλλο ανθεκτικό υλικό.

Σημείωση: Τέτοια είδη μπορεί π.χ. να είναι αχρησιμοποίητες συσκευασίες προοριζόμενες για τη μεταφορά ραδιενεργών υλών.

2. Συσκευασία / Κόλον
Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

3. Επίπεδον ανωτάτης ακτινοβολίας Κόλου 0.5 MREM/H (ωριαίως) στην επιφάνεια του κόλου.

4. Μικτή συσκευασία
Ουδεμία διάταξη.

5. Μόλυνση επί των κόλων
Μη-ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ χαμηλής-τοξικότητος α πομποί	10^{-4} MCI/CM²
φυσικόν/εξασθενημένον ουράνιον/ φυσικόν θόριον	10^{-3} MCI/CM²
Άλλοι α πομποί	10^{-5} MCI/CM²

Για πλήρεις λεπτομέρειες βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (Μαρκάρισμα) επί των κόλων
Ουδεμία.

7. Έγγραφα μεταφοράς
Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφή «Ραδιενεργείς Ύλες (Βιομηχανοποιηθέντα / Κατασκευασθέντα Είδη), 7, πίνακας 2, ADR», με την ονομασία υπογραμμισμένη.

8. Αποθήκευση και προώθηση
Ουδεμία διάταξη.

9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)
Ουδεμία διάταξη.

10. Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)
Δεν έχει εφαρμογήν.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS.
Δεν έχει εφαρμογήν.

12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
Ουδεμία.

13. Απαγορεύσεις επί μικτής φορτώσεως
Ουδεμία διάταξη.

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
Ουδεμία διάταξη.

15. Άλλες διατάξεις
Ουδεμία.

Πίνακας 3
Ετικέτες κινδύνου επί των κόλων
Ουδεμία (αλλά βλέπε παράγραφον 15).

1. Ύλες
Μικρές ποσότητες ραδιενεργών υλών σε ποσότητες που δεν υπερβαίνουν τους αριθμούς τους διδομένους στον κατωτέρω πίνακα και οι οποίες δεν περιέχουν άνω

των 15 G (γραμμαρίων) ουρανίου-235.

Φύσις υλών	Όρια κόλου
Στερεά και άερια	
Ειδικής μορφής	10^{-3} A1
Άλλων μορφών	10^{-3} A2
Τρίτιον	0,74TBq (20 CF
Υγρά	
Οξείδιο Τριτίου σε υδατώδη διαλύμματα	
κάτω των 3,7 GBq/l (0,1 Ci/L)	37 TBq (1000 CI)
μεταξύ 3,7 GBq και 37GBq/l (0,1 Ci & 1,0 Ci)	3.7 TBq (1000 CI)
άνω των 3,7 GBq/l (1.0 Ci/L)	37 GBq (1 CI)
Άλλα υγρά	10^{-4} A2

Για μίγματα ραδιοπυρηνικών, βλέπε περιθώριο 3691 της Προσθήκης Α.6.

Οι τιμές για το τρίτιο ισχύουν επίσης για τρίτιον ενεργού φωτεινού χρώματος και τρίτιον απορροφούμενον επί στερεών μεταφορέων.

2. Συσκευασία / Κόλον

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

(β) Κατά τη μεταφοράν δε θα υπάρχει διαρροή ραδιενεργού ύλης.

3. Ανώτατον επίπεδον ακτινοβολίας κόλου

5 μSv/h στην επιφάνεια του κόλου (0,5 mrem/h)

4. Μικτή συσκευασία

Ουδεμία διάταξη.

5. Μόλυνση (επί) των κόλων

Μη-ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ/ χαμηλής - τοξικότητος α πομποί: 3,7 Bq/ψμ^2	(10^{-4} MCI/CM^2)
φυσικόν/εξασθενημένον ουράνιον/	
φυσικόν θόριον: 37Bq/cm^2	(10^{-3} MCI/CM^2)
Άλλοι α πομποί: 0,37Bq/cm^2	(10^{-5} MCI/CM^2)

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) επί των κόλων

Η εξωτερική επιφάνεια του συστήματος συστολής θα φέρει την ένδειξιν «ΡΑΔΙΕΝΕΡΓΟΝ» ως προειδοποίησιν για το άνοιγμα του κόλου.

7. Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (Μικρές ποσότητες), 7, πίναξ 3, ADR», με την ονομασίαν υπογραμμισμένην.

8. Αποθήκευση και προώθηση

Ουδεμία διάταξη.

9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

Ουδεμία διάταξη.

10. Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν επιτρέπεται.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν επιτρέπεται.

12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS).

Ουδεμία.

13. Απαγορεύσεις επί μικτής φορτώσεως

Ουδεμία διάταξη.

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695 (3) της Προσθήκης Α.6.

15. Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695 (1) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695 (2) της Προσθήκης Α.6.

(γ) Ραδιενεργείς ύλες που έχουν άλλες επικινδύνους ιδιότητες θα συμμορφούνται επίσης με τις διατάξεις της καταλλήλου κλάσεως.

Πίνακας 4

Ετικέτες κινδύνου επί των κόλων.

Ουδεμία.

1. Ύλες

Όργανα και Βιομηχανοποιηθέντα Είδη όπως, ωρολόγια τοίχου, ηλεκτρονικές λυχνίες (λυχνίες ασυρμάτου) ή συσκευαί, που έχουν ραδιενεργείς ύλες ως συστατικόν μέρος αυτών, η ενέργεια των οποίων δεν υπερβαίνει τα ποσά που δίδονται στον παρακάτω πίνακα και οι οποίες δεν περιέχουν άνω των 15 G. (γραμμαρίων) ουρανίου-235.

Φύσις υλών	Όρια Είδους	Όρια Κόλου
Στερεά		
Ειδικής μορφής	$10^{-2}A_1$	A_1
Άλλων μορφών	$10^{-2}A_2$	A_2
Υγρά	$10^{-3}A_2$	$10^{-1}A_2$
Αέρια		
Τρίτιον	0,74 TBq (20 CI*)	7,4 TB* 200 CI*
Ειδικής μορφής	$10^{-3}A_1$	$10^{-2}A_1$
Άλλων μορφών	$10^{-3}A_2$	$10^{-2}A_2$

Για μίγματα ραδιοπυρηνικών, βλέπε περιθώριο 3691 της Προσθήκης Α.6.

* Οι τιμές για το τρίτιο θα ισχύουν και για τρίτιο ενεργού φωτεινού χρώματος και τρίτιον απορροφούμενον επί στερεών μεταφορέων.

2. Συσκευασία/Κόλον

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600 της Προσθήκης Α.6.

(β) Τα όργανα και είδη θα συσκευάζονται ασφαλώς.

3. Ανώτατον επίπεδον ακτινοβολίας Κόλου

5 μSv/h (0.5 MREM/H) στην επιφάνεια του κόλου και 100 μSv/h (10 MREM/H ή 10 CM από οποιοδήποτε σημείο επί της εξωτερικής επιφανείας οιουδήποτε μη συσκευασμένου οργάνου ή είδους.

4. Μικτή συσκευασία

Ουδεμία διάταξις.

5. Μόλυνσις κόλων

Μη ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ/χαμηλής τοξικότητος α πομποί: 37Bq/εκ^2 (10^{-3} μCi)

Φυσικόν/εξασθενημένον ουράνιον/φυσικόν θόριον: 37Bq/εκ^2 (10^{-3} μCi)

Άλλοι α πομποί: 0,37Bq/εκ^2 (10^{-5} μCi)

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) επί των κόλων

Κάθε όργανον ή είδος (πλήν ραδιο-ακτινοβόλων χρονομέτρων ή συσκευών) θα φέρει την ένδειξη «ΡΑΔΙΕΝΕΡΓΟΝ».

7. Έγγραφα Μεταφοράς

Το έγγραφον μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (Όργανα) ή (Βιομηχανοποιηθέντα είδη), 7, πίναξ 4, ADR», με την ονομασίαν υπογραμμισμένη.

8. Αποθήκευση και προώθηση

Ουδεμία διάταξη.

9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

Ουδεμία διάταξη.

10. Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)

Δεν έχει εφαρμογήν.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS
Δεν έχει εφαρμογήν.
12. Επιγραφές και Ετικέτες επί οχημάτων, βυτιοφόρων TANK CONTAINERS και δοχείων (CONTAINERS)
Ουδεμία.
13. Απαγορεύσεις επί μικτής φορτώσεως
Ουδεμία διάταξη.
14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS, δοχείων (CONTAINERS)
Βλέπε περιθώριο 3695 (3) της Προσθήκης Α.6.
15. Άλλες διατάξεις
(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695 (1) της Προσθήκης Α.6.
(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695 (2) της Προσθήκης Α.6.

1. Ύλες

Ύλες χαμηλής ειδικής ενεργείας LSA (1), ανήκουσες σε μιά των παρακάτω ομάδων ως ορίζονται πλήρως στο περιθώριο 2700 (2):
(Ι) Μεταλλεύματα ουρανίου ή θορίου ή συμπυκνώματα (εδάφιο (α) του ορισμού).
(ΙΙ) Μη-ακτινοβόλον φυσικόν ή εξασθενημένον ουράνιον ή μηακτινοβόλον φυσικόν θόριον (εδάφιον (β) του ορισμού).
(ΙΙΙ) Οξείδιο του τριτίου σε υδατώδη διαλύματα - συμπύκνωμα 10 CI/I και κάτω, (εδάφιο (γ) του ορισμού).
(IV) Ύλες με ομοιόμορφον ενέργειαν υπό συνθήκες κατωτάτου όγκου όχι μεγαλυτέρου των 10^{-4} A2/G (εδάφιο (δ) του ορισμού).
(V) Μη-ραδιενεργά είδη μολυνθέντα όχι περισσότερο από 10 φορές τα όρια κόλου τα αναφερόμενα στην παρακάτω παράγραφο 5 και κατά τρόπον ώστε η ειδική ενέργεια υπό συνθήκες κατωτάτου όγκου ουδέποτε να υπερβαίνει τα 10^{-4} A2/G (εδάφιο (ε) του ορισμού).

Πίνακας 5

Ετικέτες κινδύνου επί των κόλων
(Βλέπε Προσθήκην Α.9)
Εκτός εάν μεταφέρονται ως πλήρες φορτίο ετικέτες των μοντέλων 7Α, 7Β ή 7Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώριο 3653 έως 3655 της Προσθήκης Α6 για κατηγορία κόλου. Το περιεχόμενο θα περιγράφεται επί των ετικετών ως «Ραδιενεργόν LSA». Δευτερεύουσες ετικέτες:
(Ι) Για νιτρικόν θόριον και νιτρικόν ουράνιον - απαιτούνται ετικέτες μοντέλου Νο 3.
(ΙΙ) Για φθοριούχο ουράνιο - απαιτούνται ετικέτες Νο. 4.
Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.
2. Συσκευσία/Κόλον
Κόλα μεταφερόμενα όχι ως συσκευασία πλήρους φορτίου θα είναι συμφώνως προς το περιθώριο 3600, περιθώριο 3650 έως 2655 και περιθώριο 3656(1) έως (4) της Προσθήκης Α.6.
Ύλες της ανωτέρω παραγράφου 1(ΙΙ) υπό μαζική στερεά μορφή θα συσκευάζονται κατά τρόπον ώστε να αποφεύγεται η απόξεσις (εκτριβή), και υπό άλλες στερεές μορφές θα περιέχονται σε ουσιαστική θωράκιση.
3. Ανώτατο επίπεδο ακτινοβολίας Κόλου
2. mSv/h (200 MREM/H στην επιφάνεια του κόλου και 0,1 mSv/h (10 MREM/H σε 1 μέτρο από την επιφάνεια αυτή (βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6).
Εκτός της περιπτώσεως πλήρους φορτίου οπότε το όριον είναι 10 mSv/h (1.000 MREM/H) στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 0,1 mSv/h (10 MREM/H) σε 1 μέτρο από την επιφάνεια αυτή (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).
4. Μικτή συσκευασία
Βλέπε περιθώριο 3650 της Προσθήκης Α.6.
5. Μόλυνση επί των κόλων
(α) Μη ωρισμένα όρια εξωτερικής μολύνσεως για κόλα μεταφερόμενα όχι ως πλήρες φορτίο.
β/γ/χαμηλής-τοξικότητος α πομποί: 3,7 Bq/εκ^2 (10^{-4} μCi)
Φυσικόν/εξασθενημένον ουράνιον/
φυσικόν θόριον: 37 Bq/εκ^2 (10^{-3} μCi)
Άλλοι α πομποί: 0,37 Bq/εκ^2 (10^{-5} μCi)
Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.
(β) Για κόλα μεταφερόμενα ωςπλήρες φορτίο -
Ουδεμία διάταξις.
6. Ενδείξεις (μαρκάρισμα) επί των κόλων
Κόλα μεταφερόμενα ωςπλήρες φορτίο - πολυγραφημένη ή άλλως σημειουμένη ένδειξις «ΡΑΔΙΕΝΕΡΓΟΝ LSA».
Κόλα μεταφερόμενα όχι ως πλήρες φορτίο - θα μαρκάρεται καθαρά και ανεξίτηλα το βάρος εάν υπερβαίνει τα 50 KG.
7. Έγγραφα μεταφοράς
Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (Χαμηλής ειδικής ενεργείας LSA(1)), 7, πίναξ 5, ADR», με την ονομασίαν υπογραμμισμένην με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.
8. Αποθήκευσις και προώθησις
(α) Αποθήκευσις και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριο 3658(1) της Προσθήκης Α.6.
(β) Αποθήκευση και διαχωρισμός από κόλα φέροντα ετικέτα «FOTO» περιθώριο 240001 της Προσθήκης Β.4 για τον πίνακα διαχωρισμού.
(γ) Όριο δείκτου ολικής μεταφοράς για αποθήκευση, ουδέν όριον εκτός της περιπτώσεως κόλων Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ, βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.
9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)
(α) Διαχωρισμός από κόλα φέροντα ετικέτα «FOTO» - βλέπε περιθώριο 240 001 της Προσθήκης Β.4 για τον Πίνακα διαχωρισμού.
(β) Όριο δείκτου ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο, υπό τον όρον ότι εάν υπάρχουν κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ δεν θα υπερβαίνεται ο επιτρεπόμενος αριθμός, (βλέπε περιθώριον 3659(5) της Προσθήκης Α.6).
(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία (CONTAINERS) προκειμένου περί πλήρους φορτίου
2 mSv/h στην επιφάνεια (200 MREM/H)
0,1 mSv/h σε 2 μέτρα από την επιφάνεια (10 MREM/H)
(βλέπε περιθώριο 3659(1) της Προσθήκης Α.6).
Επίσης, για οχήματα - 20 mSv/h σε οποιαδήποτε κανονικώς καταληφθείσα θέσιν - βλέπε περιθώριο 3659(8) της Προσθήκης Α.6.
(δ) Κόλα μη συμμορφούμενα προς τους όρους του περιθωρίου 3600 θα μεταφέρονται ως πλήρες φορτίο, και δεν θα υπερβαίνουν τα όρια του παρακάτω πίνακος:

Φύσις Υλών	Όριο ενεργείας Οχήματος ή μεγάλου δοχείου (CONTAINER)
Στερεά	Ουδέν όριον
Οξείδιο του τριτίου σε υδατώδη διαλύματα	
Άλλα υγρά και αέρια	$100 \times A_2$

10. Μεταφορά εις χύμα με οχήματα και δοχεία (CONTAINERS)
Επιτρέπεται υπό πλήρες φορτίο υπό τον όρον ότι, μετά την φόρτωση, οι εξωτερικές επιφάνειες των οχημάτων θα έχουν προσεκτικώς καθαρισθεί υπό του αποστολέως και εφ' όσον ουδεμία διαρροή μπορεί να προκύψει υπό κανονικήν μεταφοράν. Ποσοτικά όρια ως εις τον πίνακα της ανωτέρω παραγράφου 9.
11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS
α) Μεταφορά με βυτιοφόρα: επιτρέπεται για υγρά ή στερεά πλην του εξαφθοριούχου ουρανίου και ουσιών υποκειμένων σε αυτανάφλεξη (βλέπε Προσθ. Α.6, περιθ. 3660).
β) Μεταφορά σε δεξαμενές - κοντέηνερς: επιτρέπεται για υγρά ή στερεά συμπεριλαμβανομένου του φυσικού ή εξασθενημένου (εξηντλημένου) εξαφθοριούχου ουρανίου (βλέπε Προσθήκη Α.6, περιθώριο 3661).
12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS) (Βλέπε Προσθήκες Α.9 και Β.4). Δοχεία (CONTAINERS) - ετικέτες μοντέλων 7Α, 7Β ή 7Γ επί όλων των τεσσάρων πλευρών. Οχήματα και μεγάλα δοχεία (CONTAINERS) - επιγραφές συμφώνως προς το μοντέλο της Προσθήκης Β.4 περιθώριον 240 010 σε κάθε πλευρά και οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).
Δευτερεύουσες ετικέτες:
(Ι) για νιτρικό θόριο στερεό και νιτρικό ουράνιο στερεό, απαιτούνται ετικέτες μοντέλου Νο. 5,
(ΙΙ) για εξαφθοριούχο ουράνιο και εξαϋδρικό νιτρικό ουράνιο σε διάλυμα, ετικέτες μοντέλου Νο. 8.
(ΙΙΙ) για ουσίες που παρουσιάζουν πρόσθετες επικίνδυνες ιδιότητες και μεταφέρονται σαν πλήρες φορτίο, απαιτείται ανάλογη ετικέτα κινδύνου.
13. Απαγορεύσεις επί μικτής φορτώσεως
Βλέπε περιθώριο 2700(3).
14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

(α) Για αποστολές πλήρους φορτίου, μετά την εκφόρτωση, τα οχήματα θα απολυμαίνονται υπό του παραλήπτου στα επίπεδα του Πίνακος XIX της Προσθήκης Α.6 εκτός εάν χρησιμοποιηθούν για τη μεταφορά των ίδιων υλών. Βλέπε επίσης περιθώριο 3695(4) της Προσθήκης Α.6.

(β) Για αποστολές όχι πλήρους φορτίου, βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

15. Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

1. Ύλες

Ύλες χαμηλής ειδικής ενεργείας LSA(II) ανήκουσαι σε οποιαδήποτε των παρακάτω ομάδων ως ορίζονται πλήρως στο περιθώριο 2700(2):

(Ι) Ύλες με ομοιόμορφον ενέργειαν όχι μεγαλυτέραν των 10^{-4} A2/G (εδάφιον (α) του ορισμού).

(ΙΙ) Μη-ραδιενεργά είδη μολυνθέντα σε επίπεδο μη υπερβαίνον τα 37 kbq/εκ^2 (1μCi) για β και γ πομπούς και χαμηλής τοξικότητος α πομπούς, ή 3,7 kBq/εκ^2 για άλλους α πομπούς (εδάφιον (β) του ορισμού).

Πίνακας 6

Ετικέτες κινδύνου επί των κόλων.

Ουδεμία απαιτείται εκτός εάν υπάρχουν διασπαστές ύλες. (βλέπε Πίνακα ΙΙ).

Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

2. Συσκευασία/Κόλον

Η συσκευασία θα είναι συμφώνως προς τους όρους του περιθωρίου 3600, περιθωρίου 3650 και περιθωρίου 3651 της Προσθήκης Α.6.

3. Ανώτατον επίπεδον ακτινοβολίας Κόλου

Κλειστά οχήματα υπό τους όρους του περιθωρίου 3659(7) (α) της Προσθήκης Α.6 - 10 mSV/h στην επιφάνεια του κόλου και μπορούν να υπερβούν τα 0,1 mSV/h σε ένα μέτρο από της επιφανείας αυτής. Όλα τα άλλα οχήματα που δεν υπόκεινται στους όρους του περιθωρίου 3659(7) (α) της Προσθήκης Α.6 - 2 mSv/h στην επιφάνεια του κόλου και 0,1 mSv/h σε ένα μέτρο από της επιφανείας αυτής.

4. Μικτή συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

5. Μόλυνση επί των κόλων

Μη ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ/χαμηλής τοξικότητος α πομποί	3,7Bq/εκ^2 (10^{-4}μCi)
Φυσικόν/εξασθενημένον ουράνιον/ φυσικόν θόριον	37 Bq/εκ^2 (10^{-3} μCi)
Άλλοι α πομποί	0,37 Bq/εκ^2 (10^{-5} μCi)

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) κόλων

Τα κόλα θα μαρκάρονται «ΡΑΔΙΕΝΕΡΓΟΝ LSA» με STENCIL.

7. Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (χαμηλής ειδικής ενεργείας LSA (II), 7, πίνακα 6, ADR», με την ονομασίαν υπογραμμισμένην και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.

8. Αποθήκευση και προώθηση

Μόνον υπό πλήρες φορτίον.

9. Μεταφορά κόλων με οχήματα και δοχεία

(α) Μεταφορά μόνον με πλήρες φορτίον.

(β) Εάν η αποστολή περιλαμβάνει κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ, δεν θα υπερβαίνεται ο επιτρεπόμενος αριθμός (βλέπε Πίνακα ΙΙ).

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία (CONTAINERS) -

2 mSv/h (200 MREM/H στην επιφάνεια,

0,1 mSv/h (10 MREM/H σε 2 μέτρα από την επιφάνεια (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).

Επίσης, για οχήματα - 20 mSv/h για οποιαδήποτε κανονικώς καταληφθείσα θέσιν - (βλέπε περιθώριον 3659(8) της Προσθήκης Α.6).

(δ) Δεν θα υπερβαίνονται τα όρια του παρακάτω πίνακος:

Φύσις Υλών	Όριο ενεργείας Οχήματος ή μεγάλου δοχείου
Στερεά	Ουδέν όριον
Οξείδιο του τριτίου σε υδατώδη διαλύματα	50,000 CI
Άλλα υγρά και αέρια	100 × A_2

Μεταφορά εις χύμα οχήματα και δοχεία (CONTAINERS)

Δεν επιτρέπεται.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν επιτρέπεται.

12. Εγγραφές και ετικέτες επί οχημάτων, βυτιοφόρων TANK CONTAINERS και δοχείων (CONTAINERS) (βλέπε Προσθήκες Α.9 και Β.4)

Δοχεία CONTAINERS - ετικέτες των 7Α, 7Β ή 7Γ και στις τέσσερις πλευρές.

Οχήματα και μεγάλα δοχεία (CONTAINERS - επιγραφές σύμφωνα με το μοντέλο της Προσθήκης Β.4, περιθώριο 240.010 σε κάθε πλευρά και οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).

13. Απαγορεύσεις επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) και (4) της Προσθήκης Α.6.

15. Άλλες διατάξεις

Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

Πίνακας 7

Ετικέτες κινδύνου επί των κόλων.

Ουδεμία απαιτείται εκτός εάν υπάρχουν διασπαστές ύλες (βλέπε πίνακα ΙΙ)

1. Ύλες

Χαμηλού επιπέδου στερεές ραδιενεργείς ύλες LLS, ανήκουσες σε οποιαδήποτε των παρακάτων ομάδων ως ορίζονται πλήρως στο περιθώριο 2700(2):

(Ι) Ύλες με ομοιόμορφον ενέργειαν όχι μεγαλυτέραν των 2 × 10^{-3} A_2/G (εδάφιον (α) του ορισμού.

(ΙΙ) Μη-ραδιενεργά είδη μολυνθέντα σε επίπεδο μη υπερβαίνον τα 20 UCI/CM^2 για β και γ πομπούς και χαμηλής τοξικότητος α πομπούς ή τα 2 UCI/CM^2 για άλλους α πομπούς (εδάφιο (β) του ορισμού).

Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

2. Συσκευασία/Κόλον

(α) Η συσκευασία θα είναι συμφώνως προς τους όρους των περιθωρίων 3600 και 3650 της Προσθήκης Α.6 και θα είναι σε θέση να ανθέξει στους ελέγχους του περιθωρίου 3635(4) και (5) της Προσθήκης Α.6.

(β) Υπό τους όρους των εν (α) αναφερομένων ελέγχων δεν θα υπάρχει:

(Ι) απώλεια ή διασπορά του ραδιενεργού περιεχομένου,

(ΙΙ) αύξηση του ανωτάτου επιπέδου ακτινοβολίας του καταχωρηθέντος ή υπολογισθέντος στην εξωτερική επιφάνεια για την προ του ελέγχου κατάσταση.

3. Ανώτατον επίπεδον ακτινοβολίας Κόλου

Κλειστά οχήματα υπό τους όρους του περιθωρίου 3659(7) (α) της Προσθήκης Α.6 - 10 mSv/h (1000 mrem) στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 0,1 mSv/h σε ένα μέτρο από την επιφάνεια αυτήν.

Όλα τα άλλα οχήματα που δεν υπόκεινται στους όρους του περιθωρίου 3659(7) (α) της Προσθήκης Α.6 - 2 mSv/h στην επιφάνεια του κόλου και 0,1 mSv/h σε ένα μέτρο από την επιφάνεια αυτή.

4. Μικτή συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

5. Μόλυνση επί των κόλων

Ουδεμία διάταξη.

6. Ενδείξεις (μαρκάρισμα) επί κόλων

Τα κόλα θα μαρκάρονται «ΡΑΔΙΕΝΕΡΓΟΝ LLS» ή με STENCIL.

7. Έγγραφα μεταφοράς

Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες (Χαμηλού - επιπέδου στερεόν (LLS), 7, πίναξ 7, ADR», με την ονομασίαν υπογραμμισμένην με κόκκινο, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.

8. Αποθήκευση και προώθηση

Μόνον υπό πλήρες φορτίον.

9. Μεταφορά κόλων σε οχήματα και δοχεία (CONTAINERS)

(α) Μεταφορά μόνον πλήρους φορτίου.

(β) Εάν η αποστολή περιέχει κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ ο επιτρεπόμενος αριθμός δεν θα υπερβαίνεται (βλέπε πίνακα ΙΙ).

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία (CONTAINERS - 2 mSv/h στην επιφάνεια, (200 MREM)

0,1 mSv/h σε 2 μέτρα από την επιφάνεια - βλέπε περιθώριο 3659(7) της Προσθήκης Α.6.

10. Μεταφορά εις χύμα σε οχήματα και δοχεία (CONTAINERS)
Δεν επιτρέπεται.
11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS
Δεν έχει εφαρμογήν.
12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
(Βλέπε Προσθήκες Α.9 και Β.4).
Δοχεία (CONTAINERS) - ετικέτες σύμφωνες προς τα μοντέλα 7Α, 7Β ή 7Γ σε όλες και στις τέσσερες πλευρές. Οχήματα και μεγάλα δοχεία - επιγραφές σύμφωνες προς το μοντέλο της Προσθήκης Β.4, περιθώριο 240 010 σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).
13. Απαγορεύσεις επί μικτής φορτώσεως
Βλέπε περιθώριο 2700(3).
14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
Μετά την εκφόρτωση, τα οχήματα θα απολυμαίνονται υπό του παραλήπτου στο επίπεδο το αναγραφόμενο στον Πίνακα XIX της Προσθήκης Α.6 εκτός εάν χρησιμοποιηθούν για τη μεταφορά ιδίων υλών. Βλέπε επίσης περιθώριο 3695(3) και (4) της Προσθήκης Α.6.
15. Άλλες διατάξεις
Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

1. Ύλες
Ραδιενεργείς ύλες σε κόλα Τύπου Α ενεργείας ανά κόλον A_2 ή A_1 εάν πρόκειται περί ειδικής μορφής.

Πίνακας 8

Ετικέτες κινδύνου επί των κόλων
(Βλέπε Προσθήκην Α.9).
Ετικέτες συμφώνως προς τα μοντέλα 7Α, 7Β ή 7Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6 για κατηγορία κόλου.
Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.
2. Συσκευασία/Κόλον
Τύπου Α, συμφώνως προς τους όρους του σχεδίου τους διδομένους στα περιθώρια 3600 και 3601 της Προσθήκης Α.6.
3. Ανώτατον επίπεδον ακτινοβολίας Κόλου
2 mSv/h στην επιφάνεια του κόλου και
0,1 mSv/h σε 1 μέτρο από την επιφάνεια αυτή (βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6), οπότε εκτός της περιπτώσεως πλήρους φορτίου, όταν το όριον είναι 10 mSv/h στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 0,1 mSv/h σε 1 μέτρο από της επιφανείας αυτής (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).
4. Μικτή συσκευασία
(Βλέπε περιθώριο 3650 της Προσθήκης Α.6.).
5. Μόλυνση επί των κόλων
Μη ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ/χαμηλής τοξικότητος α πομποί	3,7 Bq/εκ^2 (10^{-4} μCi)
Φυσικόν/εξασθενημένον ουράνιον/ φυσικόν θόριον	10^{-3}μCI/CM^2
Άλλοι α πομποί	10^{-5}μCI/CM^2

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.
6. Ενδείξεις (μαρκάρισμα) κόλων
Τα κόλα θα είναι καθαρά και ανεξίτηλα μαρκαρισμένα εξωτερικώς με
(Ι) «Τύπος Α»,
(ΙΙ) το βάρος του κόλου, εάν άνω των 50 KG.
7. Έγγραφα μεταφοράς
(α) Για ανακεφαλαίωση των όρων εγκρίσεως και κοινοποιήσεως - βλέπε περιθώριο 2704.
(β) Το έγγραφο μεταφοράς πρέπει να περιλαμβάνει την περιγραφή «Ραδιενεργείς ύλες κόλων Τύπου Α, πίνακος 8, ADR», με την ονομασίαν υπογραμμισμένην και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.
(γ) Οσάκις επωφελούμεθα της επιτρεπομένης ηυξημένης ενεργείας ανά κόλον εάν η ύλη είναι ειδικής μορφής, το πιστοποιητικόν της ετεροπλεύρου εγκρίσεως του σχεδίου ειδικής μορφής θα είναι στην κατοχή του αποστολέως προ της πρώτης φορτώσεως (βλέπε περιθώριο 3671 της Προσθήκης Α.6).
8. Αποθήκευση και προώθηση
(α) Αποθήκευση και διαχωρισμός από τα άλλα επικίνδυνα εμπορεύ-
(β) [illegible] 3651 (1) [illegible] Προσθήκης Α.6)
(β) Αποθήκευση και διαχωρισμός από κόλα φέροντα ετικέτες «FOTO» (βλέπε περιθώριο 240 001 της Προσθήκης Β.4 για τον πίνακα διαχωρισμού).
(γ) Όριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ ομάδων (βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6).
9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)
(α) Διαχωρισμός από κόλα φέροντα ετικέτα «FOTO» βλέπε περιθώριο 240 001 της Προσθήκης Β.4 για πίνακες διαχωρισμού.
(β) Όριο δείκτου της ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο, εφ' όσον εάν υπάρχουν κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ δεν υπερβαίνεται ο επιτρεπόμενος αριθμός. Βλέπε περιθώριο 3659(5) της Προσθήκης Α.6.
(γ) Ανώτατον επίπεδον ακτινοβολίας για οχήματα και μεγάλα δοχεία προκειμένου περί πλήρους φορτίου 2 mSv/h στην επιφάνεια, (200 mrem)
..mSv/h σε 2 μέτρα από την επιφάνεια 10 mrem) (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).
Επίσης, για οχήματα - 20 mSv/h σε οποιαδήποτε κανονικώς καταληφθείσα θέση - βλέπε περιθώριο 3659(8) της Προσθήκης Α.6.
10. Μεταφορά εις χύμα σε οχήματα και δοχεία.
Δεν έχει εφαρμογήν.
11. Μεταφορά με βυτία και TANK ΨΟΝΤΑΙΝΕΡΣ.
Δεν έχει εφαρμογήν.
12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
(βλέπε προσθήκες Α.9 και Β.4).
Δοχεία - ετικέτες συμφώνως προς μοντέλα 7Α, 7Β ή 7Γ και στις τέσσερες πλευρές.
Οχήματα και μεγάλα δοχεία - επιγραφές σύμφωνα με το μοντέλο της Προσθήκης /Δ, περιθώριο 240 1010, σε κάθε πλευρά και επί του οπισθίου τοιχώματος του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).
13. Απαγόρευση επί μικτής φορτώσεως
Βλέπε περιθώριο 2700(3).
14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)
Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.
15. Άλλες διατάξεις
(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.
(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

Πίνακας 9

Ύλες
Ραδιενεργείς ύλες σε κόλα Τύπου Β(U)

Ουδέν όριον επί της ποσότητας ανά κόλον εκτός ως προβλέπεται υπό των πιστοποιητικών εγκρίσεως. Εάν υπάρχουν διασπαστές ύλες, οι όροι του πίνακα ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.

Ετικέττες κινδύνου επί των κόλων
(Βλέπε Προσθήκη Α.9)
Ετικέτες των μοντέλων 7Α, 7Β ή 7Γ θα τοποθετούνται εξωτερικώς στις αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της προσθήκης Α.6 για κατηγορία κόλου.

2. Συσκευασία/Κόλον
Τύπος Β(U), συμφώνως προς τους όρους του σχεδίου τους διδομένους στα περιθώρια 3600 έως 3603 της Προσθήκης Α.6, τους απαιτούντας την μονόπλευρον έγκρισιν της αρμοδίας αρχής, βλέπε περιθώριο 3672 της Προσθήκης Α.6.
3. Ανώτατον επίπεδον ακτινοβολίας Κόλου
2mSv/h στην επιφάνεια του κόλου και 10 0,1 mSv/h σε 1 μέτρο από την επιφάνεια αυτή. (Βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6).
Εκτός της περιπτώσεως πλήρους φορτίου, οπότε το όριον είναι 10 mSv/h στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 0,1 mSv/h σε 1 μέτρο από της επιφανείας αυτής. (Βλέπε περιθώριο 3659 (7) της Προσθήκης Α.6).
4. Μικτή συσκευασία
Βλέπε περιθώριο 3650 της Προσθήκης Α.6.
5. Μόλυνση επί κόλων
Μη-ωρισμένα όρια εξωτερικής μολύνσεως: β/γ/χαμηλής τοξικότητος α πομποί: 3.7 BQ/cm^2 (10^{-4}MCI)
Φυσικόν/εξασθενημένον ουράνιον/φυσικόν θόριον: 37 BQ/cm^2 (10^{-3}MCI)

Λοιποί Πομποί άλφα: 0.37BQ/cm^2 (10^{-5}MCI)

Για πλήρεις λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) κόλων

Τα κόλα θα μαρκάρονται εξωτερικώς καθαρά και ανεξίτηλα με:

(Ι) «ΤΥΠΟΣ Β(U)»

(ΙΙ) ένδειξη αναγνωρίσεως της αρμοδίας αρχής

(ΙΙΙ) το βάρος εάν άνω των 50 KG

(IV) το τρίφυλλο σύμβολο ενσωματωμένο ή σταμπαρισμένο επί του εξωτερικού του ανθεκτικού εις το πυρ και ύδωρ δοχείου.

7. Έγγραφα Μεταφοράς

(α) Για ανακεφαλαίωση των όρων της εγκρίσεως και κοινοποιήσεως, βλέπε περιθώριο 2704.

(β) Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες κόλων Τύπου Β(U), 7, πίνακος 9, ADR», με την ονομασίαν υπογραμμισμένην, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.

(γ) Πιστοποιητικόν μονοπλεύρου εγκρίσεως του σχεδίου του κόλου απαιτείται, βλέπε περιθώριο 3672 της Προσθήκης Α.6.

(δ) Προ της φορτώσεως οιουδήποτε κόλου ο αποστολεύς θα έχει στην κατοχή του όλα τα σχετικά πιστοποιητικά εγκρίσεως.

(ε) Προ της πρώτης φορτώσεως συγκεκριμένου σχεδίου κόλου, εάν η ενέργεια είναι μεγαλύτερη των $3 \times 10^3 A_2$ ή $3 \times 10^3 A_1$, ως ενδείκνυται, ή 3×10^6Cl, οποιουδήποτε τούτων όντος χαμηλοτέρου, ο αποστολεύς θα εξασφαλίζει όπως αντίγραφα των πιστοποιητικών εγκρίσεως της αρμοδίας αρχής παρασχεθούν στις αρμόδιες αρχές τις θιγόμενες εκ της μετακινήσεως, βλέπε περιθώριο 3682(Ι) της Προσθήκης Α.6.

(στ) Προ κάθε φορτώσεως όταν η ενέργεια είναι μεγαλύτερη των $3 \times 10^3 A_2$ ή $3 \times 10^3 A_1$ ως ενδείκνυται, ή 3×10^3Cl, οποιουδήποτε τούτων όντος χαμηλοτέρου, ο αποστολεύς οφείλει να γνωστοποιήσει τούτο στις αρμόδιες αρχές όλων των χωρών των θιγομένων εκ της κινήσεως, κατά προτίμηση προ δεκαπέντε ημερών ως λεπτομερώς αναφέρεται στο περιθώριο 3682 της Προσθήκης Α.6.

(ζ) Οσάκις επωφελούμεθα της επιτρεπομένης ηυξημένης ενεργείας ανά κόλον διότι η ύλη είναι ειδικής μορφής, (βλέπε παραγράφους (α) και (στ) ανωτέρω), απαιτείται μονόπλευρον πιστοποιητικόν εγκρίσεως σχεδίου ειδικής μορφής (βλέπε περιθώριο 3671 της Προσθήκης Α.6.).

8. Αποθήκευση και προώθηση

(α) Οποιεσδήποτε οδηγίες του πιστοποιητικού εγκρίσεως της αρμοδίας αρχής θα τηρούνται.

(β) Αποθήκευση και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριο 3658(1) της Προσθήκης Α.6.

(γ) Αποθήκευση και διαχωρισμός από κόλα φέροντα τον τίτλον «FOTO» - βλέπε περιθώριο 240 001 της Προσθήκης Β.4 για πίνακα διαχωρισμού.

(δ) Όριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων - βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.

(ε) Ο αποστολεύς θα έχει τηρήσει τους προ της χρήσεως και προ της φορτώσεως όρους των περιθωρίων 3643 και 3644 της Προσθήκης Α.6.

(στ) Η θερμοκρασία των προσιτών επιφανειών του κόλου δε θα υπερβαίνει τους 50°C υπό σκιάν εκτός εάν η μεταφορά τελεί υπό συνθήκας (όρους) πλήρους φορτίου, οπότε το όριον είναι 82°C (βλέπε περιθώρια 3602(3) (β) και 3603(8) της Προσθήκης Α.6).

(ζ) Εάν η μέση επιφανειακή ροή θερμότητος από κόλον υπερβαίνει τα 15 W/M^2, τότε το κόλον θα μεταφέρεται ως πλήρες φορτίο.

9. Μεταφορά κόλων με οχήματα και δοχεία (CONTAINERS)

(α) Διαχωρισμός από κόλα φέροντα τον τίτλον «FOTO» - βλέπε περιθώριο 240 001 της Προσθήκης Α.4 για πίνακα διαχωρισμού.

(β) Όριο δείκτου ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο εφ' όσον εάν υπάρχουν κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ δεν υπερβαίνεται ο επιτρεπόμενος αριθμός. Βλέπε περιθώριο 3659(5) της Προσθήκης Α.6.

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία προκειμένου περί πλήρους φορτίου

2 mSv/h 200 mrem/h στην επιφάνεια

0,1mSv/h 10 mrem/h σε 2 μέτρα από την επιφάνεια

Βλέπε περιθώριο 3659(7) της Προσθήκης Α.6.

Επίσης για οχήματα - 20 μSv/h σε οποιαδήποτε κανονικώς καταληφθείσα θέση - βλέπε περιθώριο 3659(8) της Προσθήκης Α.6.

(CO- 10. Μεταφορά εις χύμα με οχήματα και δε NTAINERS)

Δεν έχει εφαρμογήν.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογήν.

12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS) (Βλέπε Προσθήκες Α.9 και Β.4).

Δοχεία - ετικέτες μοντέλων 7Α, 7Β ή 7Γ και στις τέσσερις πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως προς το μοντέλο της Προσθήκης Β.4 περιθώριο 240 010 σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).

13. Απαγόρευση επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

15. Άλλες διατάξεις

(α) Διατάξεις περί Ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

1. Ύλες Ραδιενεργείς ύλες Τύπου Β(Μ) κόλων Ήτοι σχεδίων κόλου Τύπου Β το οποίον δεν πληροί έναν ή περισσοτέρους των ειδικών προσθέτων όρων για κόλα Τύπου Β(U (βλέπε περιθώριο 3603 της Προσθήκης Α.6). Ουδέν όριον επί της ποσότητος ανά κόλον εκτός ως προβλέπεται υπό του πιστοποιητικού εγκρίσεως. Εάν υπάρχουν διασπαστές ύλες οι όροι του πίνακος ΙΙ θα τηρούνται επιπροσθέτως των όρων του παρόντος πίνακος.	Πίνακας 10 Ετικέττες κινδύνου επί των κόλων Βλέπε Προσθήκη Α.9) Ετικέτες των μοντέλων 7Α, 7Β ή 7Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της προσθήκης Α.6 για κατηγορία κόλου.

2. Συσκευασία/Κόλον

Τύπος Β(Μ), συμφώνως προς τους όρους σχεδίου τους διδομένους στο περιθώριο 3604 της Προσθήκης Α.6 απαιτούντας πολύπλευρον έγκρισιν αρμοδίας αρχής, βλέπε περιθώριο 3673 της Προσθήκης Α.6.

3. Ανώτατον επίπεδον ακτινοβολίας κόλου

2 mSv/h στην επιφάνεια του κόλου και 0,1 mSv/h σε 1 μέτρο από την επιφάνεια αυτή (Βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α.6), εκτός της περιπτώσεως πλήρους φορτίου οπότε το όριο είναι 10 mQv/h στην επιφάνεια του κόλου και μπορεί να υπερβεί τα 0,1 mSv/h σε 1 μέτρο από την επιφάνειαν αυτήν (βλέπε περιθώριο 3659(7) της Προσθήκης Α.6).

4. Μικτή Συσκευασία

Βλέπε περιθώριο 3650 της Προσθήκης Α.6.

5. Μόλυνσις επί κόλων

Μη-ωρισμένα όρια εξωτερικής μολύνσεως:

β/γ/χαμηλής τοξικότητας α πομποί:3,7 B_q/cm^2 (10^{-4}MCI)

Φυσικόν/εξασθενημένον ουράνιον/
φυσικόν θόριον: 37 B_q/cm^2 (10^{-3} MCI/CM^2)
Άλλοι α πομποί: 37 B_q/cm^2 (10^{-5} MCI/CM^2)

Για πλήρες λεπτομέρειες, βλέπε περιθώριο 3651 της Προσθήκης Α.6.

6. Ενδείξεις (μαρκάρισμα) κόλων

Τα κόλα θα μαρκάρονται εξωτερικώς καθαρά και ανεξίτηλα με τον: –

(Ι) «Τύπον Β(Μ)»

(ΙΙ) την ένδειξιν αναγνωρίσεως της αρμόδιας αρχής

(ΙΙΙ) το βάρος του κόλου αν είναι πάνω από 50 χιλιόγραμμα

(ΙV) Το τρίφυλλο σύμβολο ενσωματωμένο ή σταμπαρισμένο στο εξωτερικό του ανθεκτικού στο πυρ και το ύδωρ δοχείου.

7. Έγγραφα μεταφοράς

(α) Για ανακεφαλαίωση των όρων εγκρίσεως και γνωστοποιήσεως - βλέπε περιθώριο 2704.

(β) Το έγγραφο μεταφοράς θα περιλαμβάνει την περιγραφήν «Ραδιενεργείς ύλες κόλων Τύπου Β(Μ), 7, πίναξ 10, ADR», με την ονομασία υπογραμμισμένην, και τις λεπτομέρειες τις οριζόμενες στα περιθώρια 3680 και 3681 της Προσθήκης Α.6.

(γ) Απαιτούνται πιστοποιητικά πολυπλεύρου εγκρίσεως σχεδίου κόλου, βλέπε περιθώριο 3673 της Προσθήκης Α.6.

(δ) Εάν το κόλον είναι σχεδιασμένον κατά τρόπον ώστε να παρέχεται συνεχής εξαερισμός ή εάν το ολικόν περιεχόμενον υπερβαίνει τα $3 \times 10^3 A_2$ ή $3 \times 10^3 A_1$, ως ενδείκνυται ή τα 3×10^4CI, οποιουδήποτε τούτων όντος χαμηλοτέρου, πολύπλευρα πιστοποιητικά φορτώσεως απαιτούνται εκτός εάν η αρμόδια αρχή εξουσιοδοτήσει τη μεταφορά με ειδική διάταξη στο πιστοποιητικό της σχεδίου κόλου, βλέπε περιθώριο 3675 της Προσθήκης Α.6.

(ε) Οσάκις επωφελούμεθα της ηυξημένης ενεργείας ανά κόλον της επιτρεπομένης εάν η ύλη είναι ειδικής μορφής, βλέπε παράγραφον (δ) ανωτέρω, απαιτείται μονόπλευρον πιστοποιητικόν εγκρίσεως σχεδίου ειδικής μορφής (βλέπε περιθώριο 3671 της Προσθήκης Α.6).

(στ) Προ κάθε φορτώσεως ο αποστολέας οφείλει να γνωρίζει στις αρμόδιες αρχές όλων των χωρών των θιγομένων εκ της μεταφοράς κατά προτίμησιν προ δεκαπέντε ημερών ως λεπτομερώς αναφέρεται στο περιθώριο 3682(2) έως (4) της Προσθήκης Α.6.

(ζ) Προ της φορτώσεως οιουδήποτε κόλου, ο αποστολέας θα έχει στην κατοχή του όλα τα σχετικά πιστοποιητικά εγκρίσεως.

8. Αποθήκευση και προώθηση

(α) Θα τηρούνται οιεσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής.

(β) Αποθήκευση και διαχωρισμός από άλλα επικίνδυνα εμπορεύματα - βλέπε περιθώριον 3658(1) της Προσθήκης Α.6.

(γ) Αποθήκευση και διαχωρισμός από κόλα φέροντα ετικέτα «FOTO» - βλέπε περιθώριο 240 001 της Προσθήκης Β4 για πίνακα διαχωρισμού.

(δ) Όριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων - βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.

(ε) Ο αποστολέας θα έχει τηρήσει τους προ της χρήσεως και προ της φορτώσεως όρους των περιθωρίων 3643 και 3644 της Προσθήκης Α.6.

(στ) Εάν η θερμοκρασία επιφανείας του κόλου υπερβαίνει τους 50°C υπό σκιάν το κόλον θα μεταφέρεται ως πλήρες φορτίο - βλέπε περιθώριο 3602(4) (β) της Προσθήκης Α.6.

(ζ) Εάν η μέση ροή επιφανειακής θερμότητος από έναν κόλον υπερβαίνει τα 15 W/M^2, τότε το κόλον θα μεταφέρεται ως πλήρες φορτίο.

(η) Κόλα ειδικώς προοριζόμενα να επιτρέπουν συνεχή εξαερισμόν - βλέπε περιθώριον 3604(2) της Προσθήκης Α.6 - θα μεταφέρονται μόνον υπό πλήρες φορτίο.

9. Μεταφορά κόλων με οχήματα και δοχεία

(α) Διαχωρισμός από κόλα φέροντα ετικέτα «FOTO» - βλέπε περιθώριο 240 001 της Προσθήκης Β4 για τον πίνακα διαχωρισμού.

(β) Όριο δείκτου ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο, εφ' όσον εάν υπάρχουν κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ δεν υπερβαίνεται ο επιτρεπόμενος αριθμός - βλέπε περιθώριον 3659(5) της Προσθήκης Α.6.

(γ) Ανώτατα επίπεδα ακτινοβολίας για οχήματα και μεγάλα δοχεία προκειμένου περί πλήρους φορτίου

2 mSv/h (200 mrem/h) στην επιφάνεια

0,1 mSv/h (10 mrem/h) σε 2 μέτρα από την επιφάνεια

βλέπε περιθώριο 3659(7) της Προσθήκης Α.6. Επίσης για οχήματα 20 mSv/h σε οποιαδήποτε κανονικώς καταληφθείσα θέση - βλέπε περιθώριο 3659(8) της Προσθήκης Α.6.

10. Μεταφορά εις χύμα με οχήματα και δοχεία

Δεν έχει εφαρμογήν.

11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS

Δεν έχει εφαρμογήν.

12. Επιγραφές και ετικέτες επί οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS) (βλέπε Προσθήκην Α9 και Β4)

Δοχεία - ετικέτες των μοντέλων 7Α, 7Β ή 7Γ και στις τέσσερις πλευρές.

Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως προς το μοντέλο της Προσθήκης Β4, περιθώριο 240 010 σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).

13. Απαγόρευση επί μικτής φορτώσεως

Βλέπε περιθώριο 2700(3).

14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS)

Βλέπε περιθώριο 3695(3) της Προσθήκης Α.6.

15. Άλλες διατάξεις

(α) Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

(β) Απολύμανση εν αποθηκεύσει - βλέπε περιθώριο 3695(2) της Προσθήκης Α.6.

1. Διασπαστές Ύλες ήτοι:

ουράνιον - 233, ουράνιον - 235, πλουτόνιον - 238, πλουτόνιον - 239 πλουτόνιον - 241, ή οιαδήποτε ύλη περιέχουσα οιανδήποτε των ανωτέρω, εκτός από μη-ακτινοβοληθέν φυσικόν και εξασθενημένον ουράνιον.

Οι διασπαστές ύλες θα αποστέλλονται επίσης με πλήρη τήρησιν των όρων του ενός εκ των άλλων πινάκων, ως ενδείκνυται για την ραδιενέργειαν.

Πίνακας 11

Ετικέττες κινδύνου επί των κόλων

Βλέπε Προσθήκη Α.9)

Διασπαστή Κλάση Ι – ετικέτες σύμφωναα προς τα μοντέλα 7Α, 7Β ή 7Γ.

Διασπαστή Κλάση ΙΙ – ετικέτες σύμφωνα προς τα μοντέλα 6Β ή 6Γ.

Διασπαστή Κλάση ΙΙΙ – ετικέτες συμφώνως προς το μοντέλο 7Γ μόνον

Ετικέτες θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές, βλέπε περιθώρια 3653 έως 3655 της Προσθήκης Α6 για κατηγορία κόλου.

2. Συσκευασία/Κόλον

(α) Οι κατωτέρω ύλες οι οριζόμενες πλήρως στο περιθώριο 3610 της Προσθήκης Α.6 εξαιρούνται των όρων ειδικής συσκευασίας του παρόντος πίνακος:

(Ι) Διασπαστές ύλες σε ποσότητα μη υπερβαίνουσα τα 15 G.

(ΙΙ) Φυσικόν ή εξασθενημένον ουράνιον ακτινοβοληθέν (IRRADIATED σε θερμικόν αντιδραστήρα.

(ΙΙΙ) Αραιωμένα διαλύματα υδρογόνου σε περιορισμένα συμπυκνώματα και ποσότητες.

(ΙV) Εμπλουτισμένον ουράνιον με όχι άνω του 1 τοις εκατόν ουρανίου-235, το οποίον δεν πρέπει να σχηματίζει διάταξιν πλέγματος εάν μέταλλον ή οξείδιον.

(V) Ύλες διανεμημένες όχι άνω των 5 G (Γραμμαρίων ανά όγκον 10 λίτρων.

(VΙ) Πλουτόνιον όταν είναι ολιγότερο του 1 KG ανά κόλον και όταν όχι άνω του 20 τοις εκατόν της μάζης περιλαμβάνει πλουτόνιον - 239 ή 241.

(VΙΙ) Εμπλουτισμένον διάλυμα νιτρικού ουρανυλίου περιέχον ουράνιον με όχι άνω του 2 τοις εκατόν ουράνιον - 235.

(β) Άλλως, τα κόλα θα είναι σύμφωνα με τους όρους του σχεδίου της Διασπαστής Κλάσεως Ι, ΙΙ ή ΙΙΙ τους διδομένους στα περιθώρια 3611 έως 3624 της Προσθήκης Α.6 και θα έχουν την έγκρισιν της αρμόδιας αρχής, οσάκις απαιτείται, ως λεπτομερώς αναφέρεται στο περιθώριο 3674 της Προσθήκης Α.6.

3. Ανώτατο επίπεδο ακτινοβολίας κόλου
Βλέπε κατάλληλον πίνακα.
4. Μικτή συσκευασία
Βλέπε περιθώριο 3650 της Προσθήκης Α.6.
5. Μόλυνση επί κόλων
Βλέπε κατάλληλον πίνακα.
6. Ενδείξεις (μαρκάρισμα) κόλων
Βλέπε κατάλληλον πίνακα.
7. Έγγραφα μεταφοράς
(α) Για ανακεφαλαίωση των όρων της εγκρίσεως και κοινοποιήσεως - βλέπε περιθώριον 2704.
(β) Το έγγραφον μεταφοράς θα περιλαμβάνει τις λεπτομέρειες τις οριζόμενες στον κατάλληλο πίνακα για τη φύση του περιεχομένου με την λέξιν «Διασπαστή» προτασσομένην της περιγραφής και υπογραμμισμένην.
(γ) Μπορούν να απαιτηθούν πιστοποιητικά μονοπλεύρου ή πολυπλεύρου εγκρίσεως σχεδίου κόλου, βλέπε περιθώριο 3674 της Προσθήκης Α.6.
(δ) Τα σχέδια κόλων Διασπαστής Κλάσεως ΙΙ συμμορφούμενα προς το περιθώριον 3620 της Προσθήκης Α.6 θα έχουν πιστοποιητικά πολυπλεύρου εγκρίσεως της φορτώσεως. Ένα τέτοιο σχέδιο κόλου δεν απαιτεί προηγουμένην γνωστοποίησιν εκτός εάν ειδικώς ορίζεται στην έγκριση φορτώσεως της αρμόδιας αρχής.
(ε) Τα σχέδια κόλων Διασπαστής Κλάσεως ΙΙΙ θα έχουν πιστοποιητικά πολυπλεύρου εγκρίσεως της φορτώσεως εκτός εάν αρμόδια αρχή εξουσιοδοτεί τη μεταφορά δι' ειδικής διατάξεως στο πιστοποιητικό της σχεδίου κόλου, βλέπε περιθώριο 3675 της Προσθήκης Α.6.
(στ) Προ κάθε φορτώσεως κόλου Διασπαστής Κλάσεως ΙΙΙ το οποίον απαιτεί πολύπλευρον έγκρισιν του σχεδίου του κόλου, βλέπε περιθώριο 3674 της Προσθήκης Α.6, ο αποστολέας οφείλει να ενημερώσει τις αρμόδιες αρχές όλων των χωρών των θιγομένων εκ της μετακινήσεως κατά προτίμησιν προ δεκαπέντε ημερών ως λεπτομερώς αναφέρεται στο περιθώριο 3682(2) έως (4) της Προσθήκης Α.6.
(ζ) Προ της φορτώσεως οιουδήποτε κόλου ο αποστολέας θα έχει στην κατοχή του οιαδήποτε σχετικά πιστοποιητικά εκγρίσεως.
8. Αποθήκευση και προώθηση
(α) Πρέπει να τηρούνται οποιεσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής.
(β) Όριο δείκτου ολικής μεταφοράς για αποθήκευση - 50 ανά ομάδα με 6 μέτρα μεταξύ των ομάδων - βλέπε περιθώριο 3658(2) έως (5) της Προσθήκης Α.6.
(γ) Ο αποστολέας θα έχει συμμορφωθεί με τους προ της χρήσεως όρους του περιθωρίου 3643 της Προσθήκης Α.6.
9. Μεταφορά κόλων με οχήματα και δοχεία.
(α) Θα τηρούνται οποιεσδήποτε οδηγίες των πιστοποιητικών εγκρίσεως της αρμόδιας αρχής
(β) Όριο δείκτου ολικής μεταφοράς - 50. Το όριο αυτό δεν ισχύει για πλήρες φορτίο, εφ' όσον, εάν υπάρχουν κόλα Διασπαστής Κλάσεως ΙΙ ή ΙΙΙ, ο επιτρεπόμενος αριθμός δεν υπερβαίνεται. Βλέπε περιθώριον 3659(5) της Προσθήκης Α6.
10. Μεταφορά εις χύμα με οχήματα και δοχεία
(α) Ουδείς περιορισμός για διασπαστό υλικό μέχρι συνολικώς 15G (γραμμάρια) ή για διαλύματα εντός των ορίων ωρισμένου συμπυκνώματος και ποσότητος, βλέπε παράγραφον 2(α)(Ι), (ΙΙΙ) και (VII) και περιθώριο 3610 της Προσθήκης Α.6.
(β) Δεν έχει εφαρμογήν για κόλα Διασπαστής Κλάσεως Ι ή ΙΙ.
(γ) Επιτρέπεται κατά την Διασπαστήν Κλάσιν ΙΙΙ μόνον εάν καθορίζεται στο πιστοποιητικό της αρμόδιας αρχής.
11. Μεταφορά με βυτιοφόρα και TANK CONTAINERS
Δεν έχει εφαρμογή.
12. Επιγραφές και ετικέτες επί των οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων (CONTAINERS) (βλέπε Προσθήκες Α9 και Β4).
Δοχεία - ετικέτες των μοντέλων 6Α, 6Β ή 6Γ και στις τέσσερις πλευρές.
Οχήματα και μεγάλα δοχεία - επιγραφές συμφώνως προς το μοντέλο της Προσθήκης Β4, περιθώριο 240 010, σε κάθε πλευρά και στο οπίσθιο τοίχωμα του οχήματος (βλέπε περιθώρια 3659(6) και 71 500).
13. Απαγορεύσεις επί μικτής φορτώσεως
Βλέπε περιθώριο 2700(3)
14. Απολύμανση οχημάτων, βυτιοφόρων, TANK CONTAINERS και δοχείων
Βλέπε κατάλληλον πίνακα.
15. Άλλες διατάξεις
Διατάξεις περί ατυχημάτων - βλέπε περιθώριο 3695(1) της Προσθήκης Α.6.

1. Ύλες
Ραδιενεργείς ύλες μεταφερόμενες υπό ειδικήν διευθέτησιν
Εάν δεν είναι δυνατόν να τηρηθούν οι όροι του σχεδίου κόλου ή της φορτώσεως οι αποστολές θα μεταφέρονται υπό ειδικήν διευθέτηση η οποία θα εξασφαλίζει ότι το γενικόν επίπεδον ασφαλείας δε θα είναι μικρότερον από ό,τι θα ήτο εάν ετηρούντο όλοι οι ισχύοντες όροι. Βλέπε περιθώριο 3676 της Προσθήκης Α.6.
Σημείωση: Για ανακεφαλαίωση των όρων της εγκρίσεως και γνωστοποιήσεως, βλέπε περιθώριο 2704.

Πίνακας 12
Ετικέττες κινδύνου επί των κόλων
Βλέπε Προσθήκη Α.9)
Ετικέτες συμφώνως προς το μοντέλο 7Γ θα τοποθετούνται εξωτερικώς σε δύο αντίθετες πλευρές εκτός αν άλλως προβλέπεται υπό του πιστοποιητικού της αρμόδιας αρχής.
Βλέπε περιθώριο 3655(1) της Προσθήκης Α6.

Ανακεφαλαίωση όρων εγκρίσεως και προειδοποιήσεως 2704

α) Έγκριση υλών ειδικής μορφής, και σχεδίων κόλων

	Αντικείμενον εγκρίσεως	Αρμόδια αρχή της οποίας απαιτείται η έγκριση
1	Ύλη ειδικής μορφής εκτός των ειδών εκείνων που ορίζονται στους Πίνακες 3 και 4	Χώρα προελεύσεως
2	Τύπος Α, LSA και I.I.S.	Ουδεμία εκτός εάν το περιεχόμενο είναι διασπαστό και δεν εξαιρείται των κατά το περιθώριο 3610 της Προσθήκης Α6 όρων περί διασπαστού: Χώρα προελεύσεως
3	Τύπος Β (U)	Χώρα προελεύσεως
4	Τύπος Β (Μ)	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες
5	Διασπαστά κόλα	
	Σχέδια κόλου συμμορφούμενα προς το περιθώριο 3620, 3623 ή 3624 της Προσθήκης Α6	Ουδεμία
	Σχέδια κόλου συμμορφούμενα προς το περιθώριο 3616 ή 3622 της Προσθήκης Α6	Χώρα προελεύσεως
	Όλα τα άλλα σχέδια κόλων	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες

Σημείωση: «Χώρα προελεύσεως» αναφέρεται στη χώρα από την οποία προήλθε το σχέδιο.
Κόλα των διασπαστών κλάσεων εμπίπτουν επίσης σε μίαν ή άλλην των ανωτέρω κατηγοριών 2, 3 ή 4 σχεδίων κόλων και οι σχετικές διατάξεις ισχύουν επίσης γι' αυτά.

(β) Έγκριση Φορτώσεων και Προειδοποίηση

Κόλον	Αρμόδια Αρχή της οποίας απαιτείται η έγκριση για κάθε φόρτωση	Προειδοποίηση κάθε φορτώσεως
1. Τύπος Α, LSA και LLS	Ουδεμία	Ουδεμία
2. Τύπος Β(U)	Ουδεμία	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες όταν περιεχόμενον υπερβαίνει τα $3 \times 10^3 A_1$ ή τα $3 \times 10^3 A_2$, ως ενδείκνυται ή τα 3×10^4 CI, οιουδήποτε τούτων όντος χαμηλωτέρου
3. Τύπος Β(Μ) - Συνεχώς εξαεριζόμενος	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες
4. Τύπος Β(Μ) - Μη-συνεχώς εξαεριζόμενος	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες όταν το περιεχόμενον υπερβαίνει τα $3 \times 10^3 A_1$ ή $3 \times 10^3 A_2$, ως ενδείκνυται ή τα 11.1×10^2 TBq (3×10^4CI, οιουδήποτε τούτων όντος χαμηλωτέρου.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες
5. Διασπαστά Κόλα		
Διασπαστή Κλάσις Ι	Ουδεμία.	Ουδεμία
Διασπαστή Κλάσις ΙΙ	Κόλα συμμορφούμενα προς περιθώριο 3620 τησαρχής. Προσθήκης Α6 μόνον: Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Ουδεμία εκτός εάν ορίζεται στην έγκριση φορτώσεως της αρμόδιας
Διασπαστή Κλάσις ΙΙΙ	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.
6. Κόλα υπό την επιφύλαξη της μεταφοράς βάσει ειδικής διεθετήσεως.	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες	Χώρα προελεύσεως και όλες οι καθ' οδόν χώρες.

Σημείωση: Προ της φορτώσεως κόλου Τύπου Β(U) το περιεχόμενο του οποίου υπερβαίνει τα $3 \times 10^3 A_1$ ή $3 \times 10^3 A_2$, ως ενδείκνυται, ή τα 3×10^4CI, οιουδήποτε τούτων όντος χαμηλωτέρου, ο αποστολέας οφείλει να εξασφαλίσει ότι αντίγραφα κάθε ισχύοντος πιστοποιητικού αρμόδιας αρχής αφορώντος το σχέδιο έχουν υποβληθεί στην αρμόδια αρχή των χωρών εκείνων εις την εδαφικήν περιφέρειαν των οποίων πρόκειται το κόλον να μεταφερθεί. Ως χώρα προελεύσεως αναφέρεται η χώρα από την οποίαν προήλθε η φόρτωσις.

Κόλα των διασπαστών κλάσεων εμπίπτουν επίσης εις την μίαν ή την άλλην επικεφαλίδα του παρόντος Πίνακα και οι σχετικές διατάξεις έχουν επίσης εφαρμογήν εις αυτά.

2705
-2799

ΚΛΑΣΗ 8
ΔΙΑΒΡΩΤΙΚΕΣ ΟΥΣΙΕΣ

1. Κατάλογος ουσιών

2800

(1) Μεταξύ των ουσιών και ειδών που καλύπτονται από τον τίτλο της Κλάσεως 8.1, όσες αναγράφονται στο περιθώριο 2801 ή εκφράζονται από συλλογικό τίτλο του ιδίου περιθωρίου, υπόκεινται στις διατάξεις και όρους που εκτίθενται στα περιθώρια 2800 (2) έως 2822 και στις διατάξεις του παρόντος Παραρτήματος και Παραρτήματος Β. Τότε δε θεωρούνται ως ουσίες και είδη της ADR 2.

Ουσίες της Κλάσεως 8 (πλην των ουσιών των 6, 24 και 25) που ταξινομούνται στα διάφορα είδη του περιθωρ. 2801, θα πρέπει να ανήκουν σε μία από τις ακόλουθες ομάδες που χαρακτηρίζονται με το γράμμα (Α), (Β) ή (C), ανάλογα με το βαθμό διαβρωτικότητος:

Γράμμα (Α): Εξαιρετικά διαβρωτικές
Γράμμα (Β): Διαβρωτικές
Γράμμα (C): Ελαφρά διαβρωτικές.

Όταν, σαν αποτέλεσμα προσθηκών, ουσίες της Κλάσεως 8 περνούν σε κατηγορίες διαβρωτικότητας άλλες από εκείνες στις οποίες ανήκουν οι ουσίες που καθορίζονται στο περιθώριο 2801, αυτά τα μίγματα ή διαλύματα θα πρέπει να ταξινομούνται στα είδη και στα ψηφία που ανήκουν βάσει του πραγματικού βαθμού διαβρωτικότητάς των.

Όταν, σαν αποτέλεσμα προσθηκών, ουσίες της Κλάσεως 8 περνούν σε κατηγορία που έχει σημείο αναφλέξεως κάτω των 21° C, τα μίγματα ή διαλύματα αυτά θα πρέπει να ταξινομούνται στα αντίστοιχα είδη ή ψηφία της Κλάσεως 3, λαμβανομένης υπ' όψιν της διαβρωτικότητάς των.

Όταν, σαν αποτέλεσμα προσθηκών ουσιών της Κλάσεως 6.1, ουσίες της Κλάσεως 8 αποκτούν υπεροχή στις τοξικές ιδιότητες, τα μίγματα ή διαλύματα αυτά θα ταξινομούνται στα αντίστοιχα είδη και ψηφία (γράμματα) της Κλάσεως 6.1.

(2) Για τις απαιτήσεις συσκευασίας των περιθωρίων 2805(2), 2806(2) και 2807(2), ουσίες ή μίγματα ουσιών με σημείο τήξεως πάνω από 45° C, θεωρούνται σαν στερεά.

(3) Διαβρωτικά εύφλεκτα υγρά με σημείο αναφλέξεως κάτω από 21°C, εκτός ωρισμένων οξίνων αλαγόνων της

1. Ο τίτλος της Κλάσεως 8 καλύπτει ουσίες οι οποίες με χημική δράση προσβάλλουν επιθηλιακούς ιστούς (δέρμα, βλεννογόνους ή οφθαλμούς) με τους οποίους έρχονται σε επαφή και ουσίες οι οποίες σε περίπτωση διαρροής είναι ικανές να βλάψουν ή να καταστρέψουν άλλα εμπορεύματα ή τα μέσα μεταφοράς και που μπορούν επίσης να προκαλέσουν και άλλες καταστροφές. Ο τίτλος της Κλάσεως 8 καλύπτει επίσης ουσίες που σχηματίζουν διαβρωτικό υγρό μόνο παρουσία ύδατος, ή που δημιουργούν διαβρωτικούς ατμούς ή ομίχλη επί παρουσία φυσιολογικής υγρασίας του αέρος.

Απουσία άλλων δοκιμασιών, η διαβρωτική δράση μπορεί να προσδιορίζεται με πειράματα επί ζώων.

Ουσίες που προκαλούν εμφανή νέκρωση του δερματικού ιστού στο σημείο επαφής όταν δοκιμάζονται επί αθίκτου δέρματος ζώου επί χρονική περίοδο έως 4 ωρών, είναι ουσίες της ομάδος (C).

Ουσίες οι οποίες, ενώ δεν είναι επικίνδυνες για τον επιθηλιακό ιστό, μπορούν να διαβρώσουν χάλυβα ή αλουμίνιο, είναι επίσης ουσίες της ομάδος (C).

Ουσίες που προκαλούν εμφανή νέκρωση του δερματικού ιστού στο σημείο επαφής όταν δοκιμαστούν σε άθικτο δέρμα ζώου επί περιόδου πλέον των τριών λεπτών και έως 60 λεπτά, είναι ουσίες της ομάδος (Β).

Άλλες ουσίες καλυπτόμενες από τον τίτλο της κλάσεως 8, οι οποίες είναι περισσότερο διαβρωτικές από τις ουσίες της ομάδος (Β), είναι ουσίες της ομάδος (Α).

2. Για τις ποσότητες ουσιών που αναγράφονται στο περιθώριο 2801 και που δεν υπόκεινται στις διατάξεις της παρούσης Κλάσεως, είτε στο παρόν Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθώριο 2801α.

36°.(Β), είναι ουσίες της Κλάσεως 3 (βλέπε περιθώριο 2301, 21° έως 26°).

(4) Διαβρωτικές ουσίες με μεγάλη τοξικότητα στην εισπνοή, όπως προσδιορίζεται στην υποσημείωση 1 του περιθωρίου 2600(1), είναι ουσίες της Κλάσεως 6.1 (βλέπε περιθώριο 2601).

(5) Οι χημικοί ασταθείς ουσίες της Κλάσεως 8 θα πρέπει να γίνονται δεκτές για μεταφορά μόνο αν έχουν ληφθεί τα κατάλληλα μέτρα προλήψεως της επικινδύνου αποσυνθέσεώς των ή πολυμερισμού κατά τη μεταφορά. Για το σκοπό αυτό, θα πρέπει ιδιαίτερα να εξασφαλίζεται ότι τα δοχεία δεν περιέχουν οποιαδήποτε ουσία που μπορεί να προκαλέσει ή επιταχύνει τις αντιδράσεις αυτές.

(6) Το σημείο αναφλέξεως που αναφέρεται κατωτέρω θα πρέπει να καθορίζεται με τον τρόπο που περιγράφεται στην Προσθήκη Α.3.

ΠΑΡΑΤΗΡΗΣΗ: Ακόμη και όταν καμμία ουσία δεν ταξινομείται υπό τα ψηφία (Α), (Β) ή (C) των διαφόρων ειδών, ουσίες, διαλύματα, μίγματα και παρασκευάσματα μπορούν να ταξινομούνται υπό τα ψηφία αυτά, σύμφωνα με τα κριτήρια που εκτίθενται στο περιθώριο 2800. 2801

Α. Όξινες ουσίες

Ανόργανα οξέα

1. Θειϊκό οξύ και παρόμοιες ουσίες, όπως:

α) χρωμοθειϊκό οξύ, τριξείδιο θείου, OLEUM (καπνίζον θειϊκό οξύ).

β) αλκυλο-σουλφονικά και αρυλο-σουλφονικά οξέα περιέχοντα περισσότερο από 5% ελευθέρου θειϊκού οξέος, θειϊκό οξύ, κατάλοιπα θειϊκού οξέος, υδατικά διαλύματα διθειϊκών, νιτροθειϊκό οξύ, ιλύς μολύβδου περιέχουσα θειϊκό οξύ.

(C)...

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Ιλύς μολύβδου περιέχουσα θειϊκό οξύ λιγώτερο από 3% ελεύθερο οξύ είναι ουσία της Κλάσεως 6.1. (βλέπε περιθώριο 2601, 63° (C)).

2. Αλκυλο-σουλφονικά και αρυλο-σουλφονικά οξέα, περιέχοντα το πολύ 5% ελευθέρου θειϊκού οξέος, είναι ουσίες της 34°.

2° Νιτρικά οξέα, όπως:

α) νιτρικό οξύ περιέχον πλέον του 70% ελευθέρου οξέος, ερυθρό καπνίζον νιτρικό οξύ.

β) νιτρικό οξύ περιέχον το πολύ 70% καθαρού οξέος.

3°. Μίγματα ανοργάνων οξέων, εξαιρέσει του υδροφθορικού οξέος, όπως:

α) μίγματα θειϊκου οξέος με περισσότερο από 30% νιτρικό οξύ.

β) μίγματα θειϊκου οξέος με 30% το πολύ καθαρού νιτρικού οξέος. μίγματα θειϊκού οξέος με υδροχλωρικό οξύ, μίγματα νιτρικού οξέος (περιέχοντα το πολύ 30% HNO_3)με οξεικό οξύ και φωσφορικό οξύ.

1. Μίγματα νιτρικού οξέος με υδροχλωρικό οξύ δεν θα γίνονται δεκτά για μεταφορα.

2. Μίγματα καταλοίπων θειϊκού και νιτρικού οξέος που δεν απονιτρώθηκαν, δεν γίνονται δεκτά για μεταφορά.

4°. Διαλύματα υπερχλωρικού οξέος:

β) Υδατικά διαλύματα υπερχλωρικού οξέος περιέχοντα το πολύ 50% καθαρού οξέος.

ΠΑΡΑΤΗΡΗΣΗ:

Υδατικά διαλύματα υπερχλωρικού οξέος περιέχοντα περισσότερο από 50% αλλά το πολύ 72.5% καθαρού οξέος είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501,3°).

Διαλύματα περιέχοντα πλέον του 72,5% καθαρού οξέος δεν γίνονται για μεταφορά. Το αυτό ισχύει και για μίγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό πλην νερού.

5°. Διαλύματα αλογονιδίων υδρογόνου (με εξαίρεση το υδροφθορικό οξύ), όπως:

β) διαλύματα υδροβρωμικού οξέος, διαλύματα υδροχλωρικού οξέος, διαλύματα ιδριωδικού οξέος, υδατικά διαλύματα ουσιών της παραγρ. 21 και 22 (β) με εξαίρεση τα υδατικά διαλύματα χλωριούχου αλουμινίου και τα υδατικά διαλύματα βρωμιούχου αλουμινίου.

γ) υδατικά διαλύματα ουσιών της παρ. 22 (γ), υδατικά διαλύματα βρωμιούχου αλουμινίου, υδατικά διαλύματα χλωριούχου αλουμινίου.

ΠΑΡΑΤΗΡΗΣΗ:

Το βρωμιούχο υδρογόνο και χλωριούχο υδρογόνο είναι ουσίες της Κλάσεως 2 (βλέπε περιθώριο 2201, 3° (ΑΤ)και 5°).

6°. Άνυδρο υδροφθορικό οξύ (φθοριούχο υδρογόνο), υδατικά διαλύματα υδροφθορικού οξέος περιέχοντα πλέον του 85% άνυδρο υδροφθορικό οξύ.

ΠΑΡΑΤΗΡΗΣΗ:

Για τις ουσίες αυτές προβλέπονται και εφαρμόζονται ειδικές συνθήκες συσκευασίες (βλέπε περιθ. 2803).

7°. α) υδατικά διαλύματα υ δροφθορικού οξέος περιέχοντα το πολύ 60% αλλά το πολύ 85% άνυδρο υδροφθορικό οξύ, μίγματα ανοργάνων οξέων με υδατικά διαλύματα υδροφθορικού οξέος.

β) υδατικά διαλύματα υδροφθορικού οξέος περιέχοντα το πολύ 60% ανύδρου υδροφθορικού οξέος.

8°. Διαλύματα υδροβαροφθορικού οξέος:

β) Υδατικά διαλύματα υδροφθορικού οξέος περιέχοντα το πολύ 78% καθαρού οξέος.

ΠΑΡΑΤΗΡΗΣΗ:

Διαλύματα υδροφθορικού οξέος περιέχοντα πλέον του 78% καθαρού οξέος δεν γίνονται δεκτά για μεταφορά.

9°. β) Υδροφθοριπυριτικό οξύ (H_2SiF_6).

10°. Λοιπά φθοριο - οξέα, όπως:

α) φθοριο - σουλφονικό οξύ

β) διφθοριο - φωσφορικό οξύ (άνυδρο), φθοριο - φωσφορικό οξύ (άνυδρο), εξαφθοριο - φωσφορικό οξύ.

11°. Λοιπά ανόργανα οξέα, όπως:

α) σεληνικό οξύ

β) διαλύματα χρωμικού οξέος.

ΠΑΡΑΤΗΡΗΣΗ:

Το άνυδρο τριοξείδιο χρωμίου είναι ουσία της Κλάσεως 5.1. (βλέπε περιθώριο 2501, 10°).

γ) Χλωροπλατινικό οξύ, φωσφορικό οξύ.

Ανόργανα αλογονίδια, όξινα άλατα και άλλες αλογονωμένες ουσίες.

21°. Υγρά αλογονίδια και άλλες υγρές αλογονωμένες ουσίες (πλην των φθοριούχων ενώσεων), οι οποίες, σε επαφή με υγρό αέρα ή νερό εκλύουν όξινους ατμούς, όπως:

α) χλωροσουλφονικό οξύ ($SO_2(OH)$ CL), χλωριούχο χρωμύλιο (οξυχλωριούχο χρώμιο) (CRO_2CL_2, διχλωριούχο διαθ. θείο (S_2CL_2, χλωριούχο διοξείδιο θείου (SO_2CL_2), χλωριούχο οξείδιο θείου ($SOCL_2$, διχλωριούχο θείο (SCL_2, τετραχλωριούχο βανάδιο (VCL_4), τριβρωμιούχο βόριο (BBR_3).

β) χλωριούχο πυροσουλφουρύλιο ($S_2O_5CL_2$, άνυδρος χλωριούχος κασσίτερος ($SNCL_4$, χλωριούχο θειοφωσφορύλιο ($PSCL_3$, οξυχλωριούχος φωσφόρος (χλωριούχο φωσφορύλιο, $POCL_3$), οξυτριχλωριούχο βανάδιο ($VOCL_3$, πενταχλωριούχο αντιμόνιο ($SB\ CL_5$ και μη υδατικά διαλύματα πενταχλωριούχου αντιμονίου, μονοχλωριούχου ιωδίου (ICL), τετραχλωριούχου πυριτίου ($SiCL_4$, τετραχλωριούχου τιτανίου ($TiCL_4$). τριβρωμιούχου φωσφόρου (PBR_3), τριχλωριούχου βουτυλο-κασσιτέρου ($C_4H_9SN\ CL_3$), τριχλωριούχου φωσφόρου (PCL_3).

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Ο πενταϋδρικός χλωριούχος κασσίτερος είναι ουσία της παρ. 22° (γ).

2) Υδατικά διαλύματα των ουσιών της παρ. 21° είναι ουσίες της παρ. 5° (β).

22°. Στερεά αλογονίδια και άλλες αλογονωμένες ουσίες (πλην των φθοριούχων ενώσεων), οι οποίες σε επαφή με υγρό αέρα ή νερό εκλύουν ατμούς, όπως:

β) άνυδρο βρωμιούχο αλουμίνιο ($AL\ BR_3$), άνυδρο χλωριούχο αλουμίνιο ($AL\ CL_3$), οξυβρωμιούχος φωσφόρος ($POBR_3$), πενταχλωριούχος φωσφόρος (PCL_5), τριχλωριούχο αντιμόνιο ($SB\ CL_3$), μίγματα τριχλωριούχου τιτανίου, μη πυροφόρα.

ΠΑΡΑΤΗΡΗΣΗ:

Το εξαϋδρικό βρωμιούχο αλουμίνια, το εξαϋδρικό χλωριούχο αλουμίνιο και το μονοϋδρικό χλωριούχο αλουμίνιο δεν υπόκεινται στις διατάξεις της ADR.

γ) χλωριούχος τρισθενής σίδηρος (τριχλωριούχος σίδηρος (άνυδρος) ($Fecl_3$), πενταϋδρικός χλωριούχος κασσίτερος ($SN\ CL_4.5H_2O$), χλωριούχος φευδάργυρος ($ZN\ CL_2$) πενταχλωριούχο μολυβδαίνιο ($Mo\ cl_5$), τετραχλωριούχο ζιρκόνιο ($ZR\ CL_4$), τριχλωριούχο βανάδιο (VCL_3).

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Ο εξαϋδρικός χλωριούχος σίδηρος δεν υπόκειται στις διατάξεις της ADR.

2. Υδατικά διαλύματα των ουσιών της 22° είναι ουσίες της 5°.

23°. Θειϊκά άλατα περιέχοντα θειϊκό οξύ και διθειϊκα άλατα όπως:

β) διθειϊκό αμμώνιο, διθειϊκό κάλιο, διθειϊκό νάτριο και θειϊκός μόλυβδος, περιέχοντα 3% και πλέον θειϊκό οξύ.

γ) διθειϊκό αμμώνιο, διθειϊκό κάλιο και διθειϊκό νάτριο, περιέχοντα λιγώτερο από 3% ελεύθερο θειϊκό οξυ.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Υδατικά διαλύματα διθειϊκών αλάτων είναι ουσίες της 1° (β).

2. Θειϊκός μόλυβδος περιέχων λιγώτερο από 3% ελεύθερο θειϊκό οξύ, είναι ουσία της Κλάσεως 6.1 (βλέπε περιθώριο 2601, 63°(γ).

24°. Βρώμιο.

ΠΑΡΑΤΗΡΗΣΗ:

Δια την ουσία αυτή εφαρμόζονται ειδικές συνθήκες συσκευασίας (βλέπε περιθώριο 2804).

25°. Εξαφθοριούχο μολυβδαίνιο.

ΠΑΡΑΤΗΡΗΣΗ:

Για την ουσία αυτή εφαρμόζονται ειδικές συνθήκες συσκευασίας (βλέπε περιθώριο 2803).

26°. Λοιπές ενώσεις φθορίου, όπως:

α) πενταφθοριούχο βρώμιο, τριφθοριούχο βρώμιο.

β) τριφθοριούχο αμμώνιο, διφθοριούχο κάλιο, διφθοριούχο νάτριο, φθοριούχο χλώριο, πενταφθοριούχο αντιμόνιο.

ΠΑΡΑΤΗΡΗΣΗ:

Το φθοριούχο αμμώνιο, φθοριούχο κάλιο, φθοριούχο νάτριο και οι φθοριούχες σιλικόνες είναι ουσίες της Κλάσεως 6.1 (βλέπε περιθώριο 2601, 65° (γ) και 66° (γ)).

27°. Ουσίες ανοργάνων οξέων που δεν μπορούν να ταξινομηθούν υπό άλλους συλλογικούς τίτλους, όπως:

β) πεντοξείδιο φωσφόρου (άνυδρο φωσφορικό οξύ).

γ) χλωριούχο κυάνιο, θειϊκή υδροχυλαμίνη.

Οργανικές ουσίες

31°. Στερεά καρβοξυλικά και δικαρβοξυλικά οξέα, στερεά αλογονωμένα καρβοξυλικά οξέα και στερεοί ανυδρίτες αυτών, όπως:

β) βρωμο-οξεικό οξυ, χλωρο-οξεικό οξύ (μονοχλωροοξεικό οξύ), τριχλωρο-οξεικό τριχλωρο-οξεικός ανυδρίτης.

γ) μηλεϊνικός ανυδρίτης, φθαλικός ανυδρίτης, τετραϋδροφθαλικός ανυδρίτης.

32°. Υγρά καρβοξυλικά οξέα και υγρά αλογονωμένα οξέα και υγροί ανυδρίτες αυτών, όπως:

α) τριφθοριο-οξεικο οξύ,

γ) κρυσταλλικό οξεικό και υδατικά διαλύματα οξεικού οξέος περιέχοντα πλέον του 80% καθαρό οξύ, ακρυλικό οκύ, διαλύματα βρωμο-οξεικού οξέος, διαλύματα χλωρο-οξεικού οξέος (μονο-χλωρο-οξεικού οξέος), μίγματα χλωρο-οξεικού οξέος (μονοχλωρόοξεικού οξέος), μίγματα χλωρο-οξεικού οξέος, διχλωρο-οξεικό οξύ, μυρμηκικό οξύ περιέχον περισσότερο από 70% καθαρό οξύ, θειογλυκολικό οξύ, διαλύματα τριχλωρο-οξεικού οξέος, οξεικός ανυδρίτης.

γ) οξεικό οξύ, περιέχον από 50 έως 80% καθαρό οξύ, 2-χλωροπροπιονικό οξύ, 5-χλωροβαλερικό οξύ, μυρμηκικό οξύ περιέχον από 50 έως 70% καθαρό οξύ, επταφθοριοβουτυρικό οξύ, μετακρυλικό οξύ, προπιονικό οξύ περιέχον λιγώτερο από 50% καθαρό οξύ, βουτυρικός ανυδρίτης, προπιονικός ανυδρίτης.

ΠΑΡΑΤΗΡΗΣΗ:

Μυρμηκικό οξύ, οξεικό οξύ και προπιονικό οξύ με περιεχόμενο καθαρό οξύ οξύ λιγώτερο από 50% δεν υπόκεινται στις διατάξεις της ADR.

33°. Σύμπλοκες ενώσεις ενώσεις τριφθοριούχου βορίου, όπως:

β) τριφθοριούχο βόριο - οξεικό οξύ (σύμπλοκο άλας), σύμπλοκο βόριο - προπιονικό οξύ, σύμπλοκο τριφθοριούχο βόριο - αιθήρ, σύμπλοκο τριφθοριούχο βόριο - φαινόλη.

34°. Αλκυλο - σουλφονικά και αρυλο - σουλφονικά οξέα όπως:

β) νιτρο-βενζενιο-σουλφονικο οξύ, φαινολο-σουλφονικό οξύ.

γ) 3-βενζινιδιο-σουλφονικά οξύ, μεθανο-σουλφονικό οξύ, τολουενιο-σουλφονικά οξέα και διαλύματα αυτών.

ΠΑΡΑΤΗΡΗΣΗ:

Αλκυλο-σουλφονικά και αρυλο-σουλφονικά οξέα περιέχοντα περισσότερο από 5% ελεύθερο θειϊκό οξύ είναι ουσίες της 1° (β).

35°. Στερεά οργανικά όξινα αλογονίδια, όπως:

β) διχλωρο-κινοξαλινο-καρβονύλιο χλωριούχο, χλωριούχος ανισόλη, χλωρισύχο 2,4-διχλωροβενζοϋλιο, χλωριούχο νιτρο-βενζενο-σουλφονύλιο, χλωριούχο ρ-νιτρο-βενζοϋλιο, χλωριούχο ισοφθαλοϋλιο.

36°. Υγρά οργανικά αλογονίδια, όπως:

β) βρωμιούχο ακετύλιο, βρωμιούχο βρωμο-ακετύλιο, χλωριούχο βενζοϋλιο, χλωριούχο χλωρο-ακετύλιο, χλωριούχο διαιθυλικό θειοφωσφορύλιο, χλωριούχο φουμαρύλιο, χλωριούχο πιβαλοϋλιο (χλωριούχο τριμεθυλόακετύλιο), χλωριούχο τριχλωρο-ακετύλιο, χλωριούχο βαρερύλιο, ιωδιούχο ακετύλιο.

γ) χλωριούχο βενζενο-σουλφονύλιο, χλωριούχο ο-χλωροβενζοϋλιο, χλωριούχο ρ-χλωροβενζοϋλιο, χλωριούχο διμεθυλο-τριφωσφορύλιο.

37°. Αλκυλο-χλωροσιλάνια και αρυλ-χλωροσιλάνια με σημείο αμαφλέξεως πάνω από 21°, όπως:

β) αλλυλο-τριχλωροσιλάνιο, αμυλο-τριχλωροσιλάνιο, βουτυλο-τριχλωροσιλάνιο, χλωροφαινιλο-τριχλωσλάνιο, κυκλο-εξανυλο-τριχλωροσιλάνιο, κυκλο-εξυλο-τριχλωροσιλάνιο, διχλωρο-φαινυλο-τριχλωροσιλάνιο, διαιθυλο-διχλωροσιλάνιο, διφαινυλο-διχλωροσιλάνιο, δωδεκυλ-τριχλωροσιλάνιο, εξυλ-τριχλλωροσιλάνιο, μεθυλο-φαινυλο-διχλωροσιλάνιο, μονυλ-τριχλωροσιλάνιο, οκταδεκυλο-τριχλωροσιλάνιο, φαινυλο-τριχλωροσιλάνιο, προπυλο-τριχλωροσιλάνιο.

γ)...

ΠΑΡΑΤΗΡΗΣΗ:

Χλωροσιλάνια που εκλύουν εύφλεκτα αέρια σε επαφή με νερό ή υγρό αέρα, είναι ουσίες της Κλάσεως 4.3. και δεν πρέπει να γίνονται δεκτές για μεταφορά, εκτός αν στην Κλάση αυτή αναφέρονται σε ειδική εξαίρεση.

38°. Όξινοι φωσφορικοί εστέρες, όπως:

γ) όξινο φωσφορικό διβουτύλιο, όξινο φωσφορικό διπροπύλιο, όξινο φωσφορικό βουτύλιο, όξινο φωσφορικό ισοκτύλιο, όξινο φωσφορικό ισοπροπύλιο.

39°. Όξινες οργανικές ουσίες που δεν μπορούν να ταξινομηθούν υπό άλλους συλλογικούς τίτλους, όπως:

β) ακετοπολυσιλάνια, ακετοξυσιλάνια, αιθυλο-τριακετοξυσιλάνια.

Β. Βασικές ουσίες

Ανόργανες ουσίες

41°. Βασικές στερεές ενώσεις αλκαλικών μετάλλων όπως:

β) υδροξείδιο καισίου, υδροξείδιο λιθίου, υδροξείδιο καλίου (καυστικό ποτάσα), υδροξείδιο νατρίου (καυστική σόδα), οξείδιο καλίου, οξείδιο νατρίου.

γ) άσβεστος σόδας (μίγματα καυστικής σόδας και μη εσβεσμένης ασβέστου).

42°. Διαλύματα αλκαλικών ουσιών, όπως:

β) διαλύματα αργιλικού νατρίου, διαλύματα υδροξειδίου καλίου (POTASH LYE) και υδροξειδίου νατρίου (καυστικής σόδας), αλκαλικά διαλύματα κρεοζόλης, φαινόλης και ξυλενόλης, αλκαλικά κατάλοιπα (π.χ. διϋλίσεως).

43°. Διαλύματα αμμωνίας:

γ) διαλύματα αμμωνίας περιέχοντα τουλάχιστον 10% και το πολύ 35% αμμωνία.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Διαλύματα αμμωνίας περιέχοντα περισσότερη από 35% αμμωνία, είναι ουσίες της Κλάσεως 2 (βλέπε περιθώριο 2201, 9°, (ατ)).

2. Διαλύματα αμμωνίας περιέχοντα λιγώτερο από 10% αμμωνία, δεν υπόκεινται στις διατάξεις της ADR.

44°. Υδραζίνη και υδατικά διαλύματά της:

α) άνυδρη υδραζίνη, υδατικά διαλύματα υδραζίνης περιέχοντα περισσότερο από 64% υδραζίνη.

β) υδατικά διαλύματα υδραζίνης περιέζοντα το πολύ 64% υδραζίνη.

45°. Σουλφίδια και υδριογονοσουλφίδια, όπως:

β) διαλύματα θειούχου αμμωνίου και διαλύματα πολυθειούχου αμμωνίου, θειούχο κάλιο και θειούχο νάτριο περιέχοντα τουλάχιστον 30% νερού κρυσταλλώσεως και υδρογονοσουλφίδιο νατρίου περιέχον τουλάχιστον 25% νερού κρυσταλλώσεως.

ΠΑΡΑΤΗΡΗΣΗ:

Άνυδρο θειούχο κάλιο και άνυδρο θειούχο νάτριο ως και τα υδροξείδια αυτών που περιέχουν λιγώτερο από 30% νερό κρυσταλλώσεως, επίσης υδρογονοσουλφίδιο νατρίου περιέχον τουλάχιστον 25% νερό κρυσταλλώσεως είναι ουσίες της Κλάσεως 4.2 (βλέπε περιθώριο 2431, 6° (γ)).

γ) υδατικά διαλύματα σουλφιδίων και υδρογονοσουλφιδίων με εξαίρεση το θειούχο αμμώνιο σε διάλυμα και το πολυθειούχο αμμώνιο σε διάλυμα.

Οργανικές ουσίες

51°. Υδροξείδια τετρα-αλκυλαμμωνίου, όπως:

β) υδροξείδιο τετρα-μεθυλαμμωνίου

52°. Στερεές αλκυλαμίνες, αρυλαμίνες και πολυαμίνες όπως:

γ) διαιθυλενο-διαμίνη (πιπερζίνη), εξαμεθυλοδιαμίνη.

53°. Υγρές αλκυλαμίνες, αρυλαμίνες και πολυαμίνες, όπως:

β) βενζυλο-διμεθυλαμίνη, κυκλο-εξυλαμίνη, διαλύματα χαλκεθυλεν-διαμίνης, δι-ν-βουτυλαμίνη, διεθυλενοτριαμίνη, N, N-δι-αιθυλεθυλεν-διαμίνη, N, N-διμεθυλοκυκλο-εξυλαμίνη, αιθυλενο-διαμίνη, διαλύματα εξαμεθυλονο-διαμίνης, τριαιθυλ-νετετραμίνη.

γ) βενζυλαμίνη, δισαμινο-προπυλαμίνη (διπροπυλενετριαμίνη, 3,3-ιμινο-διπροπυλαμίνη), δικυκλο-εξυλαμίνη, διαιθυλομιν-προπυλαμίνη, 2-αιθυλοεξυλαμίνη, ισορρονεδιαμίνη, πεντα-αιθυλενοεξαμίνη, τετρα-αιθυλενοπενταμίνη, τριβουτυλαμίνη, τριμεθυλ-κυκλοεξυλαμίνη, τριμεθυλ-εξαμεθυλ-νεδιαμίνες.

54°. Αμινοαλκοόλες, όπως:

γ) αιθανολαμίνη και διαλύματα αυτής.

Γ. Λοιπές διαβρωτικές ουσίες

61°. Υποχλωριώδη διαλύματα, όπως:

β) διαλύματα υποχλωριώδους καλίου και διαλύματα υποχλωριώδους νατρίου περιέχοντα τουλάχιστον 16% επιφελούς χλωρίου.

γ) διαλύματα υποχλωριώδους καλίου και διαλύματα υποχλωριώδους νατρίου περιέχοντα πλέον του 5% αλλά το πολύ 16% διαθεσίμου χλωρίου.

ΠΑΡΑΤΗΡΗΣΗ:

Υποχλωριώδη διαλύματα περιέχοντα το πολύ 5% διαθεσίμου χλωρίου δεν υπόκεινται στις διατάξεις της ADR.

62°. Διαλύματα υπεροξειδίου υδρογόνου.

β) υδατικά διαλύματα υπεροξειδίου υδρογόνου περιέχοντα τουλάχιστον 20% και το πολύ 60% υπεροξειδίου υδρογόνου.

γ) υδατικά διαλύματα υπεροξειδίου υδρογόνου περιέχοντα τουλάχιστον 8% και το πολύ 20% υπεροξειδίου υδρογόνου.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. Διαλύματα περιέχοντα πλέον του 60% υπεροξείδιο υδρογόνου είναι ουσίες της Κλάσεως 5.1 (βλέπε περιθώριο 2501, 1°).

2. Διαλύματα περιέχοντα λιγώτερο από 8% υπεροξείδιο υδρογόνου δεν υπόκεινται στις διατάξεις της ADR.

63°. Διαλύματα φορμαλδεΰδης:

γ) υδατικά διαλύματα φορμαλδεΰδης, π.χ. φορμαλίνη, με 5% τουλάχιστον φορμαλδεΰδη. Επίσης, με 35% το πολύ μεθανόλη.

ΠΑΡΑΤΗΡΗΣΗ:

Υδατικά διαλύματα φορμαλδεΰδης με λιγώτερο από 5% φορμαλδεΰδή, δεν υπόκεινται στις διατάξεις της ADR.

64°. Εστέρες οργανικών και ανοργάνων οξέων, οι ιδιότητες των οποίων είναι κυρίως διαβρωτικές, όπως:

α) χλωροφορμικοί εστέρες, όπως: χλωροφορμικό αλλύλιο, χλωροφορμικό βενζύλιο.

ΠΑΡΑΤΗΡΗΣΗ:

Εστέρες οργανικών και ανοργάνων οξέων, οι ιδιότητες των οποίων είναι κυρίως τοξικές, είναι ουσίες της Κλάσεως 6.1 (βλέπε περιθώριο 2601 16° και 17°).

65°. Στερεές διαβρωτικές ουσίες και παρασκευάσματα που δεν μπορούν να ταξινομηθούν σε άλλους συλλογικούς τίτλους, όπως:

α) ...

β) βρωμιούχο διφαινυλομεθύλιο

γ) ...

66°. Υγρές διαβρωτικές ουσίες, διαλύματα και παρασκευάσματα, που δεν μπορούν να ταξινομηθούν σε άλλους συλλογικούς τίτλους, όπως:

α) ...

β) BENZOTRICHLORIDE (τριχλωρο-μεθυλο-βενζένιο), 1-PENTOL (3-ΜΕΘΥΛΟ-2-PENTENE-4-YNE-1-OL).

γ) ...

Δ. Κενά είδη συσκευασίας

71°. Κενά είδη συσκευασίας, κενά βυτιοφόρα οχήματα, κενές λυόμενες δεξαμενές, κενές δεξαμενές-κοντέηνερς και κενά μικρά κοντέηνερς σε χύμα, ακαθάριστα, που περιείχαν ουσίες της Κλάσεως 8.

Ουσίες των παραγρ. 1 - 5,7 - 11, 21 - 23, 26, 27, 31 - 39, 41 - 45, 51 - 54 και 61 - 66, μεταφερόμενες σύμφωνα με τις ακόλουθες διατάξεις, δεν υπόκεινται ούτε στις διατάξεις της παρούσης Κλάσεως που περιλαμβάνει το παρόν Παράρτημα, ούρτε στις διατάξεις που περιέχει το Παράρτημα Β: 2801α

1) α) Ουσίες ταξινομούμενες υπό το ψηφίο (α) κάθε παραγράφου:

Υγρα: το πολύ 100 χστλ. ανά εσωτερικό δοχείο και το πολύ 400 χστλ. κατά δέμα.

Στερεά: το πολύ 500 γρ. κατά εσωτερικό δοχείο και το πολύ 2 κιλά κατά δέμα.

β) Ουσίες ταξινομούμενες στο ψηφίο (β) κάθε παραγράφου:

Υγρά: το πολύ 1 λίτρο ανά εσωτερικό δοχείο και το πολύ 4 λίτρα ανά δέμα.

Στερεά: το πολύ 3 κιλά ανά εσωτερικό δέμα και το πολύ 12 λίτρα ανά κόλον.

γ) Ουσίες ταξινομούμενες στο ψηφίο (γ) κάθε παραγράφου:

Υγρα: το πολύ 3 λίτρα κατά εσωτερικό δοχείο και το πολύ 12 λίτρα κατά κόλον.

Στερεά: το πολύ 6 κιλά ανά εσωτερικό δέμα και το πολύ 24 κιλά ανά κόλον.

Οι ποσότητες αυτές ουσιών πρέπει να μεταφέρονται σε σύνθετες συσκευασίες που πληρούν τουλάχιστον τις προδιαγραφές του περιθωρίου 3538 (β) και (δ).

Οι «Γενικές διατάξεις και όροι συσκευασίας» του περιθωρίου 3500 (1), (2), και (4) έως (7) πρέπει να τηρούνται οπωσδήποτε.

(2) Αλκαλικά διαλύματα ή οξέα σε μπαταρίες εναποθηκεύσεως μεταλλικά ή πλαστικά περιβλήματα. Οι μπαταρίες θα πρέπει να είναι έτσι προφυλαγμένες ώστε να εμποδίζεται και προλαμβάνεται τυχόν βραχυκύκλωμα , ολίσθηση, πτώση ή ζημία. Πρέπει να είναι εφωδιασμένες με χειρολαβές. Ωστόσο, οι χειρολαβές δεν είναι απαραίτητες αν οι μπαταρίες είναι τοποθετημένες και με ασφάλεια συσκευασμένες κατάλληλα, π.χ. πάνω σε παλέτες.

Κανένα επικίνδυνο ίχνος αλκάλεως ή οξέος δεν πρέπει να εμφανίζεται έξω από τη συσκευασία.

2. Διατάξεις

Α. Κόλα

1. Γενικοί όροι συσκευασίας

(1) Οι συσκευασίες πρέπει να πληρούν τους όρους του Παραρτήματος Α.5 εκτός αν στα περιθώρια 2803 – 2808 προδιαγράφονται ειδικές διατάξεις και όροι για την συσκευασία ωρισμένων ουσιών. 2802

(2) Σύμφωνα με τις διατάξεις των περιθωρίων 2800 (1) και 3511 (2) θα πρέπει να χρησιμοποιούνται τα εξής:

Συσκευασίες της ομάδος συσκευασίας I, μαρκαρισμένες με το γράμμα «Χ» για τις εξαιρετικά διαβρωτικές ουσίες που ταξινομούνται στο ψηφίο (α) κάθε παραγράφου.

Συσκευασίες της ομάδος II και I, μαρκαρισμένες με το γράμμα «Υ» ή «Χ» για τις διαβρωτικές ουσίες που ταξινομούνται στο ψηφίο (β) κάθε παραγράφου.

Συσκευασίες των ομάδων III, II ή I, μαρκαρισμένες με το γράμμα «Ζ» ,«Υ» ή «Χ» για τις ελαφρά διαβρωτικές ουσίες που ταξινομούνται στο ψηφίο (γ) κάθε παραγράφου.

ΠΑΡΑΤΗΡΗΣΗ:

Για την μεταφορά ουσιών της Κλάσεως 8 σε βυτιοφόρα οχήματα, λυόμενες δεξαμενές ή δεξαμενοφόρα κοντέηνερς και

για την μεταφορά χύμα στερεών της παρούσης Κλάσεως, βλέπε Παράρτημα Β.

2. Ειδικοί όροι για συσκευασία ωρισμένων ουσιών

Άνυδρο υδροφθορικό οξύ και υδατικά διαλύματα υδροφθορικού οξέος περιέχοντα περισσότερο από 85% ανύδρου υδροφθορικού οξέος της παρ. 6° ή εξαφθοριούχου μολυβδαινίου της 25°, θα πρέπει να συσκευάζεται σε δοχεία πιέσεως από ανδρακούχο χάλυβα ή κατάλληλο κράμα χάλυβος. Επιτρέπονται τα εξής δοχεία πιέσεως:

α) Κύλινδροι με περιεκτικότητα που δεν υπερβαίνει τα 150 λίτρα,

β) δοχεία με περιεκτικότητα τουλάχιστον 100 λίτρα και το πολύ 1000 λίτρα (π.χ. κυλινδρικά δοχεία εφωδιασμένα με στεφάνες κυλίσεως ή δοχεία προσαρμοσμένα σε πέλματα ολισθήσεως (SKIDS).

Τα δοχεία πιέσεως πρέπει να ικανοποιούν τις σχετικές απαιτήσεις της Κλάσεως 2 (βλέπε περιθώρια 2211, 2213 (1) και (2), 2215, 2216 και 2218).

Το πάχος τοιχωμάτων των δοχείων πιέσεως θα πρέπει να είναι τουλάχιστον 3 χστ. Προτού χρησιμοποιηθούν για πρώτη φορά, τα δοχεία πιέσεως πρέπει να υποβληθούν σε δοκιμασία υδραυλικής πιέσεως τουλάχιστον 1 MPa (10 BAR). Η δοκιμασία πιέσεως θα πρέπει να επαναλαμβάνεται κάθε οκτώ έτη και θα πρέπει να συνοδεύεται και από εσωτερική επιθεώρηση του δοχείου πιέσεως και από έλεγχο του εξοπλισμού του. Επί πλέον, η αντίσταση έναντι διαβρώσεως των δοχείων πιέσεως πρέπει να ελέγχεται με τα κατάλληλα όργανα (π.χ. υπερήχους) και να βεβαιώνεται η κατάσταση του εξοπλισμού ανά διετία.

Οι δοκιμασίες και επιθεωρήσεις πρέπει να διενεργούνται υπό την επίβλεψη εμπειρογνώμονος αναγνωρισμένου από την αρμόδια αρχή.

Η μεγίστη μάζα του περιεχομένου ανά λίτρο χωρητικότητος θα πρέπει να είναι:

0,84 κιλά για το άνυδρο υδροφθορικό οξύ και τα υδατικά διαλύματα υδροφθορικού οξέος,

1,93 κιλά για το εξαφθοριούχο μολυβδαίνιο.

(1) Το βρώμιο της παρ. 24 θα πρέπει να συσκευάζεται σε υάλινες εσωτερικές συσκευασίες με περιεχόμενο 2,5 λίτρα το πολύ εκάστη, οι οποίες θα πρέπει να είναι τοποθετημένες σε συνδυασμένη συσκευασία σύμφωνα με το περιθώριο 3528. Οι συνδυαμένες (σύνθετες) συσκευασίες θα πρέπει να δοκιμάζονται και να εγκρίνονται σύμφωνα με το Παράρτημα Α.5 για την ομάδα συσκευασίας Ι.

(2) Βρώμιο που περιέχει λιγώτερο από 0,005% νερό, ή μεταξύ 0,005 και 0,2% νερό, εφ' όσον στην τελευταία περίπτωση έχουν ληφθεί μέτρα προλήψεως της διαβρώσεως της εσωτερικής επενδύσεως των δοχείων, μπορεί επίσης να μεταφέρεται σε δοχεία που ικανοποιούν και πληρούν τους κατωτέρω όρους:

α) Τα δοχεία πρέπει να είναι κατασκευασμένα από χάλυβα και να είναι εξοπλισμένα με στεγανή επένδυση από μόλυβδο ή από κάποιο άλλο υλικό που να παρέχει ανάλογη προστασία και με ερμητικό κάλυμμα. Δοχεία κατασκευασμένα από μέταλλο MONEL ή νικέλιο ή με επένδυση νικελίου θα επιτρέπονται επίσης.

β) Η χωρητικότης του δοχείου δεν πρέπει να υπερβαίνει τα 450 λίτρα.

γ) Τα δοχεία δεν πρέπει να πληρούνται περισσότερο από το 92% της χωρητικότητάς των ή πλέον των 2.86 κιλών ανά λίτρο περιεκτικότητος.

δ) Τα δοχεία πρέπει να είναι ηλεκτροσυγκολλημένα και προορισμένα για υπολογιζομένη πίεση τουλάχιστο 2,1 MPa (21 BAR). Τα υλικά και η όλη κατασκευή πρέπει από κάθε άποψη να πληρούν τις ανάλογες απαιτήσεις της Κλάσεως 2 (βλέπε περιθώριο 2211)). Η αρχική δοκιμασία των χωρίς εσωτερική επένδυση δοχείων θα υπόκεινται στις διατάξεις της Κλάσεως 2 (βλέπε περιθώρια 2215 (1) και 2216 (1)).

ε) Τα πώματα θα πρέπει να προσέχουν όσο το δυνατόν λιγώτερο από τα δοχεία και να είναι εφοδιασμένα με προστατευτικά καλύμματα. Τα πώματα και τα καλύματα θα πρέπει να είναι εφοδιασμένα με φλάντζες από υλικό απρόσβλητο από το βρώμιο. Τα πώματα πρέπει να βρίσκονται στο άνω μέρος των δοχείων κατά τρόπο ώστε να μη μπορούν σε καμμιά περίπτωση να έρχονται σε μόνιμη επαφή με την υγρή φάση.

ζ) Τα δοχεία πρέπει να είναι εφωδιασμένα με εξαρτήματα που να επιτρέπουν την σταθερή όρθια τοποθέτηση και με λαβές ανυψώσεως (κρίκους, φλάντζες κ.λπ.) στο επάνω μέρος, που θα έχουν δοκιμαστεί για αντοχή σε διπλάσιο από το ενεργό βάρος. 2803

(3) Προτού τεθούν σε υπηρεσία, τα δοχεία που είναι σύμμορφα προς την παράγρ. (2) ανωτέρω, πρέπει να υποβληθούν σε δοκιμασία για μορφή για διαρροή με πίεση τουλάχιστον 0,2 MPa (2 BAR). Η δοκιμασία διαρροής θα πρέπει να επαναλαμβάνεται ανά διετία και να συνοδεύεται από εσωτερική επιθεώρηση του δοχείου και από έλεγχο του αποβάρου του. Η δοκιμασία και η επιθεώρηση θα πρέπει να διενεργούνται υπό την επίβλεψη εμπειρογνώμονος ανεγνωρισμένου από την αρμοδία αρχή.

(4) Δοχεία σύμμορφα προς την παράγρ. (2) θα πρέπει να φέρουν γραμμένα με ευανάγνωστα και ανεξίτηλα γράμματα:

α) το όνομα ή το σήμα του Καταστατικού και τον αριθμό του δοχείου,

β) την λέξη «Βρώμιο»,

γ) το απόβαρο του δοχείου και την μεγίστη επιτρεπομένη μάζα του όταν είναι γεμάτο,

δ) την ημερομηνία (μήνα και έτος) της αρχικής δοκιμασίας και της πλέον προσφάτου δοκιμασίας που υπεβλήθη.

ε) την σφραγίδα του εμπειρογνώμονος που διενήργησε την δοκιμασία.

(1) Ουσίες ταξινομούμενες υπό το ψηφίο (α) των διαφόρων παραγράφων του περιθωρίου 2801 πρέπει να συσκευάζονται:

α) σε χαλύβδινα βαρέλια μονοκόμματα (των οποίων δεν αφαιρείται το επάνω μέρος), σύμμορφα προς το περιθώριο 3520, ή:

β) σε μονοκόμματα αλουμινένια βαρέλια σύμμορφα προς το περιθώριο 3521, ή:

γ) σε χαλύβδινα μπιντόνια, σύμμορφα προς το περιθώριο 3522, ή:

δ) σε μονοκόμματα πλαστικά βαρέλια χωρητικότητος το πολύ 60 λίτρων ή σε πλαστικά μπιντόνια σύμμορφα προς το περιθώριο 3526, ή:

ε) σε σύνθετες (συνδυασμένες, συσκευασίες (από πλαστικό υλικό), σύμφωνα με το περιθώριο 3537, ή:

ζ) σε συνδιασμένες συσκευασίες με εσωτερική συσκευασία γυαλιού, πλαστικούο ή μετάλλου, σύμφωνα με το περιθώριο 3538, ή:

η) σε συνδυασμένες συσκευασίες (γυαλιού, πορσελάνης ή κεραμικού), σύμφωνα με το περιθώριο 3539.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. (στην παρ. δ): Η επιτρεπόμενη περίοδος χρησιμοποιήσεως συσκευασιών προοριζομένων για την μεταφορά νιτρικού οξέος της παρ. 2 (α) και υδατίνων διαλυμάτων υδροφθορικού οξέος της παρ. 7 (α) θα είναι δύο έτη από την ημερομηνία κατασκευής (παραγωγής) των.

2. (στην παρ. ζ και η): Οι εσωτερικές συσκευασίες ή τα υάλινα δοχεία δεν θα πρέπει να επιτρέπονται για φθοριούχα της παρ. 7 (α), 10, (α), 26 (α) ή 33 (α).

(2) Στερεές ουσίες με την έννοια του περιθ. 2800 (2) μπορούν επίσης να συσκευάζονται:

α) σε βαρέλια μα αφαιρούμενο το επάνω μέρος σύμμορφα προς τα περιθώρια 3520 για τα χυλύβδινα, 3521 για τα αλουμινένια, 3523 για τα κοντραπλακεδένια, 3525 για τα από μοιρουσανίδα ή 3526 για τα πλαστικά, εν ανάγκη δε με ένα ή περισσοτέρους εσωτερικούς σάκκους χωρίς πόρους, ή:

β) σε σύνθετες συσκευασίες, σύμμορφες πρός το περιθώριο 3538, με ένα ή περισσοτέρους εσωτερικούς σάκκους χωρίς πόρους.

(Ι) Ουσίες ταξινομούμενες στο ψηφίο (β) των διαφόρων ειδών του περιθωρίου 2801 θα πρέπει να συσκευάζονται: 2806

α) σε χαλύβδινα βαρέλια σύμφωνα με το περιθώριο 3520, ή:

β) σε αλουμινένια βαρέλια βάσει του περιθωρίου 3521, ή:

γ) σε χαλύβδινα μπιντόνια σύμφωνα με το περιθώριο 3522, ή:

δ) σε πλαστικά βαρέλια ή πλαστικά μπιντόνια σύμφωνα με το περιθώριο 3526 ή:

ε) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμμορφες με το περιθώριο 3537, ή:

ζ) σε σύνθετες συσκευασίες, σύμφωνα με το περιθώριο 3538, ή:

η) σε σύνθετες συσκευασίες (από γυαλί, πορσελάνη ή κεραμικά), σύμφωνα με το περιθώριο 3539.

ΠΑΡΑΤΗΡΗΣΕΙΣ:

1. στις (α), (β) και (δ): Βαρέλια με αφαιρούμενο το επάνω μέρος επιτρέπονται μόνο για ιξώδεις ουσίες με βαθμό ιξώδους πάνω από 200 χστ²/Sσε 23° C και για στερεά.

2. στην (δ): Η επιτρεπομένη περίοδος χρήσεως για συσκευασίες προορισμένες για μεταφορά νιτρικού οξέος με περιεχόμενο καθαρού οξέος πλέον του 55% της παρ. 2° (β) και υδατικών διαλυμάτων υδροφθορικού οξέος της παρ. 7°(β) θα είναι δύο έτη από την ημερομηνία κατασκευής των.

3. στην (ζ) και (η): Εσωτερικές συσκευασίες ή δοχεία από γυαλί δεν επιτρέπονται για φθοριούχα της παρ. 7°(β), 8°(β), 9°(β), 10(β), 26(β) ή και 33(β).

(2) Στερεές ουσίες με την έννοια του περιθωρίου 2800 (2) μπορούν επίσης να συσκευάζονται:

α) σε βαρέλια με αφαιρούμενο το επάνω μέρος σύμμορφα προς τα περιθώρια 3523 (από κόντρα - πλακέ) ή 3525 (από μοριοσανίδα), εν ανάγκη δε με ένα ή περισσοτέρους εσωτερικούς σάκκους χωρίς πόρους, ή:

(β) σε ανθεκτικούς στο νερό σάκκους, σύμφωνα με τα περιθώρια 3533 για χους υφασμάτινος, 3534 για υφαντό πλαστικό υλικό, 3535 για πλαστική μεμβράνη (φύλλο πλαστικού) ή 3536 για ανθεκτικό στο νερό χαρτί, με την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται σαν πλήρες φορτίο, ή αν οι σάκκοι είναι ασφαλώς τοποθετημένοι σε παλέττες.

(Ι) Ουσίες ταξινομούμενες υπό το στοιχείο (γ) των διαφόρων ειδών του περιθωρίου 2801 θα πρέπει να συσκευάζονται: 2807

(α) σε χαλύβδινα βαρέλια, σύμμορφα προς το περιθώριο 3520, ή:

(β) σε αλουμινένια βαρέλια, σύμμορφα προς το περιθώριο 3521, ή:

(γ) σε χαλύβδινα μπιντόνια, σύμμορφα προς το περιθώριο 3522, ή:

(δ) σε πλαστικά βαρέλια ή πλαστικά μπιντόνια, σύμμορφα προς το περιθώριο 3526, ή:

(ε) σε συνδυασμένες συσκευασίες, (από πλαστικά υλικά), σύμμορφες προς το περιθώριο 3537, ή:

(ζ) σε συνδυασμένες συσκευασίες, σύμμορφες προς το περιθώριο 3538, ή:

(η) σε συνδυασμένες συσκευασίες (γυαλί - πορσελάνη ή κεραμικό), σύμμορφες προς το περιθώριο 3539, ή:

(θ) σε συσκευασίες από λεπτό μέταλλο, σύμμορφες προς το περιθώριο 3540.

ΠΑΡΑΤΗΡΗΣΗ:

στην (α), (β), (δ), και (θ): Βαρέλια με αφαιρούμενο το επάνω μέρος σύμμορφα προς τις (α), (β), και (δ) και συσκευασίες με αφαιρούμενο το επάνω μέρος από λεπτό μέταλλο σύμμορφες προς την (θ) επιτρέπονται μόνο για ιξώδεις ουσίες, με βαθμό ιξώδους πάνω από 200 χστ.² σε 23° C και για στερεά.

(2) Στερεές ουσίες κατά την έννοια του περιθ. 2800(2) μπορούν επίσης να συσκευάζωνται:

(α) σε βαρέλια μα αφαιρούμενο το άνω μέρος, σύμμορφα προς τα περιθώρια 3523 (για κόντρα - πλακέ) ή 3525 (για μοριοσανίδα), εν ανάγκη δε και με ένα ή περισσοτέρους εσωτερικούς σάκκους χωρίς πόρους, ή:

(β) σε σάκκους ανθεκτικούς σε νερό, σύμμορφους προς τα περιθώρια 3533 (για υφασμάτινο σάκκο), 3534 (για υφαντούς πλαστικούς), 3535 (για πλαστικό φύλλο) ή 3535 (για ανθεκτικό σε νερό χαρτί).

Συσκευασίες που περιέχουν ουσίες της 61° ή 62° θα πρέπει να είναι εφωδιασμένες με εξαερισμό, σύμφωνα με το περιθώριο 3500(8). 2808

2809 -2810

3. Μικτή συσκευασία

(1). Ουσίες καλυπτόμενες από τον ίδιο αριθμό παραγράφου μπορούν να συσκευάζονται μαζύ σε συνδυασμένη συσκευασία, σύμμορφη προ το περιθώριο 3538. 2811

(2). Ουσίες διαφορετικών παραγράφων της Κλάσεως 8, σε ποσότητες που δεν υπερβαίνουν κατά συσκευασία τα 3 λίτρα για υγρά και/ή τα 5 κιλά για στερεά, μπορούν να συσκευάζωνται μαζύ και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις της ADR, σε συνδυασμένη συσκευασία, σύμμορφη προς το περιθώριο 3538, εφ' όσον δεν αντιδρούν επικίνδυνα μεταξύ των.

(3). Άν δεν προβλέπεται τίποτε το διαφορετικό κατωτέρω, ουσίες της Κλάσεως 8 σε ποσότητες που δεν υπερβαίνουν κατά συσκευασία τα 3 λίτρα για τα υγρά και/ή τα 5 κιλά για τα στερεά, μπορούν να συσκευάζονται μαζύ σε συνδυασμένη συσκευασία, σύμμορφη προς το περιθ. 3538, με ουσίες ή αντικείμενα άλλων κλάσεων, με την προϋπόθεση πως η μικτή συσκευασία επιτρέπεται επίσης και για τις ουσίες ή τα αντικείμενα των Κλάσεων αυτών, και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις της ADR, με την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ των.

(4). Επικίνδυνες αντιδράσεις θεωρούνται οι εξής:

(α) ανάδοση ανφλεξίμων και/ή τοξικών αερίων

(γ) σχηματισμός διαβρωτικών υγρών

(δ) σχηματισμός ασταθών ουσιών

(5). Η μικτή συσκευασία οξίνων ουσιών με βασικές ουσίες σε μία συσκευασία δεν πρέπει να επιτρέπεται εφ' όσον οι δύο ουσίες είναι συσκευασμένες σε ευπαθή και εύθραυστα περιβλήματα.

(6). Οι διατάξεις των περιθωρίων 2001(7), 2002(6) και (7) ως και 2802 θα πρέπει να τηρούνται οπωσδήποτε.

(7). Άν χρησιμοποιούνται κουτιά από ξύλο ή μοριοσανίδα, κάθε κόλον δεν πρέπει να ζυγίζει περισσότερο από 100 κιλά.

Ειδικοί Όροι

Αρ. Είδους	Περιγραφή της ουσίας	Μεγίστη Ποσότης κατά δοχείο	κόλον	Ειδικές Διατάξεις
1°	Υπερχλωρικό οξύ περιέχον το πολύ 50% καθαρό οξύ	Απαγορεύεται η μικτή συσκευασία εκτός από το υπερχλωρικό οξύ της κλάσεως 5.1 (βλέπε περιθώριο 2501, 3°)		
6°	Άνυδρο υδροφθορικό οξύ υδατικά διαλύματα υδροφθορικού οξέος περιέχοντα το πολύ 85% άνυδρου υδροφθορικού οξέος	Απαγορεύεται μικτή συσκευασία		
24°	Βρώμιο			
25°	Εξαφθοριούχο μολυβδένιο			
Ουσίες ταξινομούμενες στο ψηφίο (α) κάθε παραγρ.		0,5 λίτρ.	1 λίτρ.	Δεν θα πρέπει να συσκευάζονται μαζί με άλλες ουσίες ή είδη των κλάσεων 1α, 1β, 1γ, 5.2 ή 7.

4. Μαρκάρισμα και ετικέττες κινδύνου στα κόλα (βλέπε Παραρτ. Α.9)

(1.) Κόλα περιέχοντα ουσίες της παρούσης Κλάσεως θα πρέπει να φέρουν σχετική ετικέττα σύμφωνα με το υπόδειγμα No 8.

(2) Αν ωρισμένα υγρά είναι συσκευασμένα σε σύνθετες συσκευασίες (γυαλιού, πορσελάνης ή κεραμικού) σύμφωνα με το περιθώριο 3539 χωρητικότητος το πολύ 5 λίτρων, τα κόλα θα πρέπει πάντως να φέρουν δύο ετικέττες σύμφωνα με το μοδέλλο No 8 (βλέπε Παράρτ. Α.9 περιθώριο 3901 (2).

(3) Κόλα περιέχοντα ουσίες που έχουν σημείο αναφλέξεως έως 55°C θα πρέπει επί πλέον να φέρουν ετικέττα σύμφωνα με το υπόδειγμα No 3, ενώ όσα περιέχουν OLEUM (καπνίζουν θειϊκό οξύ) της 1° (α) ή ουσίες της 6°, 7° 24° έως 26° ή 44°, ετικέττα σύμφωνα με το υπόδειγμα No 6.1, ενώ όσα περιέχουν ουσίες της 62° ετικέττα σύμφωνα με το υπόδειγμα No 5.

(4) Κόλα περιέχοντα εύθραυστες συσκευασίες που δεν φαίνονται απ' έξω, θα πρέπει να φέρουν σε δύο απέναντι πλευρές από μια ετικέττα σύμμορφη προς το υπόδειγμα No 12.

(5) Κόλα περιέχοντα υγρά σε συσκευασίες των οποίων τα κλεισίματα δεν φαίνονται απ' έξω και κόλα περιέχοντα εξαεριζόμενες συσκευασίες ή εξαεριζόμενες συσκευασίες χωρίς εξωτερικό περίβλημα, θα πρέπει να φέρουν σε δυό απέναντι πλευρές ετικκέτα σύμμορφη προς το μοδέλλο No11.

Β. Στοιχεία αναγραφόμενα στο έγγραφο μεταφοράς

(1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς πρέπει να συμφωνεί με ένα από τα ονόματα που υπογραμμίζονται στο περιθώριο 2801. Αν η ουσία δεν αναφέρεται ονομαστικά, πρέπει να αναγράφεται η χημική ονομασία. Η περιγραφή των εμπορευμάτων πρέπει να υπογραμμίζεται και να ακολουθούν τα στοιχεία της Κλάσεως, ο αριθμός πραγράφου (είδους) μαζί με το τυχόν ψηφίο και τα αρχικά «ADR» ή «RID» π.χ.: 8,1° (α), ADR.

(2) Στην περίπτωση βρωμίου περιέχοντος από 0,005 έως 0,2% νερό που μεταφέρεται σε δοχεία σύμμορφα προς το περιθώριο 2804 (2), ο αποστολέας πρέπει να πιστοποιεί στο έγγραφο μεταφοράς ότι: «Πάρθηκαν μέτρα για πρόληψη διαβρώσεως της επενδύσεως των δοχείων».

(3) Για αποστολέας – φορτία χημικώς σταθών ουσιών, ο αποστολεύς πρέπει να πιστοποιεί στο έγγραφο μεταφοράς ότι: «Πάρθηκαν μέτρα συμφώνα με το περιθ. 2800 (5).

Γ. Κενές συσκευασίες

2813 (1) Κενές συσκευασίες, ακαθάριστες, της παρ. 71° θα πρέ-
2814 πει να είναι κλειαμένες με τον ίδιο τρόπο και με τον αυτό βαθμό στεγανότητος σαν να ήσαν πλήρεις.

(2) Κενές συσκευασίες, ακαθάριστες, της 71° θα πρέπει να φέρουν τις ίδιες ετικέττες κινδύνου σαν να ήσαν πλήρεις.

(3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μια από τις περιγραφές που υπογραμμίζονται στην παρ. 71°, π.χ.«Κενή συσκευασία, 8, 71° «ADR» . Το κείμενο αυτό πρέπει να είναι υπογραμμισμένο. Σε περίπτωση κενών βυτιοφόρων οχημάτων, κενών αποσυνδεομένων δεξαμενών, κενών δεξαμενών – κοντέηνερς και κενών μικρών εμπορευματοκιβωτίων φορτίου χύμα, ακαθαρίστων, η περιγραφή αυτή θα πρέπει να συμπληρώνεται με την προσθήκη των λέξεων «τελευταίο φορτίο» μαζί με το όνομα και τον αριθμό παραγράφου/είδους των εμπορευμάτων που φορτώθηκαν την τελευταία φορά, π.χ.: Τελευταίο φορτίο: θειϊκό οξύ, 1° (8).

2815
2821
2822
2823
2899
2990
2999

ΟΙΚΟΝΟΜΙΚΗ ΚΟΜΙΣΙΟΝ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ
ΕΠΙΤΡΟΠΗ ΕΣΩΤΕΡΙΚΗΣ ΜΕΤΑΦΟΡΑΣ

. . . . . .

ΕΥΡΩΠΑΪΚΗ ΣΥΜΒΑΣΗ

που αφορά τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων οδικώς (ADR) και πρωτόκολλο υπογραφής που έγινε στη Γενεύη στις 30 Σεπτεμβρίου 1957

ΠΕΡΙΕΧΟΜΕΝΑ

Συνημμένο Α

Οδηγίες σχετικές με τα επικίνδυνα υλικά και αντικείμενα.

ΙΙΙ Μέρος - Παράρτημα του συνημμένου Α

		Περιθωριακά
Παράρτημα Α.1	Προϋποθέσεις σταθερότητος και ασφαλείας σχετικές με εκρηκτικό υλικό, με στερεό εύφλεκτο υλικό και με οργανικά υπεροξείδια, κανόνες σχετικοί με την δοκιμασία.	3100 και επομ.
Παράρτημα Α.2	Οδηγίες σχετικές με την φύση των δοχείων σε κράμα αργίλλου για μερικά αέρια της τάξης 2. Οδηγίες σχετικά με τα υλικά και την κατασκευή δοχείων προορισμένων για την μεταφορά των ρευστοποιημένων αερίων που έχουν ψυκτεί πολύ της τάξης 2. Οδηγίες σχετικά με τις δοκιμασίες επί των κυτίων και φυσιγγίων με αέρια υπό πίεση των 10° και 11° της τάξης 2.	3200 και επομ.
Παράρτημα Α.3	Δοκιμασίες σχετικές με ρευστά εύφλεκτα υλικά των τάξεων 3, 6.1 και 8.	3300 και επομ.
Παράρτημα Α.4	Επιφυλασσόμενο	3400 και επομ.
Παράρτημα Α.5	Γενικές προϋποθέσεις συσκευασίας τύπων συσκευασίας απαιτήσεις σχετικές με τις συσκευασίες και σχετικές οδηγίες των δοκιμασιών περί συσκευασιών.	3500 και επομ.
Παράρτημα Α.6	Οδηγίες σχετικές με ραδιο-ενεργά υλικά της τάξης 7.	3600 και επομ.
Παράρτημα Α.7	Επιφυλασσόμενο	3700 και επομ.
Παράρτημα Α.8	Επιφυλασσόμενο	3800 και επομ.
Παράρτημα Α.9	Οδηγίες σχετικές με τις ετικέττες κινδύνου. Εξήγηση των σχημάτων και τύπων/είδους ετικεττών.	3900 και επομ.

ΙΙΙ Μέρος - Παράρτημα του συνημμένου Α.

Παράρτημα Α.1

Α. Προϋποθέσεις σταθερότητος και ασφαλείας σχετικές με εκρηκτικά υλικά, με εύφλεκτα στερεά υλικά και με οργανικά υπεροξείδια.	3000 -3099

Οι προϋποθέσεις σταθερότητος που αναγράφονται κατωτέρω είναι τα ελάχιστα σχετικά που ορίζουν την απαιτούμενη σταθερότητα των υλικών που επιτρέπονται για μεταφορά.

Τα υλικά αυτά μπορούν να δοθούν για μεταφορά μόνον αν συμφωνούν απόλυτα με τις εξής οδηγίες.

Στο περιθώριο 2101 1ο, περιθώριο 2171, 4ο και περιθώριο 2401, 7ο.

α) Η νιτροκυτταρίνη που θερμαίνεται επί 1/2 ώρα σε 132°C δεν πρέπει να παράγει εμφανείς κιτρινο-καφέ νιτρικούς ατμούς.

Η θερμοκρασία ανάφλεξης πρέπει να υπερβαίνει τους 180°C.

Η πυροξυλική κλωστή πρέπει να πληρεί τις ίδιες προϋποθέσεις σταθερότητος όπως η νιτροκυτταρίνη. Βλ. περιθώρια 3150 3151 α και 3153.

Εις περιθώριο 2101 3ο, 4ο και 5ο και περιθώριο 2401 7ο β και γ.

1. Σκόνες με νιτροκυτταρίνη που δεν περιλαμβάνουν νιτρογλυκερίνη πλαστικοποιημένες νιτροκυτταρίνες.

3 γρ. σκόνης ή πλαστικοποιημένης νιτροκυτταρίνης θερμαινόμενη επί 1 ώρα σε 132°C δεν πρέπει να παράγει εμφανές κιτρινο-καφέ νιτρικούς ατμούς. Η θερμοκρασία ανάφλεξης πρέπει να υπερβαίνει τους 170°C.

2. Σκόνες με νιτροκυτταρίνη περιέχοντας νιτρογλυκερίνη.

1 γρ. σκόνη θερμαινόμενη επί μία ώρα σε 110°C δεν πρέπει να παράγει εμφανείς κιτρινο-καφέ νιτρικούς ατμούς.

Η θερμοκρασία ανάφλεξης πρέπει να είναι ανώτερη από 160°C.

Για το 1 και 2 βλέπε περιθώρια 3150, 3151 Β και 3153.

Εις περιθώριο 2101 6ο και 7ο και 8ο α και β και 9ο α β και γ. 3103

1. Το τρινιτροτολουόνιο (τολίτης) τα μίγματα τα λεγόμενα ρευστά το τρινιτροτολουόλιο και η τρινιτρανισόλη του 6ο το εξύλιο (εξανιτροδιφαινυλανίνη) και πικρικό οξύ του 7ο α) τα πεντολίτια (μίγματα τετρανιτρικά, πενταερυθρά και τρινιτροτολουόλιο) και τα εξολύτια μίγματα τριμεθυλένια - τρινιτραμίνη και τρινιτροτολουόλιο) του 7ο Β, την φλεγματοποιημένη πενθρίτη και το φλεγματοποιημένο οξογόνιο του 7ο γ, την τρινιτρορεσορκίνη του 8ο α, το τετρύλιο (τρινιτροφαινυλμεθυλνιτραμίνιο) του 8ο Β, την πενθρίτη (τετρανιτρικό της πενταερυθρίτης) και το οξυγόνιο (τριμεθυλένιο - τρινιτραμίνη) του 9 οα, οι πεντολίτες (μίγμα πενθρίτης και τρινιτροτολουόλιου) και εξολίτης (μίγμα εξογόνιου και τρινιτρολολουόλιου) του 9ο Β και τα μίγματα πενθρίτιδος ή εξογόνιου με κερί παραφίνης ή με ανάλογες ουσίες στο κερί ή στην παραφίνη του 9ογ, θερμαινόμενα επί 3 ώρες σε θερμοκρασία 90°C δεν πρέπει να παράγουν εμφανές κίτρινο-καφέ νιτρικούς ατμούς. Βλέπε περιθώρια 3150 και 3152α.

2. Τα οργανικά νιτρικά σώματα που αναφέρονται υπό 8ο διαφορετικά από την τρινιτρορεσορκίνη και το τετρύλιο (τρινιτροφενυλμεθυλνιτραμίνη) θερμαινόμενα επί 48 ώρες σε θερμοκρασία 75°C δεν πρέπει να παράγουν εμφανές κιτρινοκαφέ νιτρικούς ατμούς βλ. περιθ. 3150 και 3152Β.

3. Τα οργανικά νιτρικά σώματα που αναφέρονται στο 8ο δεν πρέπει να είναι πιο ευαίσθητα τόσο στην ανάφλεξη όσο και στη σύγκρουση και τριβή από»

- την τρινιτρορεσορκίνη εάν είναι διαλυτά στο νερό
- το τετρύλιο (τρινιτροφενυλμεθυλνιτραμίνη) αν είναι αδιάλυτα στο νερό

Βλέπε περιθ. 3150, 3152, 3154, 3155, 3156, 3104 εις περιθώριο 2101, 11ο α) και β).

1. Η μαύρη σκόνη του 11οα δεν πρέπει να είναι πιο ευαίσθητη τόσο στην ανάφλεξη όσο στη σύγκρουση και στην τριβή από τη σκόνη κυνηγίου την πιο λεπτή έχουσα την εξής σύνθεση»

75% νιτρικό κάλλιο, 10% θείο και 15% άνθρακα πυριτιδοποιΐας βλ. περιθ. 3150, 3154, 3155 και 3156.

2. Οι σκόνες αργού ορυχείου ανάλογες με τη μαύρη σκόνη του 11οβ, δεν πρέπει να είναι πιο ευαίσθητες τόσο στην ανάφλεξη όσο και στη σύγκρουση και τριβή από το εκρηκτικό που συγκρίνονται έχουσες και την εξής σύνθεση» 75% νιτρικό κάλλιο, 10% θείο και 15% λιγνίτη Βλ. περιθ. 3150, 3154, 3155 και 3156. 3100

Εις περιθώριο 2101, 12ο «Τα εκρηκτικά με βάση νιτρικού σε σκόνη του 12οα και τα εκρηκτικά χωρίς ανόργανα νιτρικά σε σκόνη του 12οβ πρέπει να δύνανται να αποθηκεύονται επί 48 ώρες σε 75°C χωρίς να παράγουν εμφανείς κιτρινοκαφέ νιτρικούς ατμούς. Πριν την αποθήκευση δεν πρέπει να είναι πιο ευαίσθητα τόσο στην ανάφλεξη όσο και στη σύγκρουση και την τριβή από το εκρηκτικό της σύγκρισης που έχει την εξής σύνθεση» 3101 3105

80% νιτρικό αμμώνιο
12% τρινιτροτολουόλιο,
6% νιτρογλυκερίνης και
2% αλεύρι ξύλου Βλ. περιθ. 3150, 3152 β, 3154 α και β, 3155 και 3156.

Ένα δείγμα του εκρηκτικού συγκρίσεως που αναφέρεται ανωτέρω, διατηρείται στη διάθεση των συμβαλλομένων Κρατών, στο εργαστήριο του Κέντρου Σπουδών και Ερευνών των Γαιανθρακωρυχίων της Γαλλίας (CERCHAR) ΤΘ 2 60550 VERNEUIL - EN - HALATTE, ΓΑΛΛΙΑ. 3102

Εις περιθώριο 2101, 13ο Τα χλωριοποιημένα και υπερχλωριοποιημένα εκρηκτικά δεν πρέπει να περιέχουν κανένα αμμωνιακό άλας. 3106

Δεν πρέπει επίσης να είναι πιο ευαίσθητα τόσο στην ανάφλεξη όσο στη σύγκρουση και την τριβή, από το χλωρικοποιημένο εκρηκτικό, που έχει την εξής σύνθεση»

80% χλωρικό κάλλιο
10% δινιτροτολουόλιο
5% τρινιτροτολουόλιο
4% ρετσινέλαιο
1% αλεύρι ξύλου.

Βλέπε περιθ. 3150, 3154, 3155 και 3156.

Εις περιθώριο 2101, 14οα και β. Τα εκρηκτικά των 14οα και β δεν πρέπει να είναι πιο ευαίσθητα τόσο στην ανάφλεξη όσο και στη σύγκρουση και τριβή από την εκρηκτική ζελατίνα με 93% νιτρογλυκερίνη ή τους δυναμίτες με GUHR που δεν περιέχουν πλέον του 75% νιτρογλυκερίνη ή γλυκερίνη. 3107

Πρέπει να ικανοποιούν στη δοκιμασία αφιφρώσεις του περιθωρίου 3158.

Βλέπε περιθώριο 3150, 3154 β 3155 και 3156.

Εις περιθώριο 2101, 14γ «Τα εκρηκτικά του 14°C πρέπει να δύνανται να αποθηκευθούν επί 48 ώρες σε 75°C χωρίς να παράγουν εμφανές κιτρινο-καφέ νιτρικούς ατμούς. Προ και μετά την αποθήκευση δεν πρέπει να είναι πιο ευαίσθητα τόσο στην ανάφλεξη όσο στη σύγκρουση και τριβή από το εκρηκτικό συγκρίσεως που έχει την εξής σύνθεση»

37,7% νιτρογλυκόζη ή νιτρογλυκερίνη ή μίγμα των δύο,
1,8% κολοδιοβάμβακα
4,0% τρινιτροτολουόλιο
52,5% νιτρικό αμμώνιο και
4,0% αλεύρι ξύλου

Βλέπε περιθ. 3150, 3152 β, 3154, α β γ και δ, 3155 και 3156.

Εις περιθώριο 2131, 1οβ το εκρηκτικό υλικό δεν πρέπει να είναι πιο ευαίσθητο τόσο στην ανάφλεξη όσο στη σύγκρουση και τριβή από το τετρύλιο. Βλέπε περιθώριο 3150, 3154, 3155, 3156. 3108

Εις περιθώριο 2131 1°C «Το εκρηκτικό υλικό δεν πρέπει να είναι πιο ευαίσθητο τόσο στην ανάφλεξη όσο στη σύγκρουση και την τριβή από την πενθρίτη. Βλέπε περιθώριο 3150, 3154, 3155 και 3156. 3109

Εις περιθώριο 2131, 5οδ ο φόρτος διάδωσης δεν πρέπει να είναι πιο ευαίσθητος τόσο στην ανάφλεξη όσο στη σύγκρουση και την τριβή από το τετρύλιο. Βλέπε περ. 3150, 3154, 3155 και 3156. 3110

Εις περιθώριο 2170 (2) δ το εκρηκτικό φορτίο αφού αποθηκεύθηκε επί 4 εβδομάδες σε 50°C, δεν πρέπει να παρουσιάσει αλλοιώσεις που θα ωφείλοντο σε ανεπαρκή σταθερότητα. Βλέπε παρ. 3150 και 3157. 3111

Εις περιθώριο 2551, 1ο έως 50ο, τα υλικά θα υποβληθούν στις δοκιμασίες που περιγράφονται στα περιθώρια 3154, 3155 και 3156. 3112

Β. Οδηγίες σχετικές με τις δοκιμασίες. -3149

(1) Οι τρόποι εκτέλεσης των δοκιμασιών που αναφέρονται 3150
πιο κάτω, είναι εφαρμόσιμες όταν οι διαφοροποιήσεις των απόψεων εκδηλώνονται στην έγκριση των υλικών της οδικής μεταφοράς.

(2) Αν παρακολουθούμε άλλες μεθόδους ή τρόπους εκτέλεσης των δοκιμασιών για την εξακρίβωση των προϋποθέσεων σταθερότητος που αναφέρονται κατωτέρω στο παράρτημα αυτό, οι μέθοδοι αυτοί πρέπει να οδηγούν στην ίδια εκτίμηση από αυτή στην οποία θα μπορούσαμε να φθάσουμε με τις μεθόδους που αναγράφονται πιο κάτω.

(3) Στην εκτέλεση των δοκιμασιών σταθερότητος με θέρμανση για τις οποίες πρόκειται κατωτέρω, η θερμοκρασία της μελέτης που περιέχει το υπό δοκιμασίαν δείγμα, δεν θα πρέπει να διαφεύγει περισσότερο από 2°C της θερμοκρασίας ως καθορίζεται.

Η διάρκεια της δοκιμασίας θα πρέπει να είναι σεβαστή κοντά στα 2 λεπτά ακριβείας, όταν αυτή η διάρκεια πρέπει να είναι 30 λεπτά ή 60 λεπτά και πλησίον 1 ώρας ακριβείας όταν η διάρκεια πρέπει να είναι 48 ώρες και κοντά στις 24 ώρες ακριβείας όταν η διάρκεια πρέπει να είναι 4 εβδομάδες.

Το θερμαντήριο πρέπει να λειτουργεί έτσι ώστε μετά την εισαγωγή του δείγματος η θερμοκρασία να είχει λάβει την άξια της σε πέντε λεπτά το πολύ.

(4) Πριν να υποβληθούν στις δοκιμασίες των περιθωρίων 3151, 3152, 3153, 3154, 3155, 3156 οι ουσίες που δειγματοληφθηκαν πρέπει να αποξηραίνονται τουλάχιστον επί 15 ώρες στη θερμοκρασία που επικρατεί, σ' ένα θάλαμο αποξήρανσης εν κενώ περιέχων λειωμένο και κοκκώδες χλωριούχο ασβέστιο. Το υλικό θα τοποθετηθεί σε λεπτό στρώμα και γι αυτό τα υλικά που δεν είναι κονιορτώδη ούτε ινώδη θα συντρίβονται ή θα ξυστούν ή θα κοπούν σε μικρά κομματάκια.

Η πίεση στο θάλαμο αποξήρανσης θα πρέπει να είναι κάτω από 6,6 KP α (0,066 BAR).

(5) Πριν στεγνώσουν υπό τις προϋποθέσεις που αναφέρονται στην παράγραφο 4 πιο πάνω, τα υλικά του περιθωρίου 2101, 1ο (εκτός αυτών που περιέχουν παραφίνη ή ανάλογη ουσία) 2ο, 9ο α και β, και αυτές του περιθωρίου 2401, 7οΒ θα υποβληθούν σε προηγούμενη αποξήρανση σε καλώς αεριζόμενο θερμαντήριο, του οποίου η θερμοκρασία θα έχει καθοριστεί σε 70°C και που θα εξακουλουθείται τόσο όσο η απώλεια της μάζας ανά τέταρτο της ώρας δεν θα είναι λιγότερη από 0,3% του ζυγίσματος.

Β. Για τα υλικά του περιθωρίου 2101, 1ο (όταν περιέχουν παραφίνη ή ανάλογη ουσία) 7ο γ και 9ογ η προηγούμενη αποξήρανση θα πρέπει να γίνει όπως αναφέρεται στο εδάφιο «α» πιο πάνω, μόνον που η θερμοκρασία του θερμαντηρίου θα ρυθμιστεί μεταξύ 40°C και 50°C.

6. Η νιτροκυτταρίνη του περιθωρίου 2401 7οα θα υποβληθεί πρώτα σε προηγούμενη αποξήρανση υπό τις προϋποθέσεις που αναγράφονται στο εδάφιο 5α πιο πάνω. Η αποξήρανση θα τελειοποιηθεί με παραμονή 15 ωρών τουλάχιστον σε θάλαμο που περιέχει συμπυκνωμένο θειϊκό οξύ.

Δοκιμασία χημικής σταθερότητος στη θερμότητα.

Εις περιθώρια 3101 και 3102.

α Δοκιμασία στα υλικά που απαριθμούνται στο περιθώριο 3101.

(1) Σε κάθε ένα από τους υάλινους δοκιμαστικούς σωλήνες που έχουν τις εξής διαστάσεις»

Μήκος 350μμ

Εσωτερική διάμετρο 16μμ

Πάχος του τοιχώματος 1,5 μμ,

Βάζομε 1 γρ. αποξηραμένο υλικό επί χλωριούχου ασβεστίου (η αποξήρανση πρέπει να γίνει αν χρειαστεί με αναγωγή του υλικού σε κομμάτια που έχουν μάζα μη υπερβαίνουσα τα 0,005 γρ. εκάστη).

Οι δύο δοκιμαστικοί σωλήνες που επικαλύφθηκαν ολοσχερώς, χωρίς η επικάλυψη να παρέχει αντίσταση, τοποθετούνται σε θερμαντήριο που επιτρέπει την ορατότητα για τα 4/5 τουλάχιστον του μήκους των, και διατηρούνται σε συνεχή θερμοκρασία 132°C επί 30 λεπτά. Παρατηρούμε αν κατά τη διάρκεια αυτή παράγεται νιτρικό αέριο σε κατάσταση κιτρινοκαφέ ατμού που παρατηρούνται πολύ καλά σε λευκό πάτο/βάθους.

(2) Η ουσία θεωρείται σταθερή αν απουσιάζουν οι ατμοί αυτοί.

Β Δοκιμασία επί της σκόνης που απαριθμείται στο περιθώριο 3102.

(1) Σκόνες νιτροκυτταρίνης μη περιέχουσες ζελατοποιημένες ή όχι νιτρογλυκερίνη και πλαστικοποιημένες νιτροκυτταρίνες.

Εισάγουμε 3γ σκόνη στις γυάλινες δοκιμαστικές σωλήνες ίδιες με αυτές που αναφέρονται στο α, και τοποθετούνται ακολούθως στο θερμαντήριο όπου υπάρχει συνεχής θερμοκρασία 132°C.

(2) Σκόνες νιτροκυτταρίνης περιέχουσες νιτρογλυκερίνη. 3150

Βάζομε 1 γρ. σκόνη σε γυάλινες δοκιμαστικές σωλήνες όμοιες με αυτές του α, και τις τοποθετούμε ακολούθως σε θερμαντήριο όπου διατηρείται συνεχής θερμοκρασία 110°C.

(3) Οι δοκιμαστικοί σωλήνες που περιέχουν τις σκόνες του 1 και 2 διατηρούνται στο θερμαντήριο επί μία ώρα.

Κατά τη διάρκεια αυτή δεν πρέπει να παρατηρηθούν νιτρικά αέρια.

Παρατήρηση και εκτίμηση ως το α.

Εις περιθώρια 3103 και 3105. 3152

α Δοκιμασίες επί υλικών που απαριθμούνται στο περιθώριο 3103, 1.

(1) Δύο δείγματα εκρηκτικού, με μάζα μονάδος 10γ θα τοποθετηθεί σε γυάλινα κυλινδρικά φιαλίδια των οποίων η εσωτερική διάμετρος είναι 3 εκ. το ύψος 5 εκ. μέχρι την κάτω επιφάνεια του καπακιού πολύ καλά κλεισμένα με το πώμα τους και θερμαινόμενα σε θερμαντήριο, όπου παρατηρούνται καλώς επί 3 ώρες με συνεχή σταθερή θερμοκρασία 90°C.

(2) Κατά το διάστημα αυτό δεν πρέπει να παρατηρηθούν νιτρικά αέρια. Η διαπίστωση και εκτίμηση όπως το περιθώριο 3151α.

β. Δοκιμασία επί των υλικών που απαριθμούνται στα περιθώρια 3103, 2 και 3105.

(1) Δύο δείγματα εκρηκτικού με μάζα μονάδος 10 γρ. τοποθετούνται σε γυάλινα κυλινδρικά φιαλίδια των οποίων η εσωτερική διάμετρος είναι 3 εκατ. το ύψος 5 εκατ. μέχρι την κάτω επιφάνεια του καπακιού των και καλά κλεισμένα και θερμαινόμενα σε θερμαντήριο όπου παρατηρούνται καλώς επί 48 ώρες με συνεχή σταθερή θερμοκρασία 75°C.

(2) Κατά την περίοδο αυτή δεν πρέπει να παρατηρούνται νιτρικά αέρια.

Εκτίμηση και παρατήρηση ως στο περιθώριο 3151 α.

Θερμοκρασία ανάφλεξης (βλέπε περιθώριο 3101 και 3102). 3153

(1) Η θερμοκρασία ανάφλεξης καθορίζεται με το να θερμαίνουμε 0,2 γρ. υλικού κλεισμένο σε γυάλινο δοκιμαστικό σωλήνα που βυθίζεται σε μπάνιο από κράμα του WOOD. Η δοκιμαστική σωλήνα τοποθετείται στο μπάνιο όταν αυτό έχει θερμοκρασία 100°C. Η θερμοκρασία του μπάνιου αυξάνεται ακολούθως τμηματικά με 5°C το λεπτό. 3151

(2) Οι δοκιμαστικοί σωλήνες πρέπει να έχουν τις εξής διαστάσεις.

Μήκος 125μμ

Εσωτερική διάμετρο 15μμ

Πάχος τοιχώματος 0,5μμ και πρέπει να βυθίζονται σε βάθος 20μμ.

(3) Η δοκιμασία πρέπει να επαναληφθεί τρεις φορές αναγράφοντας εκάστη φορά τη θερμοκρασία στην οποία μία ανάφλεξη του υλικού γίνεται δηλαδή γρήγορη ή αργή καύση, εμπρησμός, έκρηξη.

(4) Η πιο χαμηλή θερμοκρασία που σημειώνεται κατά τις τρεις δοκιμασίες δείχνει τη θερμοκρασία ανάφλεξης.

Δοκιμασία ευαισθησίας στη θέρμανση μέχρις ερυθροποίησης και ανάφλεξης. Βλέπε περ. 3103 έως 3110. 3154

α. Δοκιμασία του ημισφαιρικού βάζου σε ερυθροποιημένο σίδηρο (βλέπε περ. 3103 έως 3106 και 3108 έως 3110).

(1) Σ' ένα ημισφαιρικό βάζο από σίδηρο πάχους 1μμ και διαμέτρου 120μμ που θερμαίνεται μέχρις ερυθροποίησης, πετάμε αυξανόμενες ποσότητες 0,5 γρ. μέχρι 10 γρ. του υπό δοκιμασία εκρηκτικού.

Τα αποτελέσματα της δοκιμασίας πρέπει να διακρίνονται ως εξής»

Ι. Ανάφλεξη με αργή καύση (εκρηκτικά με νιτρικό αμμώνιο)

ιι. Ανάφλεξη με γρήγορη καύση (χλωριούχα εκρηκτικά)

ΙΙΙ. Ανάφλεξη με βίαιη καύση και εμπρησμό (μαύρη σκόνη)

ιι Έκρηξη πυροκροτικός υδράργυρος.

(2) Πρέπει να λαμβάνουμε υπ' όψη μας την επιρροή της μάζας του χρησιμοποιημένου εκρηκτικού κατά την πορεία των φαινομένων.

(3) Το υπό εξέταση εκρηκτικό δεν πρέπει να παρουσιάζει καμία κύρια διαφορά με το εκρηκτικό σύγκρισης.

(4) Τα σιδερένια βάζα πρέπει να πλένονται σχολαστικά πριν από κάθε δοκιμασία και να αντικαθίστανται συχνά.

(Β) Δοκιμασία ικανότητος ανάφλεξης.

Βλέπε περ. 3103 έως 3110

(1) Το υπό δοκιμασία εκρηκτικό τοποθετείται υπό μορφή μικρού σωρού σε σιδερένια πλάκα - χρησιμοποιώντας- σύμφωνα με τα αποτελέσματα της δοκιμασίας α - αυξανόμενες ποσότητες 0,5 γρ. μέχρι 100 γρ. Μάξιμουμ.

(2) Η κορυφή του μικρού σωρού τίθεται στη συνέχεια σε επαφή με τη φλόγα ενός σπίρτου και σημειώνουμε αν το εκρηκτικό ανάβει και καίει αργά, εμπήζεται ή εκρήγνυται και εάν αφού ανάψει η καύση συνεχίζεται ακόμη και μετά την απομάκρυνση του σπίρτου.

Αν δε σημειωθεί ανάφλεξη, προβαίνουμε σε ανάλογη δοκιμασία θέτοντας το εκρηκτικό σε επαφή με φλόγα αερίου και κάνουμε τις ίδιες διαπιστώσεις.

3) Τα αποτελέσματα της δοκιμασίας τίθενται σε παραλληλισμό με αυτά που έχομε για το εκρηκτικό συγκρίσεως.

(γ) Δοκιμασία καύσης υπό απομόνωση σε κουτάκι ατσάλινο.

Βλέπε περιθώριο 3107.

(1) Η δοκιμασία καύσης γίνεται σε κυβικό ατσάλινο κουτάκι, 8 εκ. μήκους και 1μμπάχους τοιχώματος. Το κουτάκι έχει κατασκευαστεί από απαλό φύλλο ατσαλιού και κλεισμένο με τον πλέον αδιάβροχο δυνατό τρόπο, με το να διπλώσουμε το πλευρό του καπακιού (εικ. 1).

(2) Αν πρόκειται για εκρηκτικά που είναι ευαίσθητα στην τριβή πρέπει να αποφεύγουμε όταν καλύπτουμε την επιφάνεια με ένα φύλλο χάρτου, να εισέλθουν σωματίδια εκρηκτικού στα πλευρά και να παραμένουν εκεί όταν διπλώνουμε την πλευρά του καπακιού.

Το κουτάκι έχει γεμίσει πλήρως με εκρηκτικό ώστε να έχει κατά το μέτρο του δυνατού την ίδια πυκνότητα με αυτή των φυσιγγίων. Το κουτάκι τοποτεθείται στη φωτιά με προσοχή ώστε να αποφύγουμε την άμεση ανάφλεξη του εκρηκτικού.

Θα περιτυλιχθεί μερικές φορές με χαρτί περιτυλίγματος.

Μια σωρός ξύλα ύψους 0,8 μ θα ετοιμαστεί για τη φωτιά τοποθετώντας προηγουμένως στο έδαφος ένα στρώμα μαλλιού ξύλου και μετά κατά μήκος τρία κομμάτια ξύλου μήκους περίπου 0,5μ και φάρδους 0,25μ, και πάνω τους εγκάρσια άλλα τρία κομμάτια ξύλα ιδίου μεγέθους. Τρία στρώματα μικρού ξύλου κομμένου σε μήκος περίπου 0,2μ μεταξύ των οποίων θα τοποθετηθεί μαλλί ξύλου, επάνω στο σύνολο. Από κάθε πλευρά θα τοποθετηθούν 3 με 4 κομμάτια ξύλου μήκους 0,5μ περίπου θα στηρίζονται στο σωρό των ξύλων για να αποφεύγουμε να πέσει όταν καεί. Η φωτιά τίθεται στη σωρό των ξύλων μέσω καμματιού αναμμένου μαλλιού ξύλου.

(3) Θα καθορίσουμε αν το εκρηκτικό εμπρίζεται ή εκρήγνυται.

Πόση ώρα διαρκεί η καύση και με ποίες εκδηλώσεις αναπτύσσεται και ποιές είναι οι αλλαγές στο κουτάκι.

(4) Η δοκιμασία επαναλαμβάνεται 4 φορές.

Μία φωτογραφία θα ληφθεί από τα ατσάλινα κουτάκια μετά τη χρήση των.

Δοκιμασία θέρμανσης με απομόνωση σε ατσάλινο φυσίγγιο με φωτεινό δίσκο μετρημένης διαμέτρου (δοκιμασία ατσάλινου φυσιγγίου) Βλέπε περιθώρια 3103 έως 3110 και 3112.

(1) Δοκιμασίες υπό α και γ μπορούν να συμπληρωθούν με την εξής δοκιμασία.

(2) Περιγραφή του ατσάλινου φυσιγγίου – εικόνα.

Το φυσίγγι έχει κατασκευαστεί με κυρτώσεις ατσάλινου φύλλου ικανού να υποστεί βαθεία κύρτωση. πχ αρ υλικού 1.0336.505γρ συμφ DIN 1623 φύλλο 1

Οι διαστάσεις είναι Εσωτερική διάμετρος 24μμ

Πάχος ενός τοιχώματος 0,5μμ

Μήκος 75μμ.

Στην άκρη που έχει άνοιγμα έχει και εξωτερικό στεφάνι. Για να κλείσει τοποθετούμε δίσκο κεντρικού φωτός που αντέχει στην πίεση στο στεφάνι και πιέζεται μαζί με αυτό συρματοποιημένο εξωτερικά, στεφάνι που γλιστρά στο φυσίγγι και με υποδοχή βίδας, βιδωμένο στο στεφάνι αυτό.

Ο δίσκος έχει κατασκευατεί από ατσάλι χρωμίου που αντέχει στην θερμότητα (πχ αρ υλικού 1.4873 σύμφωνα με φύλλο «STAHL-EISEN – WERKSTOFF» 490-52) με πάχος 6μμ.

Για την ροή των αερίων αποσύνθεσης κάνομε χρήση δίσκων με κυλινδρικό κεντρικό φως (α) που έχει τις εξής διαστάσεις» διαμέτρου 1, 0-1, 5-2, 0-2, 5-3-4-5-6-8-10-12-14-16-18-19-20 μμ, προσαυξάνονται με τη διάμετρο 24 μμ όταν το φυσίγγι χρησιμοποιείται χωρίς δίσκο και χωρίς σύστημα κλεισίματος.

Το συρματοποιημένο στεφάνι και η υποδοχή της βίδας είναι από ατσάλι με μαγγάνιο και χρώμιο που αντέχει σε θερμοκρασία 800oC (π.χ. αρ. υλικού 1.3817 σύμφωνα με το φύλλο «STAHL-EISEN "WERKSTOFF" 49052).

Με τους δίσκους φωτός των 1 έως 8μμ διαμέτρου, πρέπει να χρησιμοποιούνται υποδοχές βίδας μεφώς (Β) των 10μμ διαμέτρου, αν ηδιάμετρος του φωτός είναι πάνω από 8μμ αυτή της υποδοχής της βίδας πρέπει να έχει διάμετρο 20μμ.

Κάθε φυσίγγιο χρησιμεύει για μία δοκιμασία.

Οι δίσκοι όμως τα στεφάνια και οι υποδοχές βίδας μπορούν να χρησιμοποιηθούν πάλι αν δενυποστούν ζημία. Το φώς του δίσκου πρέπει να ελεχθεί μεμέτρηση μετά από κάθε δοκιμασία.

(3) Σύστημα θέρμανσης και προστασίας (εικ. 3)

Η θέρμανση γίνεται μεαέριο πόλεως μεθερμαντική δύναμη μικροτέρα από 16,75 MJ/μ3 μέσω 4 καυστήρων που παράγουν περίπου 10W για κατανάλωση 0,6 λ/δευτ.

Αφού η καταστροφή του φυσιγγίου είναι δυνατή η θέρμανση πραγματοποιείται σε κουτί που προστατεύει από θραύσματα, ατσάλινο πάχους 10μμ συγκολλημένο και ανοικτό από τη μία πλευρά προς τα επάνω. Το φυσίγγι κρεμιέται μεταξύ δύο ράβδων διαμέτρου 4μμ, εισερχόμενο στις ανοιγμένες τρύπες των αντίθετων τοιχωμάτων του κουτιού και μετά θερμαίνοντας με 4 καυστήρες TECLU (εξωτερικής διαμέτρου της σωλήνας 19μμ) αυτού που βρίσκεται προς τα κάτω, θερμαίνει την βάση του κουτιού, αυτού που βρίσκεται αριστερά και δεξιά του τοιχώματος πίσω στο κλείσιμο.

Οι σωλήνες των καυστήρων εισέρχονται και σταθεροποιούνται σε οπές 20μμ διαμέτρου που έχουν ανοιχθεί στα τοιχώματα του προστατευτικού κουτιού των θραυσμάτων.

Οι καυστήρες ανάβονται ταυτόχρονα από καντήλι και ρυθμίζονται σε μεγάλη προσφορά αέρος ώστε οι άκρες του εσωτερικού κωνίδιου μπλε από φλόγα να αγγίζουν σχεδόν το φυσίγγι.

Όλη η εγκατάσταση βρίσκεται σε δοκιμαστήριο και είναι χωρισμένο από την αίθουσα παρατήρησης με χοντρό τοίχωμα όπου παρατηρητικά γυαλία έχουν εφαρμοσθεί με τεθωρακισμένο γυαλί και ατσάλινες πλάκες με σχισμές. Το προστατευτικό σε θραύσματα κουτί έχει τοποθετηθεί με την πλευρά ανοικτή προς την αίθουσα παρατηρήσεως. Θα αποφύγουμε να επηρεάζονται οι φλόγες από ρεύμα αέρος. Η αίθουσα δοκιμασίας έχει εφοδιαστεί με ένα σύστημα που επιτρέπει την απορρόφηση αερίου αποσύνθεσης και καπνού έκρηξης.

Ελλείψει αερίου πολέως η θέρμανση δύναται να γίνει με αέριο προπανίου. Το προπάνιο τραβιέται τότε από εμπορική φιάλη εφοδιασμένη με ελλατωτήρια (4,9 KPa(0,049BAR)

περνά από μετρητή (μετρητή με φυσητικό μηχάνημα περιεκτικότητας 2 λίτρων με 4,9 KPa(0,049BAR) και κατευθύνεται από διανομέα προς τους 4 καυστήρες των οποίων τα στόμια έχουν διάμετρο (άνοιγμα) 0,8μμ.

Έκαστος καυστήρας καταναλώνει το πολύ περίπου 1,7 λίτρα προπάνιο το λεπτό.

Τα φιαλίδια αερίου και ο μετρητής τοποθετούνται έξω από το δοκιμαστήριο.

4. Εκτέλεση της δοκιμασίας.

Γεμίζουμε το φυσίγγι με εκρηκτικό υλικό μέχρι 15μμ κάτω από το χείλος, δηλαδή επί ύψος 60μμ. Αν το υλικό είναι σκόνη σπρώχνουμε με προσεκτικές κινήσεις κτυπήματος του φυσιγγίου και μετά με ελαφρά πίεση με ένα ξυλάκι.

Εάν το υλικό είναι ζελατινώδες εισάγεται στο φυσίγγι με μια σπάτουλα, κάθε φορά που εισάγομε σ' αυτό μια ποσότητα την πιέζουμε ελαφρά με ένα ξυλάκι αποφεύγοντας να δημιουργηθούν φυσαλλίδες αέρος.

Αφού ζυγίσουμε την εισαγόμενη ποσότητα γλιστράμε το σιρματοποιημένο στεφάνι στο φυσίγγι, τοποθετείται ο δίσκος φωτός και η υποδοχή της βίδας, σφίγγεται με το χέρι. Θα προσέξουμε να μην υπάρχει υλικό μεταξύ στεφάνης και του δίσκου ούτε στα δίκτυα. Τότε το φυσίγγι τοποθετείται σε δυνατά στερεοποιημένο συσφιγκτήρα με προστασία κατά ξαφνικής έκρηξης και ο υποδοχέας της βίδας σφίγγεται με ένα κλειδί. Το έτοιμο προς δοκιμασία φυσίγγι κρεμιέται μεταξύ των δύο ράβδων του προστατευτικού κουτιού θραυσμάτων.

Ανάβουμε το κανδήλι και μετά το κλείσιμο του δοκιμαστηρίου, ανοίγουμε την παροχή αερίου στους 4 καυστήρες. Συγχρόνως ένα χρονόμετρο τίθεται σε λειτουργία για να μετρηθεί ο χρόνος (τ1) μεταξύ του ανάμματος και της ανάφλεξης του υλικού που χαρακτηρίζεται από την έξοδο μιας φλόγας του φωτός του δίσκου και ο χρόνος τ2 μεταξύ του ανάμματος και της έκρηξης. Αφού τελειώσει η δοκιμασία η εισαγωγή αερίου σταματά και το σύστημα αναρρόφησης μέσα στο δοκιμαστήριο τίθεται σε λειτουργία.

Θα μπούμε σ' αυτό το δοκιμαστήριο μόνον μετά από επαρκές χρονικό διάστημα.

Για να εξασφαλίσουμε τέλεια λειτουργία του θερμαντικού συστήματος, οι δοκιμασίες θα προηγούνται από την δοκιμασία εν λευκώ.

(5) Ερμηνεία των αποτελεσμάτων.

Η σχετική μέτρηση της ευαισθησίας ενός υλικού, στη θέρμανση μέσα στο φυσίγγι από ατσάλι, εκφράζεται από τη διάμετρο-όριο που είναι η μέγιστη διάμετρος του φωτός που εκφράζεται σε μιλίμετρα με το οποίο σε τρείς δοκιμασίες αποκτάμε τουλάχιστον μια έκρηξη του φυσιγγιού δηλαδή η καταστροφή αυτού σε τουλάχιστον 3 θραύσματα. Η θερμική ευαισθησία αυξάνεται με το χρόνο τι και τ2 βαθμιαία μείωση.

Θα μπορούσαμε να θεωρήσουμε τα οργανικά υπεροξείδια (εκτός) αυτών που υγροποιούνται ή διαλύονται με πτητικές ουσίες πχ νερό για τα οποία το όριο της διαμέτρου είναι ίσο ή μεγαλύτερο από 0,2μμ όπως εκρηκτικά υλικά τάξης 1α βλέπε επίσης σημείωση περιθωρίου 2550.

ε. Δοκιμασία θέρμανσης σε δοχείο με πίεση, με δίσκο κεντρικού φωτός και μεμβράνη (δοκιμασία στο δοχείο με πίεση) Βλέπε περιθώριο 3112

(1) Για τα οργανικά υπεροξείδια οι δοκιμασίες οι αναφερόμενες υπό α, β και δ δύνανται να συμπληρωθούν με την εξής δοκιμασία

(2) Περιγραφή του δοχείου πίεσης (εικ 4 έως 6)

Οι εικόνες 4 έως 6 και οι σχετικές εξηγήσεις αποδίδουν τις λεπτομέρειες της χρησιμοποιημένης συσκευής όπως και οι διαστάσεις και τα υλικά των συστατικών των εξαρτημάτων.

Πρέπει να σημειώσουμε ότι η χρήση 24 δίσκων φωτός προβλέπεται και η διάμετρος αυτών είναι 1, 0-1, 2-1, 5-2, 0-2, 5-3, 0-3, 5-4, 0-4, 5-5, 0-5, 5-6, 0-7, 0-8, 0-9, 0-10, 0-11, 0-12, 0-14, 0-16, 0-18, 0-20, 0-22,0 και 24,0μμ

Οι δίσκοι αυτοί έχουν πάχος 2,0μμ – 0,2μμ.

Η μεμβράνη διάρρηξης κόβεται με ποπίδι σε φύλλο ορείχαλκου 0,05μμ πάχους που αντέχει σε πίεση διάρρηξης 0,53 MPα– 0,05 MPα (5,3 BAR – 0,5 BAR) σε κανονική θερμοκρασία 0 μη επαναψημένος ελασματοποιημένος ορείχαλκος με 67% χαλκό αρμόζει.

(3) Σύστημα θέρμανσης

Το δοχείο με πίεση θερμαίνεται με βουτάνιο τεχνικής ποιότητος, που τραβιέται από φιάλη έχουσα ελαττωτήριο. Η παραγωγή θερμότητος πρέπει να είναι περίπου 3,1 KW Αν αυτό το αέριο έχει θερμαντική δύναμη κατωτέρα από 113 MJ/μ3 (από 100 KPα(1BAR) και 20ο C) η παροχή θα πρέπει να είναι 0,1 μ3/ώρα περίπου.

Γίνεται χρήση καυστήρα TECLU για βουτάνιο. Η ποσότης αερίου μετράται με περιστρεπτόμετρο ή με μετρητή που έχει ρυθμιστεί με την βρύση του καυστήρα.

Αντί για βουτάνιο μπορούμε να χρησιμοποιήσουμε αέριο πόλεως ή προπάνιο με την χρήση κατάλληλου καυστήρα, εφ' όσον η παραγωγή θερμότητος αερίου θα είναι επίσης περίπου 3,1 π.χ. σε περίπτωση θερμικής δύναμης μικρότερης από το αέριο πόλεως των 17 MJ/μ3 πρέπει να παρέχει περίπου 0,67μ3/ώρα. Η φιάλη αερίου, το περιστρεπτόμετρο ή ο μετρητής πρέπει να τοποθετούνται έξω από την αίθουσα της δοκιμασίας.

4. Εκτέλεση της δοκιμασίας.

Για κανονική δοκιμασία τοποθετούμε 10 γραμμάρια του υλικού στο δοχείο. Αν πρόκειται για υλικό του οποίου αγνοούμε την ευαισθησία αρχίζουμε με μικρότερες ποσότητες, πρώτα με 1 γρ μετά αν είναι δυνατόν, με 5 γραμμάρια, και τέλος με 10 γραμμάρια. Ο βυθός του δοχείου πρέπει να έχει επικαλυφθεί ομοιόμορφα με το υλικό. Τοποθετούμε την μεμβράνη διαρρήξεως, τον δίσκο κεντρικού φωτός και το στεφάνι της γαρνιτούρας. Οι υποδοχές στις βίδες με τα πιαστράκια σφίγγονται με το χέρι και οι υποδοχείς της βίδας που το επικαλύπτει με ένα κλειδί. Η μεμβράνη διαρρήξεως καλύπτεται με νερό σε επαρκή ποσότητα ώστε να διατηρηθεί η μεμβράνη σε χαμηλή θερμοκρασία.

Το δοχείο με πίεση τοποθετείται σε ένα τρίποδα (με εσωτερική διάμετρο του στεφανιού 67μμ) που βρίσκεται μέσα σε ένα προστατευτικό κύλινδρο. Το στεφάνι που βρίσκεται στο κάτω μέρος του δοχείου τοποθετείται στον τρίποδα.

Ανάβουμε τον καυστήρα Η είσοδος του αερίου ρυθμίζεται με την προβλεπόμενη παροχή και η παροχή νερού ώστε το χρώμα της φλόγας να είναι μπλέ και ο εσωτερικός κώνος της φλόγας να είναι μπλέ ανοικτός.

Ο τρίποδας πρέπει να έχει ύψος τόσο ώστε ο εσωτερικός κώνος να αγγίζει περίπου το βυθό του δοχείου. Ακολούθως ο καυστήρας τοποθετείται κάτω από το δοχείο από ένα άνοιγμα στον προστατευτικό κύλινδρο.

Η αίθουσα όπου εκτελείται η δοκιμασία πρέπει να έχει καλό εξαερισμό και δεν επιτρέπεται η είσοδος κατά την δοκιμασία.

Το δοχείο παρατηρείται απ' έξω μέσω καθρεπτών ή μέσω οπής παρατήρησης στον τοίχο, εφοδιασμένη με τεθωρακισμένο γυαλί.

Μετράμε το χρόνο τ1 μεταξύ της αρχής της θέρμανσης και της αρχής μιας αντίδρασης (φλόγας ανάπτυξης καπνού φυσήματος) και ο χρόνος τ2 μέχρι το τέλος της αντίδρασης (έκρηξη τέλος του φυσήματος και ανάπτυξη καπνού ή αβήσιμου της φλόγας). Στη συνέχεια κρυώνουμε το δοχείο με νερό και το καθαρίζουμε.

(5) Ερμηνεία των αποτελεσμάτων.

Η σχετική μέτρηση της ευαισθησίας ενός υλικού στη θέρμανση μέσα στο δοχείο πίεσης εκφράζεται από το όριο διαμέτρου, αυτή είναι η μεγαλύτερη διάμετρος του φωτός που εκφράζεται σε μιλιμέτρ με την οποία σε τρείς δοκιμασίες η μεβράνη σχίζεται τουλάχιστον μία φορά όταν μένει άθικτη κατά τις τρείς δοκιμασίες με την αμέσως μεγαλυτέρα διάμετρο.

Η θερμική ευαισθησία αυξάνεται με αυξανόμενο όριο διαμέτρου και διαδοχικά μειωμένους χρόνους τ1 και τ2.

Θα πρέπει να θεωρήσουμε οργανικά υπεροξείδια (εκτός αυτών που υγροποιούνται ή διαλύονται με πτητικές ουσίες πχ νερό) για τις οποίες το όριο διαμέτρου είναι ίσο ή μεγαλύτερο από 9μμ όπως εκρηκτικά υλικά της τάξης Ια (βλέπε επίσης σημείωση υπό περιθ 2550)

Δοκιμασία ευαισθησίας στη σύγκρουση (βλέπε περιθ. 3103 έως 3110 και 3112. 3.155

Δοκιμασία με τον κόπανο σύγκρουσης 1 (εικόνα 7 και 8. Με χρήση μιας εκρίκτου συγκρίσεως.

(1) Το αποξηραμένο υπό τις προϋποθέσεις του περιθωρίου 3150 εκρηκτικό τίθεται κατ' ακολουθίαν υπό την εξής μορφή

α. Τα συμπαγή εκρηκτικά τρίβονται αρκετά λεπτά ώστε να δύναται να περάσει από κόσκινο με ανοίγματα 1μμ και κρατάμε για την δοκιμασία το απομείναν υλικό σε κόσκινο με ανοίγματα 0,5μμ Τα κονιορτοποιημένα εκρηκτικά περνιούνται από κόσκινο με ανοίγματα 1μμ και κρατάμε για την δοκιμασία συγκρούσεως το σύνολο του κλάσματος που περνά από το κόσκινο αυτό.

γ. Τα ζελατινώδη και πλαστικά εκρηκτικά τίθενται υπό μορφή μικρών σφαιρικών χαπακιών μάζας μεταξύ 25 και 35μγ.

(2) Η συσκευή για την εκτέλεση της δοκιμασίας αποτελείται από μια μάζα που γλιστρά μεταξύ δύο ράβδων και που μπορούν να σταθεροποιηθούν σε καθορισμένο ύψος πτώσης. Η μάζα αυτή πρέπει να έχει εύκολη απελευθέρωση με σκοπό την πτώση.

Η μάζα δεν πίπτει άμεσα στο εκρηκτικό απλά πίπτει σε ένα ιγδιοκόπανο αποτελούμενο από ένα άνω τμήμα Δ και κάτω τμήμα Ε αμφότερα από πολύ σκληρό ατσάλι που γλιστρά ελαφρά στο στεφάνι οδηγού F (εικόνα 7).

Το δείγμα του εκρητικού τοποθετείται μεταξύ του άνω τμήματος και του κάτω του ιγδιοκόπανου

Αυτός και το στεφάνι οδηγού βρίσκονται σ' ένα προστατευτικό κύλινδρο C από στομιοποιημένο ατσάλι τοποθετημένο σ' ένα ατσάλινο μπλόκ Β που βυθίζεται σε τσιμέντινη βάση Α (εικόνα 8).

Οι διατάξεις των διαφορετικών τμημάτων αναγράφονται στο πιό κάτω σχέδιο.

(3) Οι δοκιμασίες εκτελούνται μια μια επί του εξεταστέου εκρηκτικού και επί του εκρηκτικού σύγκρισης με τον εξής τρόπο

α. Το εκρητικό υπό μορφή σφαιρικού χαπακιού (αν πρόκειται για πλαστικό) ή μετρημένο με μέτρο γόμωσης δυνατότητος 0,05 κυβ εκατ (αν είναι κονιορτώδες ή υπό μορφή τριμμάτων) τοποθετείται προσεκτικά μεταξύ των δύο τμημάτων του ιγδιοκοπάνου του οποίου οι επιφάνειες επαφής δεν πρέπει να είναι υγρές.

Η επικρατούσα θερμοκρασία δεν πρέπει να ξεπερνά τους 30°C ούτε να είναι κάτω από 15°C. Κάθε δείγμα του εκρηκτικού πρέπει να δέχεται την σύγκρουση μόνον μια φορά. Μετά από κάθε δοκιμασία το ιγδιοκόπανο και το στεφάνιοδηγού πρέπει να καθαρίζονται σχολαστικά και τυχόν υπόλοιπο εκρηκτικού πρέπει να αφαιρεθεί.

β. Οι δοκιμασίες πρέπει να αρχίζουν με ύψος πτώσεως που πιθανόν να προκαλούν την απόλυτη έκρηξη των δοκιμασμένων εκρηκτικών. Μειώνουμε σταδιακά το ύψος πτώσεως μέχρις ότου η έκρηξη να είναι ημιτελής ή μηδενική. Στο ύψος αυτό προβαίνουμε σε τέσσερις δοκιμασίες συγκρούσεως και αν κατά μια απ' αυτές τις δοκιμασίες υπάρχει καθαρή έκρηξη προβαίνουμε εκ νέου σε τέσσερις δοκιμασίες με ύψος πτώσης λίγο χαμηλώτερο από το προηγούμενο και συνεχίζουμε ούτω.

γ. Θεωρείται ως όριο ευαισθησίας στο ύψος σύγκρουσης η πιο χαμηλή που προκάλεσε καθαρή έκρηξη κατά μία σειρά τουλάχιστον 4 δοκιμασιών που εκτελέστηκαν στο ύψος αυτό.

δ.Η δοκιμασία σύγκρουσης πραγματοποιείται κανονικά με μία μάζα 2Κγ. Όμως αν η ευαισθησία στη σύγκρουση με την μάζα αυτή ξεπερνά το ύψος πτώσεως 60 με 70 εκ, η δοκιμασία σύγκρουσης πρέπει να εκτελεστεί με μάζα πτώσεως 5χγ.

β. Δοκιμασία με κόπανο συγκρούσεως 11 (εικόνες 9 έως 13 με αριθμητική μείωση της ευαισθησίας στη σύγκρουση (ενέργεια του κτυπήματος σε))

(1) Η δοκιμασία που αναφέρεται υπό το α δυνατό να αντικατασταθεί από την εξής δοκιμασία.

2. Περιγραφή της συσκευής.

Τα κύρια τμήματα της συσκευής είναι το σύστημα κρούσης βλέπε εδάφιο 4 μπλόκ σε χυτό ατσάλι με μία έμβαση το αμόνι, η κολόνα, η εγκοπή ολίσθησης, οι κόπανοι με σύστημα, η κολόνα, η εγκοπή ολίσθησης, οι κόπανοι με σύστημα απελευθέρωσης (εικόνα 9). Στο ατσάλινο μπλόκ (230×250×200μμ (με έμβαση (450×450×60μμ) προερχομένη από χύσιμο έχει βιδωθεί ένα αμόνι από ατσάλι (100μμ διαμέτρου 70μμ ύψους). Στην πίσω πλευρά το μπλόκ έχει βιδωθεί ένα στήριγμα επί του οποίου στερεοποιείται η κολώνα αποτελούμενη από ατσάλινη σωλήνα χωρίς ένωση (90μμ ε 75μμι).

Οι δύο εγκοπές ολίσθησης στερεοποιούνται στην κολώνα μέσω τριών τραβέρσων και είναι εφοδιασμένες με μία κρεμάστρα για να περιορισθεί η αναπήδηση του κόπανου, και με μία κινητή μεζούρα για να καθοριστεί το ύψος της πτώσης. Το σύστημα ανάρτισης και απελευθέρωσης του κόπανου μπορεί να μετακινηθεί μεταξύ των εγκοπών ολίσθησης και στεροποιείται στη θέση του με ένα μοχλό που σφίγει δύο σκέλη. Η συσκευή στερεοποιείται η βάση της επεκτείνεται σ' όλη την επιφάνειά της και οι εγκοπές ολίσθησης που είναι ακριβώς κάθετες, σε μία μάζα τσιμέντου (600×600×600μμ) μέσω 4 βίδων που είναι σφραγισμένες μέσα στο τσιμέντο.

Ένα ξύλινο κουτί που προστατεύει από τα θραύσματα με εσωτερική επένδυση από μολύβι 2μμ πάχους, το οποίο ανοίγει εύκολα περικλείει την συσκευή μέχρι το επίπεδο της κάτω

Ένα σύστημα αναρρόφησης επιτρέπει την αποβολή αερίων εκρήξεως και της σκόνης του υλικού.

3. Περιγραφή κοπάνων.

Κάθε κόπανος έχει δύο αυλάκια συνοδείας που τον διατηρεί μεταξύ των εγκοπών ολίσθησης κατά την μετακίνηση των από ένα τμήμα αναρτήσεως ένα κινητό κυλινδρικό ιγδιοκόπανο και ένα σύστημα παύσης που στερεοποιείται στον κόπανο με βίδες, (εικόνα 11). Το ιγδιοκόπανο είναι από ενισχυμένο ατσάλι HRC 60 με 63, και η ελάχιστη διάμετρός του είναι 25μμ έχει και μία εξοχή που εμποδίζει την είσοδό του στο σώμα του κόπανου κατά την πτώση.

Υπάρχουν τρείς κόπανοι με διαφορετικές μάζες. Η μάζα του 1 κγ χρησιμοποιείται για τα υλικά με μεγάλη ευαισθησία. Η μάζα των 5Κγ χρησιμοποιείται για υλικά με ελάχιστη ευαισθησία. Η μάζα των 10 Κγ χρησιμοποιείται για υλικά με ελάχιστη ευαισθησία. Οι κόπανοι των 5 και 10 χγ είναι από συμπαγές και στερεό ατσάλι (AC 37-1 τουλάχιστον σύμφωνα με DIN 17000)

Ο κόπανος του 1 Κγ πρέπει να έχει στερεό κέντρο από ατσάλι φέροντας το ιγδιοκόπανο και αποτελεί μαζί του την κύρια μάζα του κόπανου.

Ο κόπανος του 1 Κγ χρησιμεύει για ύψος πτώσεων από 10 έως 50 εκατ. (ενέργεια του κτυπήματος 0.98J με 4.9J).

Εκείνος των 5 Κγ για ύψος πτώσεως από 15 έως 60 εκατ. (ενέργεια του κτυπήματος 7,4 J με 29,4 J και εκείνος των 10 Κγ για ύψος πτώσεως των 35 με 50 εκατ. (ενέργεια κτυπήματος 34,3 J με 58,9 J).

4 Περιγραφή του συστήματος κρούσης

Το προς δοκιμασία δείγμα έχει κλειστεί στο σύστημα κρούσης (εικόνα 11) που αποτελείται από 2 κυλίνδρους ατσάλινους, υπερεπικειμένους συναξωνικά και ένα στεφάνι συνοδείας επίσης από ατσάλι. Οι κύλινδοι είναι σωλήνες από ατσάλι για τα επίπεδα των ελάστρων με 10 μμ διάμετρο.

των ελάστρων με 10μμ διάμετρο (τύπου με μέση έκκλιση - 4 μικρόν για αντοχή - 2 μικρόν και δηλαδή

$10^{-0,003}_{-0,005}$ μμφ ύψος με λειανόμενες επιφάνειες και στρογγυλοποιημένες γωνιακές γραμμές (ακτίνα κυρτότητος μ 0,5μμ) και σκληρότητα HGC από 58 μέχρι 65.

Το στεφάνι συνοδείας έχει εξωτερική διάμετρο 16μμ, εσωτερική διάμετρο διορθωμένη από

$10^{+0,005}_{+0,010}$ μμ φ και ύψος 13 μμ

Τα όρια των μέτρων της εσωτερικής διαμέτρου μπορούν να ελεγχθούν με ειδικό όργανο ελέγχου.

Οι κύλινδροι και τα στεφάνια συνοδείας θα καθαρίζονται από κάθε λίπος με ασετόνη πριν να χρησιμοποιηθούν.

Το σύστημα κρούσης ευρίσκεται επάνω σε ενδιάμεσο αμόνι 26 μμ διαμέτρου και 26 μμ ύψους επικεντρωμένο με στεφάνι επικεντρώσεως που φέρει άλλο στεφάνι εξαερισμού για την

διαφυγή των αερίων (εικών 11 και 12). Οι κύλινδροι χρησιμοποιούνται μία φορά για κάθε επιφάνεια βάσης.

Σε περίπτωση εκρίξεως, το στεφάνι συνοδείας δεν χρησιμοποιείται πιά.

(5). Προετοιμασία δειγμάτων

Τα εκρηκτικά υλικά δοκιμάζονταισε στεγνή κατάσταση. Τα υλικά του περιθωρίου 2101, 11ο και 14ο δοκιμάζονται στην κατάσταση που παραδίδονται, εφ' όσον η περιεκτικότητά τους σε νερό αντιστοιχεί στην πραγματική αξία που σημειώνεται από τον παρασκευαστή.

Αν η περιεκτικότης σε νερό είναι πιο μεγάλη, τα μίγματα θα πρέπει να αποξηραίνονται πριν να δοκιμασθούν μέχρι του ποσοστού της ανάλογης υγρασίας.

Επίσης για τα στερεά σώματα πλην των ζυμαρωδών πρέπει να τηρηθεί το εξής.

α. Τα κονιορτώδη υλικά πρέπει να κοσκινίζονται (μέγεθος της οπής του κόσκινου 0,5 μμ ο,τι περνά από το κόσκινο χρησιμοποιείται για τη δοκιμασία.

β. Τα συμπιεσμένα υλικά τα λειωμένα ή με άλλο τρόπο συγκεντρωμένα πρέπει να κομματιάζονται σε πολύ μικρά κομμάτια και να κοσκινίζονται.

Το κοσκινισμένο τμήμα του 0,5 μμ με 1 μμ Φ χρησιμοποιείται για τη δοκιμασία.

6. Εκτέλεση της δοκιμασίας.

Για τα κονιορτώδη υλικά μετράμε ένα δείγμα με μιά κυλινδρική μεζούρα 40 μμ3 (διάτριση 3,7 Φ × 3,7 μμ. Για τα ζυματώδη υλικά χρησιμοποιούμε κυλινδρική σωλήνα με ίδιο όγκο, την οποία χώνουμε στη μάζα. Μετά το αλφάδιασμα του πλεονάσματος της Μεζούρας το δείγμα αποσπάται με τη βοήθεια ενός ξυλακίου. Για τα ρευστά εκρηκτικά υλικά, χρησιμοποιούμε ένα μικρό σιφωνάκι 40 μμ 3 λεπτά τεντομένο.

Το δείγμα τοποθετείται στο σύστημα κρούσης ανοικτό το οποίο βρίσκεται στο ενδιάμεσο αμόνι με το στεφάνι επικεντρώσεως, και για τα κονιορτώδη ή ζυματώδη υλικά ο άνω ατσάλινος κυλινδρος πιέζεται προσεκτικά ελαφρά με τον δείκτη μέχρι να αγγίξουμε το δείγμα, χωρίς να το πιέζομε όμως.

Για τα ρευστά υλικά το άνω ατσάλινο κυλινδράκι πιέζεται με μία συρρόμενη ράβδο μιας συρόμενης βάσης μέχρις απόστασης 1 μμ από το κάτω κύλινδρο και διατηρείται στη στάση αυτή με ένα στεφάνι από καουτσούκ, που έχει προηγουμένως εφαρμοστεί. εικόνα 13.

Το σύστημα έχει τοποθετηθεί και επικεντρωθεί στο αμόνι. το προστατευτικό ξύλινο κουτί έχει κλείσει, ο κόπανος έχει κρεμαστεί στο ύψος πτώσεως που είχε προβλεφθεί και απελευθερώνεται και μετά τίθεται σε λειτουργία το σύστημα αναρρόφησης.

Η δοκιμασία επαναλαμβάνεται 6 φορές σε κάθε ύψος πτώσης.

7. Ερμηνεία των αποτελεσμάτων

Για την εκτίμηση των αποτελεσμάτων της δοκιμασίας σχετικά με την ευαισθησία στη σύγκρουση κάνουμε την διαφορά μεταξύ «καμμίας αντίδρασης» «αποσύνθεσης» (χωρίς φλόγα ούτε έκρηξη. που αναγνωρίζεται από τον χρωματισμό ή την οσμή και έκρηξη (με απαλή μέχρι δυνατή έκρηξη) για μερικά υλικά αποκτάμε μία ανάφλεξη χωρίς θορυβο έκρηξης».

Η αντίδραση αυτή θεωρείται όμως σαν έκρηξη (και σημειώνεται με τους όρους εντός εισαγωγικών) διότι αφορά όλο το δείγμα και υπό ιδίων προϋποθέσεων ή έκρηξη δύναται να γίνει).

Για να μετρήσουμε την ευαισθησία σύγκρουσης του υλικού, καθορίζομε την μάζα του κόπανου σε γχ και το ύψος της πτώσης το πιο χαμηλό σε πόντους, στο οποίο ύψος, γίνεται τουλάχιστον μία έκρηξη κατά τις έξ δοκιμασίες, όπως και στην ενέργεια του κτυπήματος σε j που προκύπτει. Η ευαισθησία στη σύγκρουση,ενός υλικού είναι τόσο πιο μεγάλη όσο η ενέργεια του κτυπήματος σε j είναι πιο χαμηλή (J = JOULE - ΤΖΟΥΛ).

Δοκιμασία της ευαισθησίας στην τριβή (βλέπε περιθώριο 3103 μέχρι 3110 και 3112). 3156

α. Δοκιμασία τριβής μέσα σε γουδί από πορσελάνη.

(Ι) Το εκρηκτικό πρέπει να αποξηραίνονται σε χλωριούχο ασβέστι. Ένα δείγμα του εκρηκτικού συμπιέζεται και συντρίβεται μέσα σε ένα γουδί από πορσελάνη (μή περασμένο με βερνίκι) με ένα ιγδιοκόπανο (το οποίο επίσης δεν έχει περαστεί με βερνίκι).

Το γουδί και το ιγδιοκόπανο πρέπει να έχουν θερμοκρασία περίπου 10° υψηλότερη από την επικρατούσα θερμοκρασία. (15° C με 30° C).

Τα αποτελέσματα της δοκιμασίας τίθενται σε παραλληλισμό με τα αποτελέσματα που λαμβάνονται με το εκρηκτικό συγκρίσεως και διακρίνονται ως εξής»: 3156(2)

ι. κανένα αποτέλεσμα.

ιι. Ασθενείς μεμονωμένοι κροταλισμοί.

ιιι. Συχνοί κροταλισμοί ή πολύ δυνατοί μεμονωμένοι κροταλισμοί.

3. Τα εκρηκτικά που κατά την δοκιμασία δίνουν το αποτέλεσμα ι θεωρούνται ως σχεδόν μη ευαίσθητα στην τριβή.

Θεωρούνται ως μεσαία ευαίσθητα αν δίνουν αποτέλεσμα ιι. θεωρούνται ως πολύ ευαίσθητα όταν δίνουν το αποτέλεσμα ιιι.

β. Δοκιμασία με την συσκευή της τριβής (εικόνα 14 και 15).

Η δοκιμασία που αναφέρεται στο α δύναται να αντικατασταθεί με την εξής δοκιμασία.

2) Περιγραφή της συσκευής

Η συσκευή της τριβής αποτελείται από μία έμβαση σε χυτό ατσάλι επάνω στην οποία τοποθετήθηκε το ίδιο σύστημα της τριβής που αποτελείται από στερεά ράβδο πορσελάνης και κινητή πλακέτα από πορσελάνη. (εικόνα 14).

Για μερικά υλικά έχομε «μια ανάφλεξη χωρίς θόρυβο εκρήξεως» Αυτή η αντίδραση θεωρείται ως σαν έκρηξη (και αναφέρεται με τους όρους εντός εισαγωγικών, διότι αναφέρεται σε όλο το δείγμα και διότι υπό τις ίδιες προϋποθέσεις μπορεί να σημειωθεί η έκρηξη. Η πλάκα πορσελάνης στερεοποιείται σε ένα αμαξάκι που οδηγείται σε δύο εγκοπές ολίσθησης. Δια μέσου μιας μπιέλλας ένα μετατρεπτικό όργανο ταλαντεύσεως και ένα γρανάρισμα το αμαξάκι τίθεται σε κίνηση με ηλεκτρική μηχανή, αφού το ανάβουμε με διακόπτη με πίεση, ώστε η πλάκα από πορσελάνη εκτελεί κάτω από τη ράβδο πορσελάνης μια κίνηση πήγαινε-έλα» 10 μμ μήκους. Η βάση της ράβδου περιστρέφεται γύρω από ένα άξονα για να επιτραπεί η αλλαγή της ράβδου πορσελάνης παρατείνεται από βραχίονα βαρών με έξ εγκοπές για την ανάρτιση μιάς μάζας. Η ισορροπία στη θέση μηδέν (χωρίς βάρος) πραγματοποιείται από μία μάζα ισορρόπησης. Όταν η βάση της ράβδου τοποθετείται στην πλάκα από πορσελάνη, ο επιμήκης άξων της ράβδου από πορσελάνη είναι κάθετος στην πλάκα. Μια εκ των μαζών αναρτάται μέσω αγκύλης στην προβλεπόμενη εγκοπή. Το βάρος της ράβδου κυμαίνεται μεταξύ 0.5 και 36 Κγ.

3) Περιγραφή της πλάκας και της ράβδο πορσελάνης

Οι πλάκες από πορσελάνη κατασκευάστηκαν από τεχνική λευκή καθαρή πορσελάνη πουέχουν τις εξής διαστάσεις 25×25×5 μμ. Οι δύο πιφάνειες τριβής των πλακών έχουν γίνει (πριν το ψησιμο) πολύ τραχείς με τη βοήθεια τριβής με ένα σφουγγάρι.

Το πέρασμα σφουγγαριού είναι πολύ φανερό.

Οι κυλινδρισμοί στις ράβδους είναι επίσης από τεχνική λευκή πορσελάνη. Έχουν μήκος 15 μμ και διάμετρο 10 μμ, και οι ακραίες επιφάνειες τραχείς στρογγυλές με ακτίνα κυρτότητας 10μμ.

Δείγματα των ράβδων και πλακέττων από πορσελάνη αυτής της ποιότητας που περιγράφεται ανωτέρω κατατέθηκαν στην «BUNDESANSTALT FUR MATERIALPRUFUNG» στο Βερολίνο DAHLEM, και μπορεί να δώσει την διεύθυνση των κατασκευαστών.

Επειδή η άθικτη φυσική τραχύτης των πλακών και ράβδων, αποτελούν κύρια προϋπόθεση για την αντίδραση του εκρηκτικού υλικού, κάθε τμήμα επιφανείας πρέπει να χρησιμοποιηθεί μόνον μία φορά.

Συνεπώς, οι δύο ακραίες επιφάνειες εκάστης ράβδου από

πορσελάνη αρκούν για δύο δοκιμασίες, οι δύο επιφάνειες τριβής μιας πλακέττας, εκάστη για περίπου 3 έως 6 δοκιμασίες.

4) Προετοιμασία των δειγμάτων

Τα εκρηκτικά υλικά δοκιμάζονται σε ξηρά κατάσταση, τα υλικά του περιθωρίου 2101, 11ο έως 14ο, δοκιμάζονται όπως παραδίδονται εφ' όσον η περιεκτικότης τους σε νερό ανταποκρίνεται στην πραγματική αξία που αναφέρεται από τον κατασκευαστή.

Αν η περιεκτικότης σε νερό είναι μεγαλύτερη, τα μίγματα θα πρέπει να αποξηραίνονται πριν την δοκιμασία μέχρι να φθάσει το ποσοστό υγρασίας που αναφέρεται.

Επιπλέον για τα στερεά υλικά πέραν από τα ζυματώδη πρέπει να σημειώνουμε τα εξής».

α. Τα κονιορτώδη υλικά κοσκινίζονται (άνοιγμα κόσκινου 0,5 μμ) ό,τι περνά από το κόσκινο χρησιμοποιείται για την δοκιμασία.

β. Τα συμπιεσμένα υλικά λειωμένα ή κατά κάποιο άλλο τρόπο συγκεντρωμένα κομματιάζονται σε πολύ μικρά κομματάκια και κοσκινίζονται. Ό,τι περνά από το κόσκινο με άνοιγμα 0,5 μμ χρησιμοποιείται για την δοκιμασία.

5) Εκτέλεση των δοκιμασιών

Μια πλάκα από πορσελάνη στερεοποιείται στο αμαξάκι της συσκευής τριβής, ώστε τα ίχνη του σφουγγαρίσματος να είναι εγκάρσια στην κατεύθυνση της κίνησης. Η ποσότης που δοκιμάζεται είναι περίπου 10 μμ3 και μετράται για τα κονιορτώδη υλικά με κυλινδρική μεζούρα (2,3 ø × 4 μμ) για τα ζυματώδη υλικά το δείγμα μετράται με κυλινδρική σωλήνα που χώνεται στη μάζα. Αφού αφαιρεθεί το πλεόνασμα της μεζούρας το δείγμα αποσπάται με ένα ξυλαράκι και τοποθετείται στην πλάκα από πορσελάνη. Στην συγκεντρωμένη ποσότητα τοποθετούμε τη ράβδο από πορσελάνη που είναι γερά τεντωμένη όπως στην εικόνα 15.

Ο βραχίωνας του βάρους ερματίζεται με την προβλεπόμενη μάζα και διακόπτης πιέσεως τίθεται σε λειτουργία».

Πρέπει να προσέχουμε, η ράβδος να βρίσκεται στο δείγμα και να υπάρχει μπροστά της επαρκής ποσότης υλικού που θα δοκιμαστεί για να έρχεται κάτω από τη ράβδο όταν κινείται η πλάκα.

6) Ερμηνεία των αποτελεσμάτων.

Για την εκτίμηση των αποτελεσμάτων κάνομε διάκριση μεταξύ «καμμιάς αντίδρασης» «αποσύνθεσης» (χρωματισμός οσμή) «ανάφλεξης» «κροταλισμού» και «έκρηξης».

Η σχετική μέτρηση της ευαισθησίας στην τριβή ενός υλικού εντός της συσκευής τριβής όπως περιγράφεται και εκφράζεται χωρίς να ληφθεί υπ' όψη ο συντελεστής τριβής, με το μικρότερο βάρος επί της ράβδου εκφραζόμενο σε χγ στην οποία μεσολαβεί κατά τις εξ δοκιμασίες, τουλάχιστον μια φορά μια ανάφλεξη, ένας κροταλισμός, μία έκρηξη.

Παραδεχόμεθα ήδη ότι η ανάφλεξη και οι κροταλισμοί είναι επικίνδυνες αντιδράσεις.

Η ευαισθησία στην τριβή ενός εκρηκτικού υλικού, είναι τόσο πιο μεγάλη όσο η καθαριζόμενη αξία του βάρους στη ράβδο (μάζα φόρτωσης σχετικά με το μήκος στυ βραχίωνα βάρους, που είναι πιο μικρό.

Τα ρευστά εκρηκτικά και τα υλικά που έχουν ζυματώδη φύση δεν είναι γενικά ευαίσθητα στην τριβή υπό τις προϋποθέσεις αυτής της δοκιμασίας, διότι η ελάχιστη θερμοκρασία τριβής που παράγει δεν αρκεί, ως συνέχεια της γλοίωσης για να γίνει η ανάφλεξη.

Με τα υλικά αυτά η απουσία αντίδρασης δεν είναι μια ένδειξη ότι το υλικό είναι ακίνδυνο.

Η σταθερότητα των προϊόντων που αναγράφονται στο περιθώριο 3111 ελέγχεται σύμφωνα με τις κανονικές μεθόδους εργαστηρίων. 3157

Δοκιμασία αφίδρωσης των δυναμιτών περιθ. 31.07. 3158

1. Η συσκευή για την δοκιμασία αφίδρωσης των δυναμιτών (εικόνα 16 με 18.) αποτελείται από κούφιο κύλινδρο από μπρούντζο.

Ο κύλινδρος αυτός ο οποίος είναι κλειστός από τη μία πλευρά από δίσκο του ιδίου μετάλλου, έχει εσωτερική διάμετρο 15,7 μμ και βάθος 40μμ. Έχει τρυπηθεί σε 20 σημεία από 0,5 μμ διάμετρο (4 σειρές των 5 τρυπών) στην περιφέρεια.

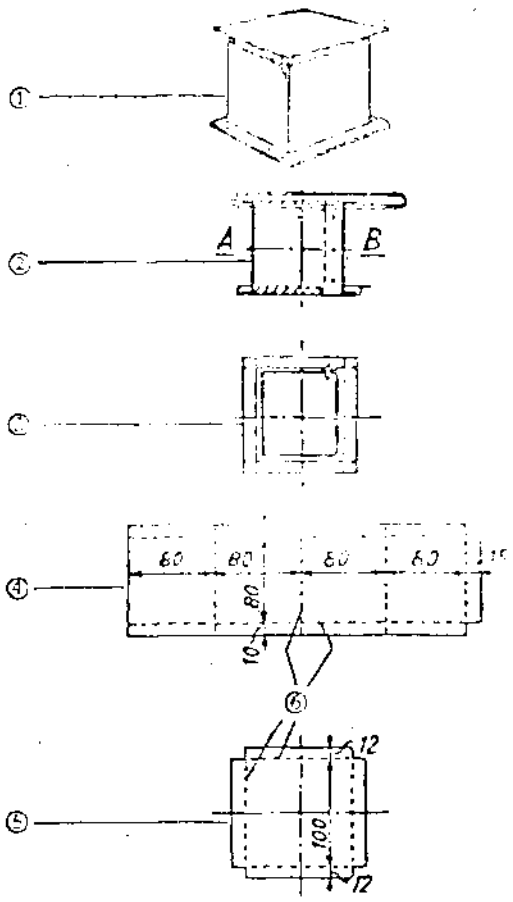
Ένα μπρούντζινο κυλινδρικό έμβολο επί 48μμ που έχει συνολικό ύψος 52μμ δύναται να γλυστρά στον κύλινδρο που τέθηκε κάθετα, αυτό το έμβολο με διάμετρο 15,6 μμ έχει επιβαρυνθεί με μία μάζα 2,220 γρ. ώστε να προκαλέσει πίεση 118 KPA (1,18 BAR).

2. Διαμορφώνουμε με 5γ - 8γρ δυναμίτη ένα μικρό λουκάνικο 30μμ μήκος και 15 μμ διάμετρο που τυλίγομε σε πολύ λεπτό πανί και τον τοποθετούμε στον κύλινδρο. Μετά τοποθετούμε επάνω του το έμβολο και τη μάζα επιφόρτωσης του ώστε ο δυναμίτης να υποβληθεί σε πίεση 118 KPA (1,18 BAR).

Σημειώνουμε το χρόνο στο τέλος του οποίου εμφανίζονται τα πρώτα ίχνη ελαιωδών σταγόνων (νιτρογλυκερίνης) στις εξωτερικές οπές των οπών του κυλίνδρου.

3. Η δυναμίτης θεωρείται ικανοποιητική αν ο χρόνος που τρέχει πριν την εμφάνιση των ρευστών ιδρωμάτων είναι ανώτερος από 5 λεπτα. Η δοκιμασία γίνεται σε θερμοκρασία 15°C με 25°C. 3159 3199

Δοκιμασία καύσης
Περιθώριο 3154 γ.

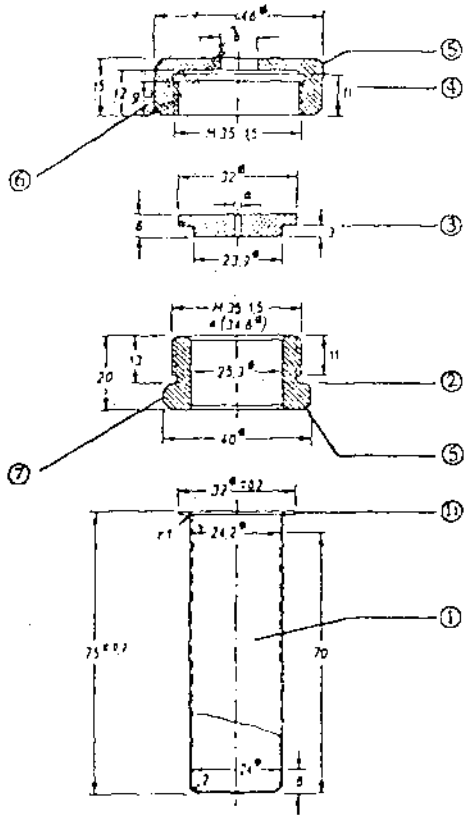


Εικόνα 1. Ατσάλινο κουτάκι.
(πάχος ..τοιχ. 1μμ)

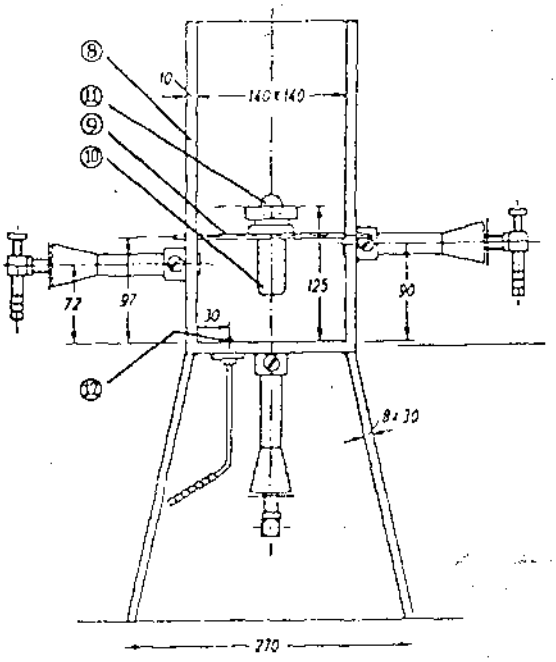
διαστ. σε μμ.)

1) γενική όψη
2) κάθετη τομή
3) τομή Α-Β
4) Ανάπτυξη του τοιχώματος
5) Ανάπτυξη της βάσης και του καπακιού
6) χείλος που διπλώνεται.

Δοκιμασία θέρμανσης ατσάλινου φυσιγγίου με δίσκο μετρημένου φωτός (περιθ. 3154 δ.



Εικόνα 2 Ατσάλινο φυσίγγι και εξαρτήματα



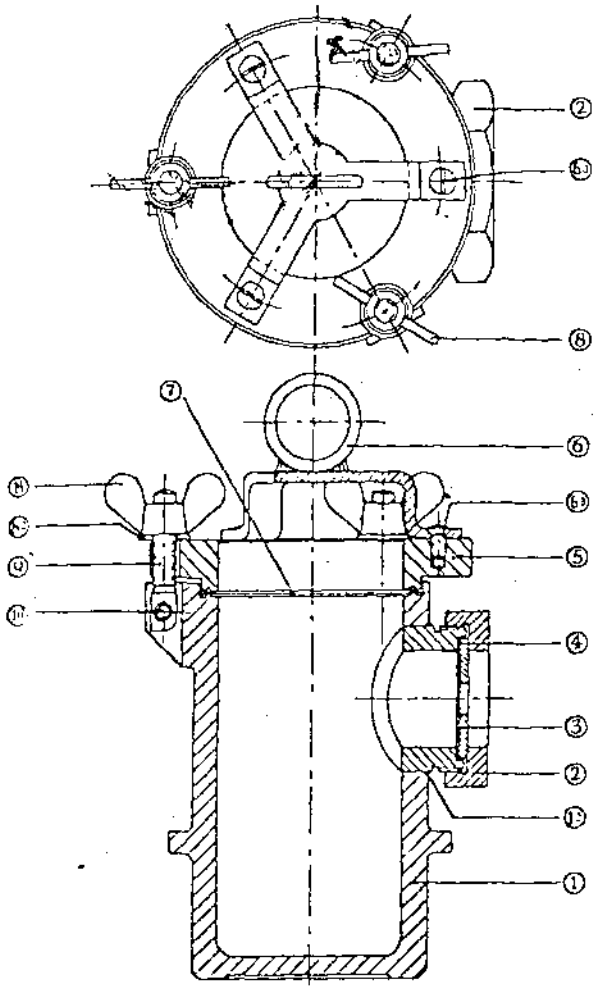
Εικόνα 3

Θερμαντικό σύστημα και προστασία

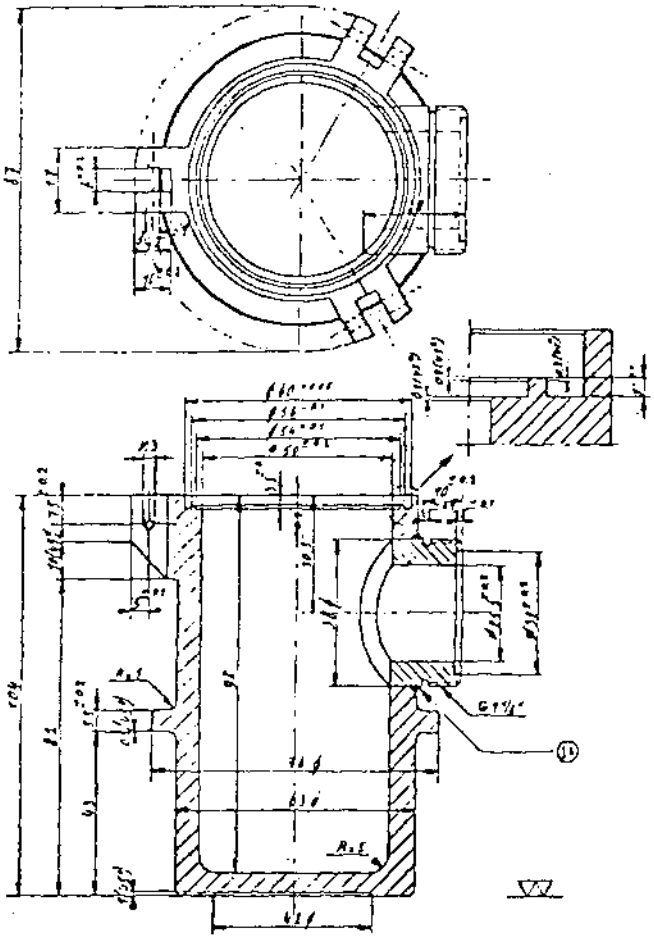
Διαστάσεις σε μμ «Για τα υλικά κατασκευής Βλέπε περιθ. 3154 δ, 2 και 3.

1. Φυσίγγι (Ια εξωτερική στεφάνη)
2. Δικτυωτό στεφάνι με επιφάνεια ελαφράς τριβής.
3. Διακόπτης φωτός α--1,0.... 20,0 ø
4. Υποδοχή βίδας β--10 αντιστ 20 ø
5. Πλαγιασμένη επιφάνεια.
6. 2 φρεζαρισμένες επιφάνειες κλειδί 4 ι.
7. 2 φρεζαρισμένες επιφάνειες κλειδί 36.
8. Κουτί προστατευτικό από θραύσματα.
9. 2 ράβδοι για την ανάρτιση του φυσιγγίου.
10. Συναρμολογούμενο φυσίγγι.
11. Θέση καυστήρα τοποθετημένη πίσω.
    οι άλλοι καυστήρες είναι τοποθετημένοι εμφανώς.
12. Καντήλι.

Δοκιμασία θέρμανσης σ' ένα δοχείο με πίεση, δίσκο κεντρικού φωτός και μεμβράνη (εις περιθ 3154,Ε



Εικόνα 4 Δοχείο πιέσεως.



Εικόνα 5 Δοχείο πιέσεως.

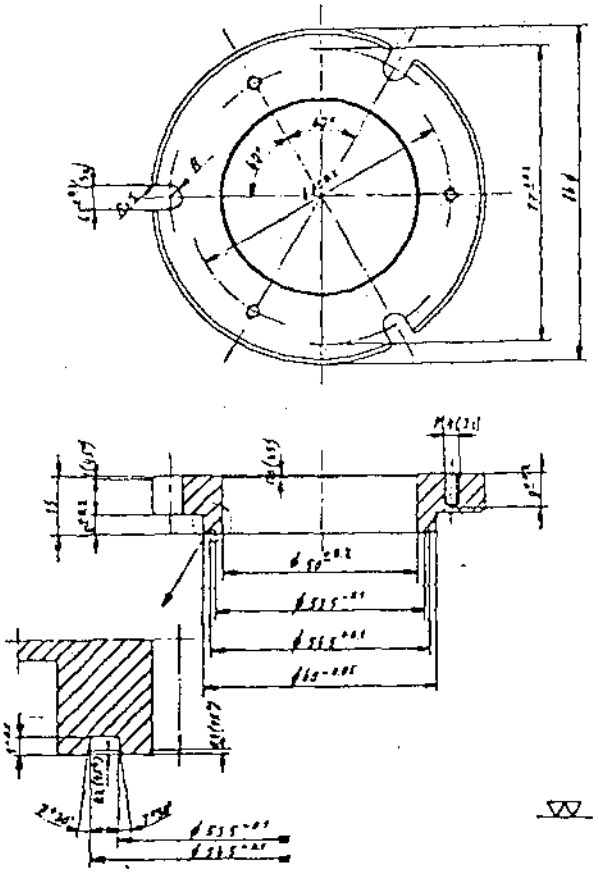
Συναρμολογούμενο.
Σχηματικές όψεις σε κάθετη κοπή και σε επίπεδο.

1 Δοχείο πίεσης (σε ανοξείδωτο ατσάλι)
(Ια) Συγκολλημενη ένωση.
2 Υποδοχή βίδας που επικαλύπτει (συγκολημμένο ατσάλι).
3 Δίσκος κεντρικού φωτός (ανοξείδωτο ατσάλι).
4 ακίνητη ροδέλλα γαρνιτούρας πάχους 0,5.
5 Δακτύλιος πιέσεως (ανοξείδωτο ατσάλι).
6 Λαβή ορειχάλκου.
6α. Βίδα ορειχάλκου (υλικό M4 × 8 DIN 88)
7 Μεμβράνη διάρρηξης (για το υλικό βλέπε περ 3154-Ε,2
8 Υποδοχή βίδας με πιαστράκια (ορείχαλκος M 6 DIN 315)
8α. Δακτύλιος ορειχάλκου 6 DIN 125)
9 Μπουλόνι με μάτι (ανοξείδωτο ατσάλι)
10. Άξων για την υποδοχή της βίδας με πιαστράκια (ανοξ. ατσάλι).
Ένα ανοξείδωτο ατσάλι που αρμόζει μπορεί να έχει την εξής σύνθεση

CR 18% Ni 9% Mv < 2%, Si < 1%, 0 < 0,12%.

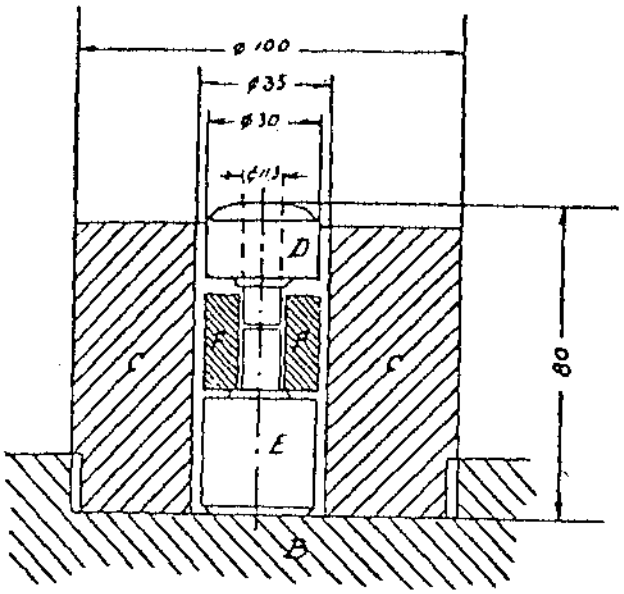
Λοκιμασία θέρμανσης σε δοχείο πιέσεως με δίσκο κεντρικού φωτός και μεμβράνη

(εις περ 3Ι54 Ε)

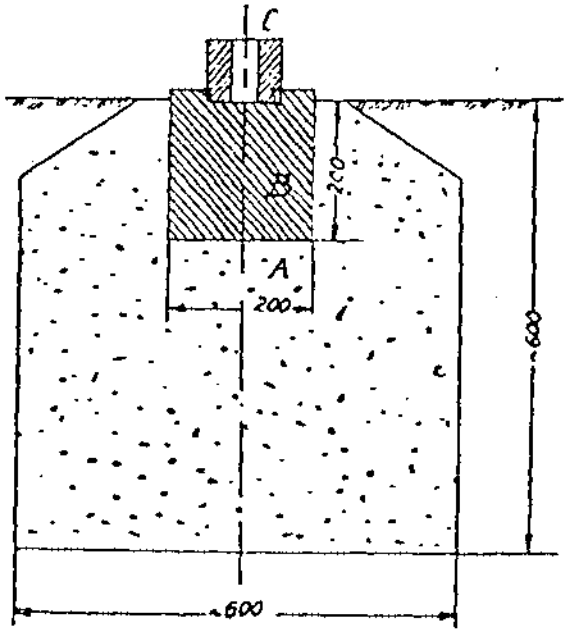


Εικόνα 6 Δακτύλιος πιέσεως του δοχείου λεπτομέρειας σε κάθετη κοπή και επίπεδη .(διαστάσεις σε μμ)

δοκιμασία με κόπανο συγκρούσεως I ,εις περ 3155 α)



Εικόνα 7 Σύστημα
Κρούσης ,κάθετη κοπή
διαστάσεις σε μμ

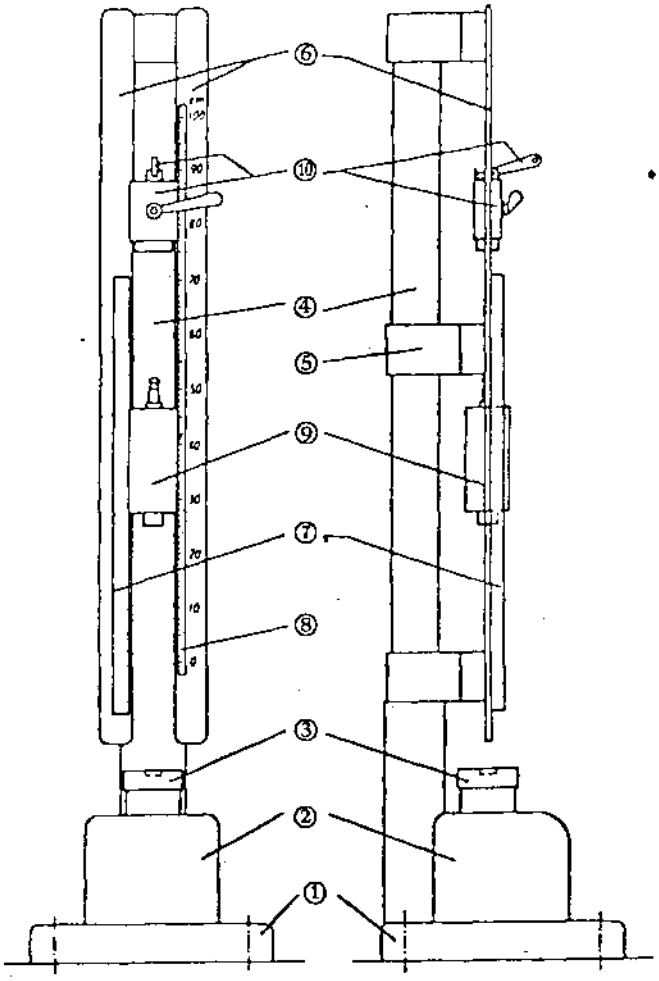


Εικόνα 8 Εμβαση
για το σύστημμα
κρούσης κάθετη κοπή,
διαστάσεις σε μμ

A. Βάση από τσιμέντο
B Ατσάλινο μπλόκ
Γ Προστατευτικός κύλινδρος
D Ιγδοκόπανο ανω μέρος
E Ιγδοκόπανο κάτω μέρος
F στεφάνη συνοδείας.

Δοκιμασία του κόπανου σύγκρουσης ΙΙ

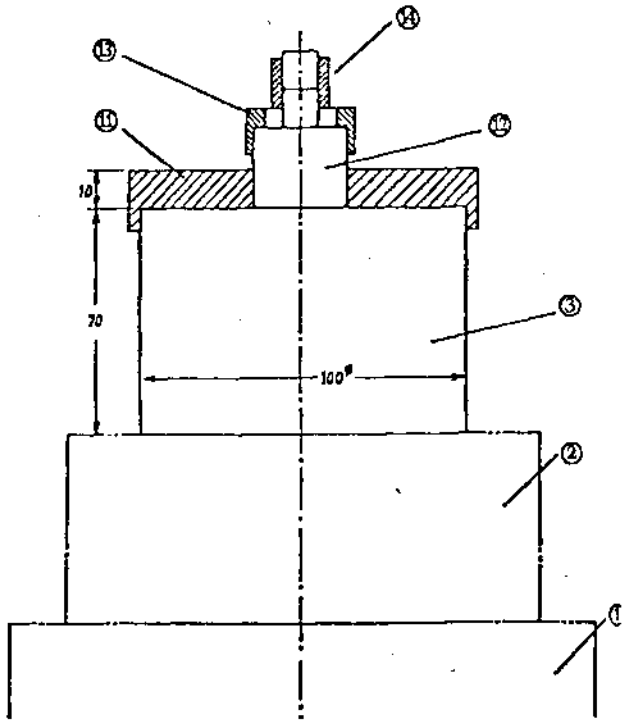
(εις περ 3Ι55β.



Εικόνα 9

κόπανος σύγκρουσης ΙΙ
Γενική άφη από μπροστά
και από πλάγια
διαστάσεις σε μμ

1. Έμβαση 450×450×60
2. Ατσάλινο μπλοκ 230×250×200
3. Αμόνι 100 ø ×70
4. Κολώνα
5. Μέση τραβέρσας
6. 2 εγκοπές ολίσθησης.
7. Οδοντώδης ράβδος.
8. Μεζούρα
9. Κόπανος
10. Σύστημα ανάρτησης και απελευθέρωσης
11. Πλάκα επικεντρώσεως.
12. Ενδιάμεσο αμόνι (εναλλάξιμο) 26 ø × 26
13. Στεφάνη επικεντρώσεως με διάτριση (οπή)
14. Σύστημα κρούσης.

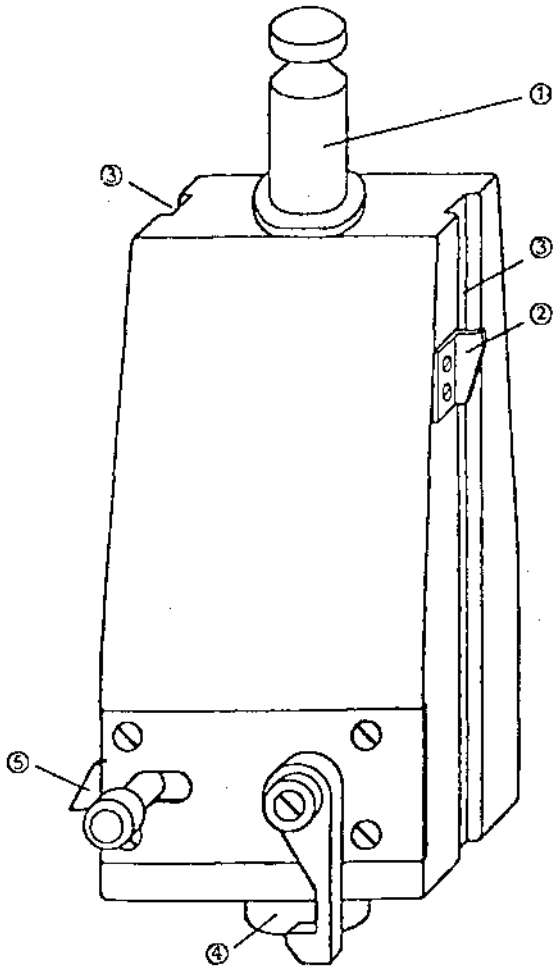


Εικόνα 10

κόπανος σύγκρουσης ΙΙ
κάτω μέρος.

Δοκιμασία κόπανου σύγκρουσης II

(εις περ 3Ι55 β.



Εικόνα II (κόπανος) μάζα πρώσης 5 Κγ.

I) Τμήμα ανάρτησης

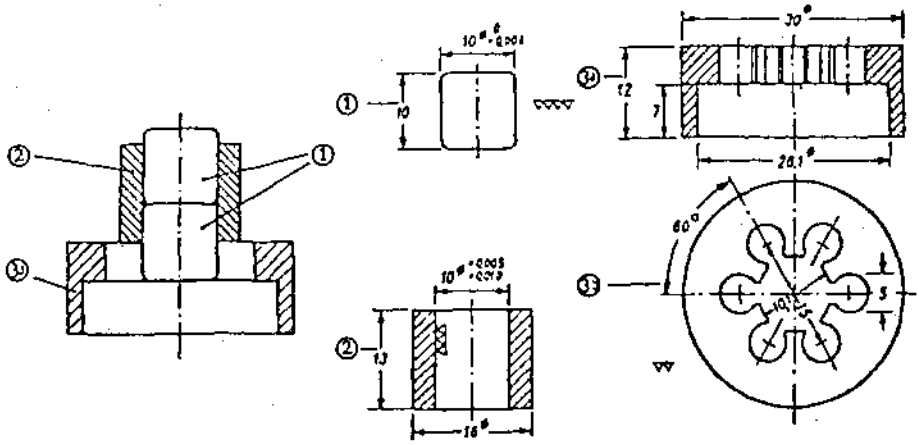
2) αναγνωριστικό σημείο ύψους.

3) Εγκοπή οδηγού

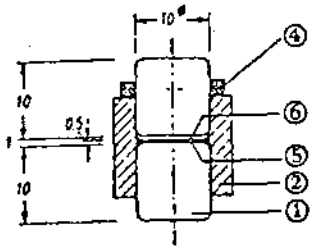
4) Ιγδοπόπανο -κυλινδρικό

5) Σύστημα παύσης.

ΕΠΙΣΗΜΗ ΜΕΤΑΦΡΑΣΗ TRADUCTION OFFICIELLE Δοκιμασία κόπανου σύγκρουσης II (εις περ 3I55 β,.



Εικόνα I2 Σύστημα κρούσης για κονιορτώδη ή ζυματώση υλικά διαστάσεις σε μμ



Εικόνα I3 Σύστημα κρούσης για ρευστά υλικά διαστάσεις σε μμ.

I Ατσάλινοι κύλινδροι*

2 Στεφάνη συνοδείας για ατσάλινους κυλίνδρους.*

3. Στεφάνη επικεντρώσεως με οπή.

α καθετη κοπή

β επίπεδη

4 Στεφάνη από καουτσούκ

5 ρεθστό υλικό (40μμ3)

6 διάστημα χωρίς ρευστό

""""" Το ατσάλι δύναται να έχει την εξής σύνθεση CR ∓ I,55%

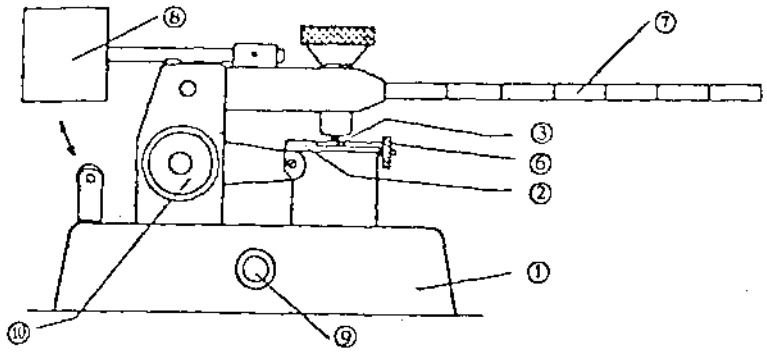
C ∓ I,O%

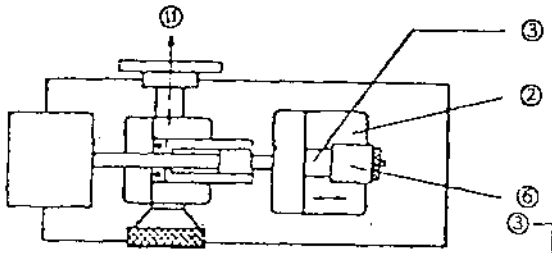
αν Μαξ O,25% , Μν ∓ O,35%

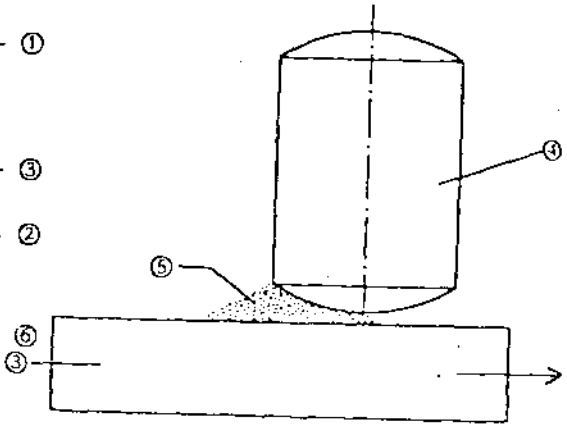
-HRC 58 ,.....65

(ατσάλι από θερμική διεργασία).

εις περιθ 3Ι56 β







Εικόνα Ι4 Συσκευή τριβής

Εικόνα Ι5 Θέση αναχώρησης της ράβδου στο δείγμα

Σχηματικές οψεις σε επίπεδη και κάθετη κοπή.

Ι) ατσάλινη έμβαση

2) κινητό αμαξάκι

3) πλάκα από πορσελάνη 25Χ25Χ5 μμ στερεοποιημένη στο αμαξάκι

4) Στερεά ράβδος από πορσελάνη ΙΟØ Χ Ι5μμ

5) Δείγμα που θα εξεταστεί περίπου ΙΟμμ3

6) Συσφιγκτήρας ράβδων.

7) Βραχίωνας βάρους

8) Μάζα ισορρόπίας

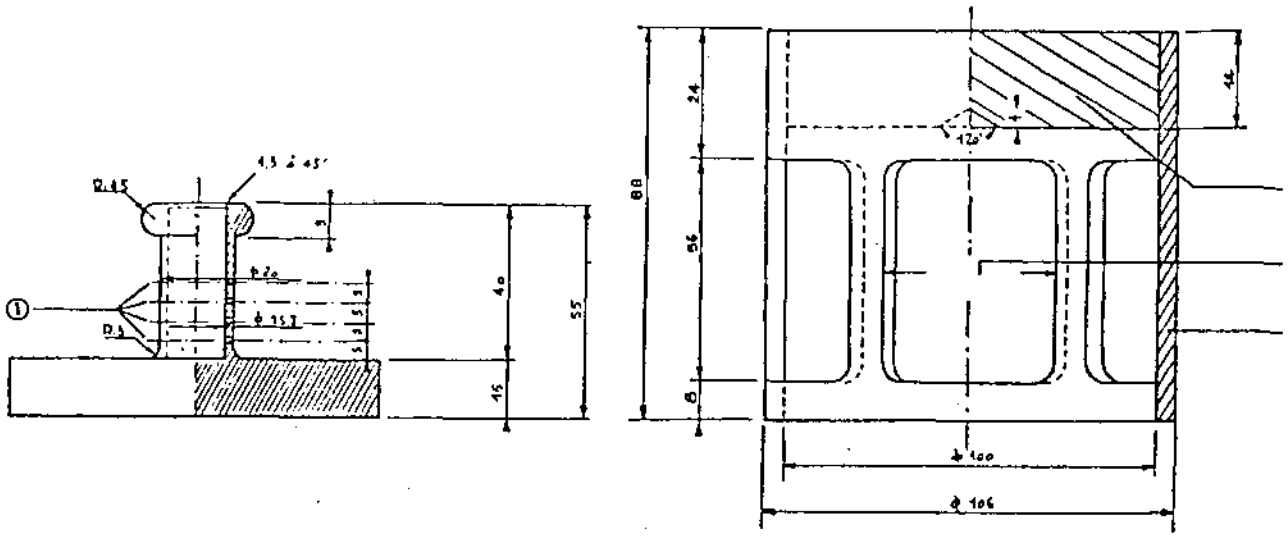
9) Διακόπτης

ΙΟ) Μανιβέλλα για την ρυθμιση του αμαξιού σε θέση αναχώρησης.

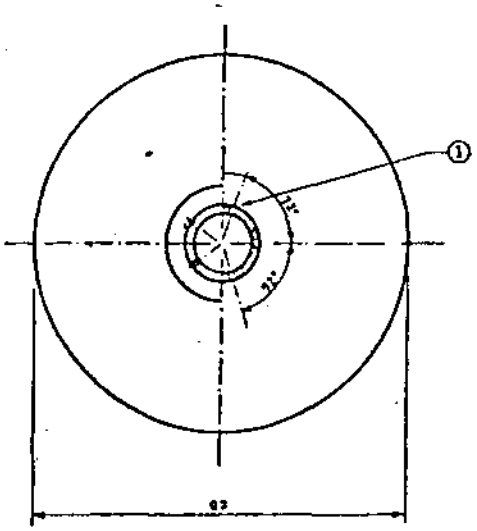
ΙΙ) Προς την ηλεκτρική μηχανή.

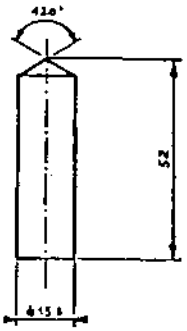
Δοκιμασία αφυδρώσεως των δυναμιτών

(εις περ 3Ι58)



Εικόνα Ι7 : Βάρος σε μορφή καμπάνας μάζα 2220 γρ που δύναται να αναρτηθεί στο μπρούντζινο έμβολο.





Εικόνα Ι6

Κουφιος μπρούτζινος κύλινδρος κλεισμένος από τη μια πλευρά.

Επίπεδος με κάθετη κοπή

διαστάσεις σε μμ

Εικόνα Ι8 Μπρούτζινο κυλινδρικό έμβολο

Ι 4 σειρές από 5 οπές των 0,5 Ø

2 Χαλκός

3 Πλάκα από μολύβι με κεντρικό κώνο στην κάτω πλευρά

4 4 ανοίγματα περίπου 46 Χ56 που είναι κανονικά σκορπισμένα στην περιφέρεια.

Παράστημα Α.2

Α. Σχετικές οδηγίες με την φύση των δοχείων από κράμματα αλουμινίου για μερικά αέρια της τάξης 2.

Ι. Ποιότης υλικού

Ι. Τα υλικά των δοχείων από κράμα αλουμινίου που γίνονται δεκτά για τα αέρια που αναφέρονται στο περιθώριο 2203. 3200

2.Β. Πρέπει να ικανοποιήσουν τις εξής απαιτήσεις.

	A	B	C	D
Αντοχή στην έλξη RM σε MPα(=N/μμ2)	49 με 186	196 με 372	196 με 372	343 με 490
όριο εμφανούς ελαστικότητας RE σε MPα(=N/μμ2) (μόνιμη παραμόρφωση λ=0,2%).	10 με 167	59 με 314	137 με 334	206 με 412
επιμήκυνση στη ρήξη (I=5δ)%	12 με 40	12 με 30	12 με 30	11 με 16
δοκιμή λυγίσματος (διάμετρος τόρνου δ=V.E	V=5 (Rμ≦98)	V=6 (Rμ≦325)	V=6 (Rμ≦325)	V=7 (Rμ≦392)
E= πάχος της δοκιμαστικής σωλήνας.				
αριθ. σειράς της AMERICAN ASSOCIATION	V=6 (Rμ>98) 1000	V=7 (Rμ>325) 5000	V=7 (Rμ>325) 6000	V=8 (Rμ>392) 2000

*Βλ. «ALUMINIUM STANDARDS AND DATA» 5η έκδοση Ιανουάριος 1976, δημοσίευση από την «ALUMINIUM ASSOCIATION, 750, 38ΑΒ. Νέα Υόρκη.

Οι πραγματικές ιδιότητες θα εξαρτηθούν από την σύνθεση του θεωρημένου κράματος, όπως και από την τελική διεργασία του δοχείου, αλλά όποιο κι αν είναι το κράμα που χρησιμοποιείται και το πάχος του δοχείου θα υπολογισθεί με την βοήθεια των εξής κανόνων.

$$E = \frac{P\ MP\alpha \times D}{\frac{2XR\varepsilon \mp PMP}{1,30}} \quad \text{ή} \quad E = \frac{P\ MP\alpha \times D}{\frac{2XR\varepsilon + PMP}{1,30}}$$

όπου E = ελάχιστο πάχος του τοιχώματος του δοχείου σε μμ
P MPα = Πίεση δοκιμασίας, σε MPα (P_{BAR} = Πίεση της δοκιμασίας σε BAR.
D Ονομαστική εξωτερική διάμετρος του δοχείου σε μμ
Rε = Όριο ελάχιστης ελαστικότητας εγγυημένο με 0,2% μονίμου επιμήκυνσης σε M P α (= N/μμ2).

Επίσης, η αξία του ελαχίστου εγγυημένου καταναγκασμού της δοκιμασίας (Rε) που μεσολαβεί στον κανόνα δεν πρέπει να είναι σε καμμία περίπτωση ανώτερη από 0,85 φορές της ελάχιστης εγγυημένης αξίας της αντοχής στην έλξη (Rμ) όποιος και νάναι ο τύπος του κράματος που χρησιμοποιείται.

Σημείωση:

Τα ανωτέρω χαρακτηριστικά βασίζονται στα πειράματα που έγιναν μέχρι τώρα με τα εξής υλικά που χρησιμοποιήθηκαν για τα δοχεία.

Κολόνα Α – Αλουμίνιο όχι σε κράμα τιτλομετρημένο 99,5%

Κολόνα Β – κράματα αλουμινίου και μαγνησίου

Κολόνα Γ – κράματα αλουμινίου, πυρίτιο και μαγνήσιο όπως ISO/R209– Αλ–Si–Mγ (Αλουμίνιο ένωση 6351)

Κολόνα Δ – κράματα αλουμινίου χαλκού και μαγνησίου.

2. Η επιμήκυνση στη ρήξη (σπάσιμο).

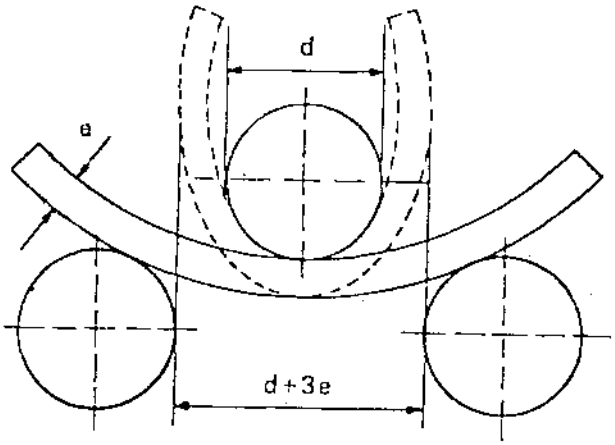
(I = 5δ) μετράται με δοκιμαστική σωλήνα στην περιστροφική τομή της οποίας η απόσταξη μεταξύ διακριτικών σημείων I είναι ίση με 5× τη διάμετρο δ. Σε περίπτωση χρήσης δοκιμαστικών σωλήνων με παραλληλόγραμμη τομή, η απόσταση μεταξύ διακριτικών σημείων πρέπει να υπολογιστεί με τον κανόνα $I = 5,65\ \sqrt{F_0}$ όπου F_0 είναι η αρχική τομή του δοκιμαστικού σωλήνα.

3α. Η προσπάθεια λυγίσματος (βλέπε σχήμα) θα πραγματοποιηθεί σε δείγματα που θα έχουν αποκτηθεί με την εγκοπή σε δύο ίσια τμήματα σε φάρδος της 3ης αλλά που δεν είναι μικρότερη από 25 μμ, ενός δακτυλίου από μπουκάλι.

Τα δείγματα θα ξυστούν μόνο στα χείλη.

Β. Η δοκιμασία λυγίσματος πρέπει να εκτελείται στο ενδιάμεσο ενός τόρνου διαμέτρου δ και δύο περιστροφικών στηριγμάτων που έχουν απόσταση μεταξύ των (Δ+3ε). Κατά την διάρκεια της δοκιμασίας οι εσωτερικές όψεις πρέπει να έχουν απόσταση που δεν υπερβαίνει την διάμετρο του τόρνου.

γ. Το δείγμα δεν θα πρέπει να παρουσιάζει λαβές όταν θα έχει λυγιστεί προς τα μέσα, στον τορνέα, όσο η απόσταση μεταξύ των εσωτερικών όψεων δεν θα υπερβαίνει την διάμετρο του τορνέα.



δ. Η σχέση (V) μεταξύ της διαμέτρου του τορνέα και του πάχους του δείγματος θα πρέπει να συμφωνεί με τις αξίες που αναγράφονται στον πίνακα.

(σχήμα δοκιμής λυγίσματος).

2. Μια ελάχιστη αξία επιμήκυνσης πιο μικρή γίνεται παραδεκτέα, εφ' όσον μια συμπληρωματική δοκιμή που εγκρίνεται από την αρμόδια αρχή της χώρας όπου κατασκευάζονται τα δοχεία, αποδεικνύει ότι η ασφάλεια της μεταφοράς εξασφαλίζεται υπό των ιδίων προϋποθέσεων με τα δοχεία που κατασκευάζονται σύμφωνα με τις αξίες του πίνακα (υπ Ι).

(3) Το ελάχιστο πάχος του τοιχώματος των δοχείων στο πιο αδύνατο σημείο του πρέπει να είναι το εξής:

Όταν η διάμετρος του δοχείου είναι μικρότερη από 50 μμ – 1,5 μμ τουλάχιστον.

Όταν η διάμετρος του δοχείου είναι από 50 μμ μέχρι 150 μμ 2 μμ τουλάχιστον.

Όταν η διάμετρος του δοχείου είναι μεγαλύτερη από 150 μμ, 3 μμ τουλάχιστον.

4. Οι βάσεις των δοχείων θα έχουν τμι–περιστροφικό προφίλ ελλειψοειδές ή σε σώμα λαβής καλαθιού.

Θα πρέπει να παρουσιάζουν την ίδια ασφάλεια με το σώμα του δοχείου.

ΙΙ. Επίσημη συμπληρωματική δοκιμασία των κραμάτων αλουμινίου. 3201

(1) Επί πλέον από τις εξετάσεις που αναγράφονται στα περιθώρια 2215, 2216, 2217, πρέπει επίσης να προβούμε στον έλεγχο της δυνατότητας διακρυσταλλικής διάβρωσης του εσωτερικού τοιχώματος του δοχείου, κατά την χρήση ενός κράματος αλουμινίου περιέχοντος χαλκό ή κράμα αλουμινίου περιέχοντος μαγνήσιο ή μαγγάνιο όταν η περιεκτικότης του μαγνησίου υπερβαίνει το 3,5% ή όταν η περιεκτικότης σε μαγγάνιο είναι χαμηλώτερη από 0,5%.

2. Όταν πρόκειται για κράμα αλουμινίου χαλκού, η δοκιμασία γίνεται από τον κατασκευαστή κατά την επικύρωση

ενός νέου κράματος από την αρμόδια αρχή. Θα επαναληφθεί κατ' ακολουθίαν κατά την παραγωγή για κάθε χύσιμο του κράματος.

3. Όταν πρόκειται για κράμα αλουμινίου / μαγνησίου, η δοκιμασία γίνεται από τον κατασκευαστή κατά την επικύρωση ενός νέου κράματος και η διαδικασία κατασκευής από την αρμόδια αρχή. Η δοκιμή επαναλαμβάνεται όταν επιφέρεται τροποποίηση στη σύνθεση του κράματος ή της διαδικασίας κατασκευής.

4. α) Προετοιμασία κραμάτων αλουμινίου / χαλκού.

Πριν να δοκιμαστεί το κράμα αλουμινίου / χαλκού στην δοκιμή διάβρωσης, τα δείγματα καθαρίζονται από τα λίπη τους μέσω αρμόζοντος διαλύτου και ακολούθως αποξηραίνονται.

Β. Προετοιμασία κραμάτων αλουμινίου / Μαγνησίου.

Πριν να υποβληθεί το κράμα αλουμινίου /%/ μαγνησίου στην δοκιμή διάβρωσης τα δείγματα θα θερμαίνονται επί 7 ημέρες σε θερμοκρασία 100° C.

Μετά θα καθαρίζονται από τα λίπη των με κατάλληλο διαλυτικό και στη συνέχεια θα αποξηραίνονται.

γ. Εκτέλεση.

Το εσωτερικό τοίχωμα ενός δείγματος 1000 μμ2 (33,3 × 30 μμ) του υλικού περιέχοντος χαλκό. θα επεξεργαστεί με την επικρατούσα θερμοκρασία επί 24 ώρες, με 1000 μλ υδατικό διάλειμμα περιέχοντος 3% Να CL και 0,5% HCL.

δ. εξέταση

Αφού πλυθεί και στεγνώσει το δείγμα θα εξεταστεί μικρογραφικά με μεγέθυνση 100 με 500 σε μια τομή 20μμ μήκους, κατά προτίμηση μετά από ηλεκτρολυτική στίλβωση.

Το βάθος της επίθεσης δεν πρέπει να ξεπερνά την δεύτερη σειρά κόκκων από την επιφάνεια που υποβάλεται στην δοκιμή διάβρωσης. Κατά κανόνα αν η πρώτη σειρά κόκκων έχει τοποθετηθεί η δεύτερη σειρά πρέπει να έχει τοποθετηθεί μόνον τμηματικά.

Για τις πλαγιογραφημένες (προφίλ) η εξέταση θα γίνει με ίση γωνία σχετική με την επιφάνεια.

Σε περίπτωση που μετά από ηλεκτρολυτική στίλβωση θεωρηθεί αναγκαίο να προκαλούμε ειδική εμφάνιση των ενώσεων των κόκκων για περαιτέρω εξέταση, αυτή η μέθοδος θα είναι η μέθοδος η εγκεκριμένη από την αρμόδια αρχή.

ΙΙΙ. Προστασία της εσωτερικής επιφανείας.

Η εσωτερική επιφάνεια των δοχείων από κράματα αλουμινίου, πρέπει να επικαλυφθεί με αρμόζουσα προστασία που θα εμποδίζει την διάβρωση όταν οι αρμόδιοι σταθμοί δοκιμής θα το θεωρήσουν απαραίτητο. 3202

Βλέπε οδηγίες σχετικά με τα υλικά και την κατασκευή των δοχείων που προορίζονται για την μεταφορά ρευστοποιημένων αερίων με πολλή ψύξη της Τάξης 2. 3204-3249

1. Τα δοχεία πρέπει να κατασκευάζονται από ατσάλι, αλουμίνιο, κράμα αλουμινίου, χαλκό ή κράμα χαλκού, π.χ. ορείχαλκο. Τα δοχεία από χαλκό ή κράμα χαλκού επιτρέπονται μόνον για αέρια που δεν περιέχουν ακετυλένιο. Το αιθυλένιο δύναται όμως να περιέει το πολύ 0,005% ακετυλένιο. 3250

2. Δύνανται να χρησιμοποιηθούν μόνον υλικά κατάλληλα στην ελάχιστη θερμοκρασία υπηρεσίας των δοχείων και των εξαρτημάτων τους.

Για την κατασκευή των δοχείων τα εξής υλικά γίνονται αποδεκτά: 3251

α Τα ατσάλινα που δεν υφίστανται ελαφρά ρήξη (σπάσιμο) με την ελάχιστη θερμοκρασία υπηρεσίας (βλέπε περ. 3265).

Κάνουν για χρήση:

1. Το ατσάλι μη ενωμένο (από κράμα) μέχρι θερμοκρασίας – 60°C.

2. Το ατσάλι ενωμένο (κράμα) με το νικέλιο (με τιτλομέτρηση από 0,5% με 0,9% Νικέλιο) μέχρι θερμοκρασίας – 196°C ανάλογα με την περιεκτικότητα του Νικελίου).

3. Το αυστενιτικό ατσάλι με χρώμιο και νικέλιο μέχρι θερμοκρασίας – 270°C.

Β Το αλουμίνιο με τιτλομέτρηση 99,5% τουλάχιστον ή κράματα αλουμινίου (βλέπε περιθ. 3266).

γ. Ο αποδειδωμένος χαλκός με τιτλομέτρηση 99,9% τουλάχιστον ή κράματα από χαλκό που έχουν περιεκτικότητα σε χαλκό πλέον του 56% (βλέπε περιθώριο 3267).

1. Τα δοχεία δεν μπορούν να είναι παρά μόνον χωρίς ένωση ή συγκολλημένα. 3252

2. Τα δοχεία σύμφωνα με το περιθώριο 2207 από αυστενιτικό ατσάλι από χαλκό ή κράμα χαλκού, μπορούν επίσης να έχουν συγκολληθεί σκληρά.

Τα εξαρτήματα μπορούν να στερεοποιούνται στα δοχεία με βίδες ή ως εξής: 3253

α. Δοχεία από ατσάλι ή αλουμίνιο ή κράμα αλουμινίου, με συγκόλληση.

β. Δοχεία από αυστενιτικό ατσάλι από χαλκό ή κράμα χαλκού, με συγκόλληση ή σκληρή συγκόλληση.

Η κατασκευή των δοχείων και η στερεοποίησή τους στο όχημα στο πλαίσιο ή στο πλαίσιο του κοντέινερ πρέπει να είναι τέτοια ώστε ένα κρύωμα των τμημάτων στήριξης που δύνανται να γίνου εύθραυστά, να αποφεύγεται σίγουρα. Τα όργανα στερεοποίησης των δοχείων πρέπει τα ίδια να έχουν κατασκευαστεί με τέτοιο τρόπο ώστε όταν το δοχείο έχει την πιο χαμηλή θερμοκρασία υπηρεσίας να παρουσιάζουν ακόμη τις απαραίτητες μηχανικές ιδιότητες. 3254

3255-3264

I. Υλικά – δοχεία. 3265

α Δοχεία από ατσάλι

Τα υλικά που χρησιμοποιούνται στην κατασκευή δοχείων. και τα κορδόνια συγκόλλησης πρέπει στην ελάχιστη θερμοκρασία τους να ικανοποιούν τουλάχιστον τις εξής προϋποθέσεις σχετικά με την αντοχή.

Οι δοκιμασίες δύνανται να γίνουν με δοκιμαστικούς σωλήνες με εγκοπή σαν U ή δοκιμαστικές σωλήνες με εγκοπή σαν V.

Συνημμένο Α.2
Υλικό

Επαναπακτικότης α) των λαμαρινών και των κορδονιών συγκόλλησης στην ελάχιστη θερμοκρασία λειτουργίας.

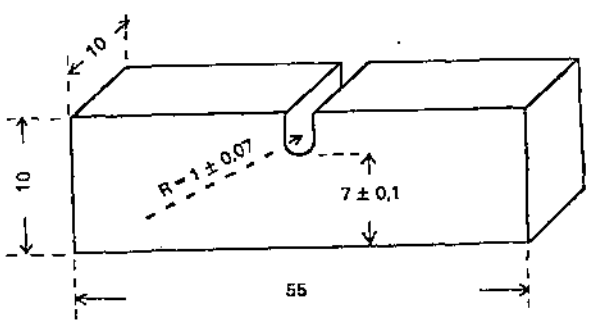
	J/τετρ. εκ. β)	J)τετρ. εκ. C).
ατσάλι όχι σε κράμα κρυωμένο	34,3	27,4
σιδηρικό ατσάλι σε κράμα Νι<5%	34,3	21,6
σιδηρικό ατσάλι σε κράμα 5%≦ Νι≦9%	44.1	34,3
αστενιτικό ατσάλι με Cr – Νι	39.2	31.4

α. Οι τιμές επαναπακτικότητας που καθορίστηκαν με διαφορετικούς δοκιμαστικούς σωλήνες, δεν συγκρίνονται μεταξύ των. Βλέπε επίσης περιθωριακά 3275 έως 3277.

β. Οι αξίες συσχετίζονται με δοκιμαστικούς σωλήνες με εγκοπή σε U των οποίων η περιγραφή δίδεται στο κάτωθι σχέδιο.

c. Οι αξίες συσχετίζονται με δοκιμαστικούς σωλήνες που έχουν εγκοπή σε V, σύμφωνα με ISO R 148.

(σχέδιο 55 β 34 φωτοτυπία).



Για τα αυστενιτικά ατσάλια μόνον το κορδόνι συγκόλλησης πρέπει να υποβληθεί σε δοκιμασία (επανατακτικότητος)

Για τις θερμοκρασίες λειτουργίας κατωτέρα από 196°C η δοκιμασία (επανατακτικότητος) δεν εκτελείται στην ελαχίστη θερμοκρασία λειτουργίας αλλά σε 196°C.

β Δοχεία σε αλουμίνιο και σε κράμα αλουμινίου.

. . . . . .

Οι ενώσεις των δοχείων πρέπει στην ατμοσφαιρική θερμοκρασία να ικανοποιούν τις κάτωθι προϋποθέσεις σχετικά με τον συντελεστή λυγίσματος. 3266

Πάχος της λαμαρίνας E σε μμ	Συντελεστής λυγίσματος K για την ένωση α).	
	Ρίζα στην συμπιεσμένη ζώνη	Ρίζα στην τεντωμένη ζώνη
≤12	≥15	≥12
>12 με 20	≥12	≥10
>20	≥ 9	≥ 8

α βλέπε περιθ. 3285

γ Δοχεία δεξαμενές από χαλκό και κράμα χαλκού.

Δεν είναι απαραίτητο να γίνουν δοκιμασίες για να καθοριστεί αν η επανατακτικότητα είναι επαρκής. 3267 3268 -3274

2 Δοκιμασίες

α δοκιμασία (επανατακτικότητος)

Οι τιμές της επανατακτικότητας που αναφέρονται στο περιθώριο 3265 συσχετίζονται με δοκιμαστικούς σωλήνες 10×10 μμ με εγκοπή σε U ή με δοκιμαστικές σωλήνες 10×10 μμ με εγκοπή σε V. 3275

Σημείωση «1» Για ό,τι αφορά το σχήμα του δοκιμαστικού σωλήνα βλέπε σημ. β και C του περιθωρίου 3265 (Πίνακας).

2. Για τις λαμαρίνες που έχουν πάχος μικρότερο από 10 μμ αλλά τουλάχιστον 5μμ χρησιμοποιούμε δοκιμαστικούς σωλήνες με 10 μμ Χεμμ τομής όπου το «ε» αντιπροσωπεύει το πάχος της λαμαρίνας. Αυτές οι δοκιμασίες της επανατακτικότητας δίδουν γενικά πιο υψηλές τιμές από τις κανονικές δοκιμαστικές σωλήνες.

3. Για λαμαρίνες πάχους λιγώτερο από 5 μμ και για τις ενώσεις των δεν εκτελούμε δοκιμασία επανατακτικότητας.

(I) Για την δοκιμασία των λαμαρινών η επανατακτικότης καθορίζεται σε τρεις δοπιμαστικούς σωλήνες. 3276

Η δειγματοληψία γίνεται εγκαρσίως στην κατεύθυνση ελασματοποίησης αν πρόκειται για δοκιμαστικούς σωλήνες με εγκοπή σε V.

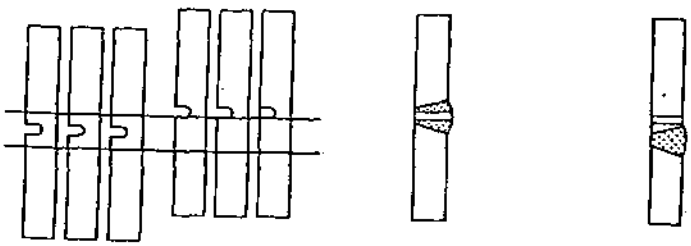
(2). Για τη δοπιμασία των ενώσεων οι δοκιμαστικοί σωλήνες θα δειγματοληφθούν ως εξής:

E≤10

– 3 δοκιμαστικοί σωλήνες στο κέντρο της συγκόλλησης

– 3 δοκιμαστικοί σωλήνες στην ζώνη αλλοίωσης λόγω συγκόλλησης (η εγκοπή βρίσκεται εντελώς εκτός της λειωμένης ζώνης και στο πιο κοντινό σημείο αυτής)

Β 36 Φωτ.



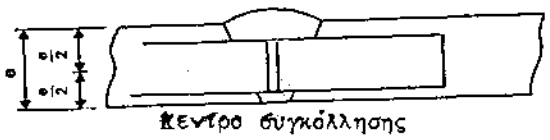
Δηλαδή στο σύνολο 6 δοκιμαστικοί σωλήνες. Οι δοκιμαστικοί σωλήνες κατασκευάζονται ώστε να έχουν το μεγαλύτερο δυνατό πάχος.

10<ε≤20

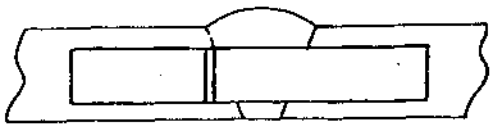
– 3 δοκιμαστικοί σωλήνες στο κέντρο της θυγκόλλησης

– 3 δοκιμαστικοί σωλήνες στη ζώνη αλλοίωσης

(Ρ 36 Φωτ.)



Κέντρο συγκόλλησης

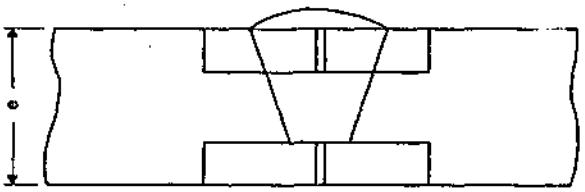


Ζώνη αλλοίωσης

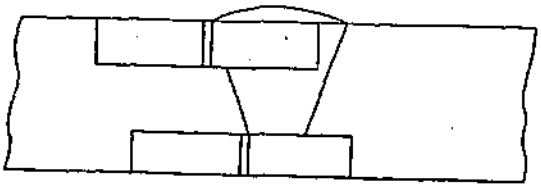
δηλαδή στο σύνολο 6 δοκιμαστικοί σωλήνες.

E>20

2 σύνολο των 3 δοκιμαστικών σωλήνων (I σύνολο στην άνω πλευρά, I σύνολο στην κάτω πλευρά) σε κάθε τοποθεσία που σημειώνεται κατωτέρω.»



Κέντρο της συγκόλλησης.



Ζώνη αλλοίωσης.

δηλαδή στο σύνολο 12 δοκιμαστικού σωλήνες.

(I) Για τις λαμαρίνες ο μέσος όρος των τριών δοκιμασιών πρέπει να ικανοποιεί τις ελάχιστες αξίες που αναφέρονται στο περιθώριο 3265. Καμμία από τις αξίες δεν πρέπει να είναι μικρότερη από 30% του ελαχίστου που αναφέρεται.

(2) Για τις συγκολλήσεις οι μέσες αξίες που προκύπτουν από τις 3 δοκιμαστικές σωλήνες που δειγματοληφθησαν σε διάφορα σημεία, κέντρο της συγκόλλησης και ζώνη αλλοίωσης, πρέπει να συμφωνούν στις ελάχιστες αξίες που αναφέρονται.

Καμμία εκ των αξιών δεν πρέπει να είναι κάτω από το 30% του ελαχίστου που αναφέρεται. 3278 -3284

Β. Καθορισμός του συντελεστή λυγίσματος

(I) Ο συντελεστής λυγίσματος K που αναφέρεται στο περιθώριο 3266 ορίζεται ως εξής:

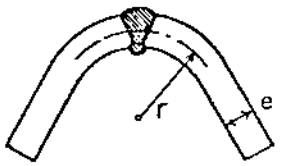
$$K = 50 \frac{\varepsilon}{\rho}$$

δεδομένου ότι ε είναι το πάχος της λαμαρίνας με μμ δεδομένου ότι ρ μέση ακτίνα κυρτότητος.
σε μμ της δοκιμαστικής σωλήνας κατά την εμφάνιση του πρώτου σχίσματος στην ελκτική ζώνη.

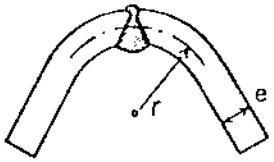
(2) Ο συντελεστής λυγίσματος K καθορίζεται για την ένωση. Το φάρδος του δοκιμαστικού σωλήνα είναι ίσο με 3ε.

(3) Τέσσερις δοκιμασίες εκτελούνται στην ένωση των οποίων 2 με ρίζα στην συμπιεσμένη ζώνη (σχ. 1, και 2) με την ρίζα στην τεντωμένη ζώνη (σχ. 2).

Όλες οι προκύπτουσες αξίες πρέπει να ικανοποιούν τις ελάχιστες αξίες που αναφέρονται στο περιθώριο 3266.



1



2

σχ Ι Σχ 2

Γ Οδηγίες σχετικές με τις δοκιμασίες στά κουτία και τις φιάλες γκαζ υπό πίεση των 10° και 11° της κλάσης 2.

Ι. Δοκιμασίες πίεσης και σπάσιμου στο μοντέλο του δοχείου.

Δοκιμασίες υδραυλικής πίεσης θα εκτελούνται επί τουλάχιστον 5 άδειων δοχείων κάθε μοντέλου. 3291

α) Μέχρι την καθορισμένη πίεση δοκιμασίας καμία οφθαλμοφανής και μόνιμη διαρροή ούτε παραμόρφωση δεν πρέπει να προκαλείται.

Β. Μέχρι την εμφάνιση κάποιας διαρροής ή σπασίματος ή τυχόν κοίλη βάση πρέπει να βουλιάξει πρώτα και το δοχείο θα απωλέσει την στεγανότητα ή θα σπάσει, μόνον από μία πίεση 1,2 φορές με την πίεση δοκιμασίας.

2. Δοκιμασιές στεγανότητος επί όλων των δοχείων.

(1) Για την δοκιμασία επί των κυτίων γκαζιού υπό πίεση (10ο) και επί των φιαλών γκάζ υπό πίεση 11ο σε μπάνιο με ζεστό νερό, η θερμοκρασία του οποίου καιη διάρκεια της δοκιμασίας θα εξετασθούν ώστε η εσωτερική πίεση κάθε δοχείου να φτάσει τουλάχιστον στο 90% αυτής που θα είχε επιτευχθεί σε 55ο C. 3292

Όμως αν το περιεχόμενο είναι ευαίσθητο στην θερμότητα ή αν τα δοχεία είναι από πλαστική ύλη που μαλακώνει στη θερμοκρασία της δοκιμασίας αυτής, η θερμοκρασία του μπάνιου θα ειναι από 20ο C μέχρι 30ο C. Ένα κουτί στα 2000 θα πρέπει άλλωστε να εξετασθεί στην θερμοκρασία που προβλέπεται στο προηγούμενο έδαφος.

(2) Καμμία μόνιμη διαρροή ούτε παραμόρφωση των δοχείων θα πρέπει να παραλειφθεί.

Η διάταξη σχετικά με την μόνιμη παραμόρφωση δεν εφαρμόζεται στα δοχεία από πλαστικό υλικό που μαλακώνουν. 3293 -3299

Δοκιμασίες σχετικές με εύφλεκτα ρευστά των κλάσεων 3,6.1 και 8.

Δοκιμασία για τον καθορισμό του σημείου φωτισμού.

(1) Το σημείο φωτισμού καθορίζεται με ένα από τα εξής μηχανήματα. 3300

α που μπορούν να χρησιμοποιούνται σε θερμοκρασίες που δεν υπερβαίνουν τους 50ο C μηχάνημα του ABEL, ABEL-PENSKY, του LUCHAIRE – FINANCES του TAG.

Β που μπορούν να χρησιμοποιηθούν σε θερμοκρασίες πάνω από 50ο C μηχάνημα του PENSKY MARTENS του LUCHAIRE – FINANCES.

γ. Ελλείψει αυτών οποιοδήποτε άλλο μηχάνημα με κλειστό χοάνι που μπορεί να δώσει αποτέλεσμα που δεν απομακρύνεται πλέον των 2ο C των αποτελεσμάτων που θα έδιναν ένα εκ των ανωτέρων μηχανημάτων.

(2) Για τον καθορισμό του σημείου φωτισμού για τις μπογιές και τις κόλλες και ιξώδη προϊόντα παρεμφερή που περιέχουν διαλύτες μπορούν μόνον να χρησιμοποιούνται μηχανήματα και μέθοδοι δοκιμασίας που είναι κατάλληλα για τον καθορισμό του σημείου φωτισμού και των ιξωδών ρευστών όπως

Η μέθοδος Α των κανόνων IP 170/59 η πιο πρόσφατοι.

Οι γερμανικοί κανόνες DIN 53213 και TGL 14 301 φύλλο 2

Ο τρόπος εκτέλεσης του μέτρου θα είναι 3301

α. Για το μηχάνημα ABEL εκείνος του κανόνα IP/33/44. Αυτός ο κανόνας θα μπορεί επίσης να χρησιμοποιηθεί για το μηχάνημα ABEL PENSKY.

β. Για το μηχάνημα PENSKY MARTENS εκείνο του κανόνα IP/34/47 ή του κανόνα D93/46 του ASTM

γ. Για το μηχάνημα TAG, εκείνο του κανόνα D53/46 του ASTM

δ. Για το μηχάνημα LUCHAIRE, εκείνο της οδηγίας που επισυνάπτεται στο Υπουργικό διάταγμα (Γαλλία) της 26 Οκτωβρίου 1925, μετά από εισαγωγή του Υπουργείου Εμπορίου και Βιομηχανίας που δημοσιεύθηκε στό ΦΕΚ της 29ης Οκτωβρίου 1925.

Σε περίπτωση χρησιμοποίησης άλλου μηχανήματος, ο τρόπος εκτέλεσης θα απαιτήσει τις εξής προφυλάξεις

1. Ο καθορισμός πρέπει να γίνεται με προφύλαξη από ρεύματα (αέρος).

2. Η ταχύτης θέρμανσης του δοκιμασμένου ρευστού δεν πρέπει ποτέ να υπερβαίνει τους 5ο C ανά λεπτό.

3. Η φλόγα (λυχνίας) πρέπει να έχει μήκος 5μμ (0,5 μμ)

4. Πρέπει να παρουσιάζουμε την φλόγα της (λυχνίας) στην οπή του δοχείου κάθε φορά που η θερμοκρασία του ρευστού θα έχει αυξηθεί κατά 1ο C

THE INSTITUTE OF PETROLEUM, 61 NEW CAVENDISH STREET LONDON W1

AMERICAN SOCIETY FOR TESTING MATERIALS, 1916 RACE STR PHILADELPHIA 3 (Pa).

Σε περίπτωση αμφισβήτησης όσον αφορά την ταξινόμηση ενός εύφλεκτου ρευστού, θα συγκρατήσουμε τον αριθμό της απαρίθμησης που προτείνεται από τον αποστολέα, αν αντιδοκιμής της μέτρησης του σημείου φωτισμού γενομένης επί του εν λόγω ρευστού, δίδει την τιμή που δεν απέχει πλέον από 2ο C των ορίων (αντίστοιχα 21ο, 55ο και 100ο C), που αναφέρονται στο περιθώριο 2301. 3302

Αν μία αντι-δοκιμή δίδει τιμή που απέχει πλέον των 2ο C των ορίων αυτών, θα πρέπει να γίνει δεύτερη αντι-δοκιμή και συγκρατήσουμε τελικά την υψηλότερη των τιμών.

Δοκιμασία καθορισμού της περιεκτικότητας σε υπεριξείδιο.

Ο καθορισμός του ποσοστού υπεροξειδίου σ' ένα ρευστό θα γίνει με τον εξής τρόπο εκτέλεσης.

Χύνουμε σε φιαλίδιο του ERLENMEYER μία μάζα P (γύρω στα 5 γρ που ζυγίζεται με ακρίβεια 1 εκ γρ.) του ρευστού που θα δοκιμαστεί, προσθέτουμε 20 κυβ εκατ. οξικό ανυδρίτη και 1 γρ περίπου στερεό κιονιοποιημένο ιωδιούχο κάλιο, το ανακινούμε και μετά από 10 λεπτά το θερμαίνομε σε 60ο C για 3 λεπτά. Έπειτα το αφήνουμε να κρυώσει 5 λεπτά. Τότε προσθέτουμε 25 κυβ εκατ νερό, και μετά από 1/2 ώρας ησυχία τιτλομετράμε το ιώδιο με ένα διάλειμμα ιοκανονικού υποθειώδους νατρίου, χωρίς να προσθέσουμε δείκτη πλήρους αποχρωματισμού δείχνοντας το τέλος της αντίδρασης. 3303

Εάν V είναι ο αριθμός των κυβ. εκατ. του διαλείμματος του υποθειώδους που χρειάζεται το ποσοστό υπεροξειδίου (που επιμετράται σε H202) που περιέχει το δείγμα προκύπτει από την φόρμουλα 3300

$$\frac{17V}{100p.}$$

Δοκιμασία για τον καθορισμό της ρευστότητος. 3304 -3309

Για να καθορισθεί η ρευστότης των ρευστών ή των ιξώδων υλικών και των μιγμάτων της κλάσσης 3, πρέπει να χρησιμοποιηθεί η εξής μέθοδος δοκιμασίας. 3310

Μηχάνημα (συσκευή)

(PENETROMETRE) Το εμπορικό πενετρόμετρο (συσκευή που μετρά με την εισαγωγή την σκληρότητα) σήμφωνα με τον κανόνα ISO 2137-1972 με ράβδο, οδηγό των 47,5 - 0,05 γρ δίσκο κοσκινισμένο από DURALIUM με κωνικές οπές, έχοντας μάζα 102,5 ± 0,05 γρ βλέπε σχήμα, δοχείο εισαγωγής με εσωτερική διάμετρο 72 με 80 μμ, προοριζόμενο για την αποδοχή του δείγματος.

β. Διαδικασία της δοκιμασίας.

το δείγμα τοποθετείται σε δοχείο εισαγωγής το αργότερο μισή ώρα πριν απ τη μέτρηση.

Το δοχείο που έχει κλειστεί με στεγανό τρόπο τοποθετείται έτσι ώστε να μείνει ακίνητο μέχρι την μέτρηση.

Το δείγμα θερμαίνεται στο δοχείο εισαγωγής κλεισμένο στεγανά σε 35oC ± 0,5K και τοποθετείται στο πλατώ του πενετρόμετρου μόνον αμέσως πριν την μέτρηση. (το πολύ δύο λεπτά).

Έπειτα βάζομε το κέντρο S του κοσκινισμένου δίσκου στην επιφάνεια του ρευστού και το βάθος της εισαγωγής μετράται σχετικά με το χρόνο.

Εκτίμηση των αποτελεσμάτων της δοκιμασίας.

Ένα υλικό δεν υποβάλλεται στις προϋποθέσεις της κλάσης 3 του ADR εάν το κέντρο S επιφέρθηκε στην επιφάνεια του δείγματος, η εισαγωγή φαίνεται στο καντράν της ράβδου μετρήσεως. 3311

α. Μετά από διάρκεια φόρτωσης 5 δευτερολέπτων ± 0,1 δευτερόλ. είναι κατώτερο από 150 δέκατα του μμ ± 3 δέκατα μμ.

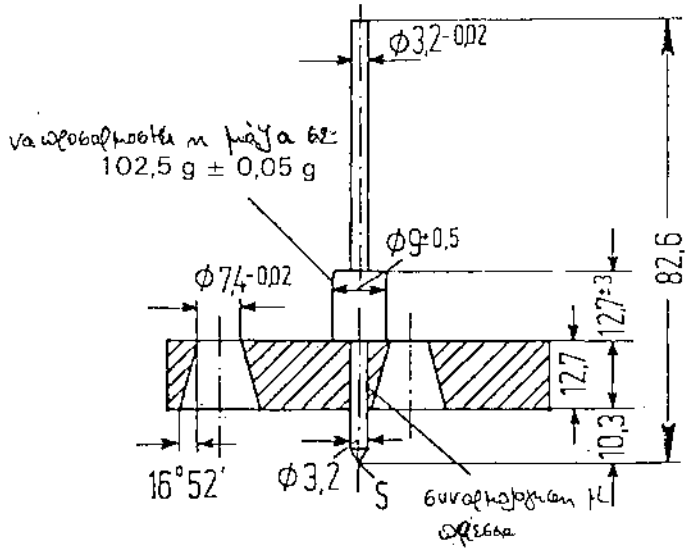
β) Μετά από διάρκεια φόρτωσης 5 δευτ ± 0,1 δευτ. είναι ανώτερη από 150 δέκατα μμ ± 3 δέκατα μμ, αλλά η συμπληρωματική εισαγωγή μετά από νέα περίοδο 55 δευτ ± 0,5 δευτ, είναι κατώτερη από 50 δέκατα μμ ± 5 δέκατα μμ.

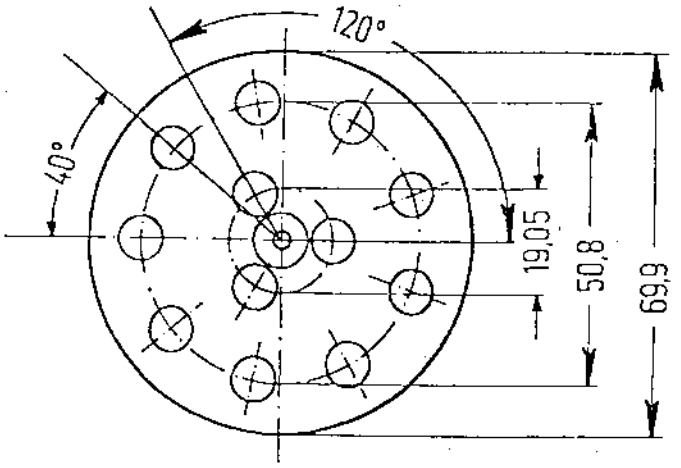
Σημείωση. Σε περίπτωση δειγμάτων που έχουν σημείο διοχέτευσης, είναι συχνά αδύνατος να έχομε λεία επιφάνεια στο δοχείο εισαγωγής και συνεπώς να καθορίσουμε καθαρά τις αρχικές προϋποθέσεις μέτρησης για την επαφή του κέντρου S.

Επίσης στην περίπτωση μερικών δειγμάτων η σύγκρουση του κοσκινισμένου δίσκου μπορεί να προκαλέσει ελαστική παραμόρφωση στην επιφάνεια, απ όπου κατά τα πρώτα δευτερόλεπτα λαμβάνομε την εντύπωση μιας πιό βαθειάς εισαγωγής.

Για όλες αυτές τις περιπτώσεις μπορεί να είναι χρήσιμο να γίνει η εκτίμηση που αναφέρεται υπό του β κατωτέρω. 3312 -3399

Appendice A.3





Ηη καθορισμένος ανεκτικότητα
± 0,1 mm

Συνημμένο Α.5

Γενικές προϋποθέσεις συσκευασίας, τύποι συσκευασίας, απαιτήσεις σχετικές με τις συσκευασίες και οδηγίες σχετικά με τις δοκιμασίες επί των συσκευασιών.

Σημ. Οι οδηγίες αυτές είναι εφαρμόσιμες στις συσκευασίες που περιέχουν υλικά των κλάσεων 3, 6.1 ή 8.

Τμήμα 1. Γενικές προϋποθέσεις συσκευασίας

(1) Οι συσκευασίες πρέπει να κατασκευάζονται και να 3500
κλείνονται έτσι ώστε να αποφεύγουμε – για δέμα έτοιμο για αποστολή – κάθε απώλεια του περιεχομένου που θα μπορούσε να προκύψει κατά τις κανονικές συνθήκες μεταφοράς, δηλαδή αλλαγή θερμοκρασίας, υγρασία, πίεση.

Κανένα επικίνδυνο υλικό δεν πρέπει να καλλήσει έξω από το δέμα. Αυτές οι διατάξεις είναι εφαρμόσιμες συγχρόνως στις καινούργιες συσκευασίες που επαναχρησιμοποιούνται.

(2) Τα τμήματα συσκευασίας που βρίσκονται σε άμεση επαφή με τα επικίνδυνα υλικά δεν πρέπει να αλλοιώνονται με χημικές δράσεις ή άλλα τοιαύτα των υλικών αυτών. Σε αντίθετη περίπτωση πρέπει να είναι εφοδιασμένα με εσωτερική κατάλληλη επένδυση ή να έχουν επωφεληθεί από κατάλληλη επεξεργασία. Αυτά τα τμήματα της συσκευασίας δεν πρέπει να έχουν συστατικά που πιθανόν μπορεί να αντιδρούν επικίνδυνα με το περιεχόμενο, να γίνουν επικίνδυνα υλικά ή να τα εξασθενήσουν αρκετά.

(3) Κάθε συσκευασία εκτός από τις εσωτερικές συσκευασίες των συνδυασμένων συσκευασιών πρέπει να συμφωνεί με έναν τύπο δοκιμασμένης κατασκευής, επικυρωμένο από τις οδηγίες που απαριθμούνται στο τμήμα IV.

Οι συσκευασίες που έχουν κατασκευαστεί σε σειρά, πρέπει να συμφωνούν με τον τύπο της επικυρωμένης κατασκευής.

(4) Όταν οι συσκευασίες είναι πλήρεις από ρευστό, πρέπει να αφειθεί περιθώριο γέμισης αρκετά μεγάλο για να εξασφαλιστεί η μή απώλεια του ρευστού και η μή μόνιμη παραμόρφωση της συσκευασίας μετά την διαστολή του ρευστού λόγω των θερμοκρασιών που μπορεί να παρουσιασθούν κατά την μεταφορά.

Εκτός από αντίθετες διατάξεις που προβλέπονται στις διαφορετικές κλάσεις, ο μέγιστος βαθμός γέμισης με θερμοκρασία γέμισης 15°C δεν πρέπει να υπερβαίνει

α)

Σημείο βρασμού αρχή βρασμού του υλικού σε °C	60	60 100	100 200	200 300	300
Βαθμός γέμισης σε % της χωρητικότητος της συσκευασίας	90	92	94	96	98

δηλαδή

β) Βαθμός γέμισης = $\frac{98}{1\text{-}\alpha(50\text{-}\tau_f)}$ % της

περιεκτικότητας της συσκευασίας.

Στις φόρμουλες (τους τύπους) α αντιπροσωπεύει τον μέσο συντελεστή κυβικής διατολής του ρευστού μεταξύ 15°C και 50°C και δηλαδή για μέγιστη μεταβολή της θερμοκρασίας 35°C.

Το α υπολογίζεται με την φόρμουλα

$$\alpha = \frac{\delta 15 - \delta 50}{35 \times \delta_{50}}$$

αφού δ_{15} και δ_{50} είναι οι μέσες σχετικές πυκνότητες ή του ρευστού σε 15°C και 50°C και τ_f η μέση θερμοκρασία του ρευστού κατά την γέμιση.

Η έκφραση «σχετική πυκνότης» (δ) θεωρείται συνώνυμο της «πυκνότητας» και θα χρησιμοποιηθεί παντού στο παρόν κεφάλαιο.

---

(5) Οι εσωτερικές συσκευασίες πρέπει να συσκευάζονται στην εξωτερική συσκευασία ώστε να αποφευχθεί, σε κανονικές συνθήκες μεταφοράς, το σπάσιμό τους, η διάτρισή των, και η απώλεια του περιεχομένου των στην εξωτερική συσκευασία.

Οι εσωτερικές συσκευασίες που έχουν πιθανότητα να σπάσουν ή να διατρηθούν εύκολα όπως οι συσκευασίες από γυαλί, πορσελάνη, ψαμμόλιθο ή από μερικά πλαστικά υλικά κλπ. πρέπει να υπόκεινται μέσα σε εξωτερική συσκευασία βάζοντας ανάμεσά τους ένα κατάλληλο υλικό στοιβασμού.

Μία διαρροή του περιεχομένου δεν πρέπει να αλλοιώσει σημαντικά τις προστατευτικές ιδιότητες στοιβασμού και εξωτερικής συσκευασίας.

(6) Μία ίδια εξωτερική συσκευασία δεν πρέπει να συμπεριλαμβάνει εσωτερικές συσκευασίες που περιέχουν διαφορετικά υλικά που μπορουν να αντιδρούν επικίνδυνα μεταξύ των. (Βλέπε επίσης τις διατάξεις περί της συσκευασίας από κοινού στις διάφορες κλάσεις).

(7) Το κλείσιμο των συσκευασιών που περιέχουν βρεγμένα υλικά ή διαλείμματα υλικών, πρέπει να είναι έτσι ώστε το ποσοστό του ρευστού (νερό, διάλειμμα ή φλεγματικό) να μη πέσουν κατά την μεταφορά κάτω από τα προβλεπόμενα όρια.

(8) Σε περίπτωση που μπορεί να αναπτυχθεί υπερπίεση σε μία συσκευασία λόγω παραγωγής αερίου από το περιεχόμενο (μετά από αύξηση της θερμοκρασίας ή για άλλους λόγους) η συσκευασία μπορεί να έχει εφοδιαστεί με οπή αερισμού εφόσον τα αέρια που προκαλούνται δεν είναι επικίνδυνα από άποψη τοξικότητας ή ευφλεκτικότητας ή ποσότητας που ελευθερώνεται κλπ.

Η οπή αερισμού πρέπει να έχει κατασκευαστεί με τρόπο να αποφεύγεται η διαρροή υγρού και η εισαγωγή ξένων υλικών κατά τις μεταφορές που πραγματοποιούνται υπό κανονικές συνθήκες τοποθετημένης της συσκευασίας στη θέση που προβλέπεται για την μεταφορά.

Δεν είναι δυνατόν όμως να μεταφέρουμε ένα υλικό με τέτοια συσκευασία παρά μόνον όταν προβλέπεται τοιαύτη οπή αερισμού για το υλικό αυτό στις συνθήκες μεταφοράς της αντίστοιχης κλάσης.

(9) Οι καινούργιες συσκευασίες που επαναχρησιμοποιούνται ή που αναπαρασκευάζονται, πρέπει να μπορέσουν να πραγματοποιηθούν κατά τις δοκιμασίες επιτυχώς, που προβλέπονται στο τμήμα IV. Πριν γεμίσει και πριν παρουσιασθεί για μεταφορά μία συσκευασία και κάθε συσκευασία, πρέπει να ελεγχθεί και να αναγνωρισθεί - εξαιρουμένης της διάβρωσης - από μόλυνση ή άλλες φθορές. Κάθε συσκευασία που παρουσιάζει σημεία αδυναμίας σχετικά με τον τύπο της επικυρωμένης κατασκευής, δεν πρέπει πλέον να χρησιμοποιείται ή να διορθώνεται ώστε να μπορέσει να αντέξει στις δοκιμασίες για τον τύπο της κατασκευής.

(10) Οι συσκευασίες που χρησιμοποιούνται για τα ρευστά υλικά, πρέπει να υποβληθούν σε δοκιμασία στεγανότητος για τις περιπτώσεις που προβλέπονται στο περιθώριο 3560 και τις προϋποθέσεις του εν λόγω περιθωρίου.

(11) Τα ρευστά πρέπει να φορτώνονται μόνο σε συσκευασίες που έχουν αρκετή αντοχή για την εσωτερική πίεση η οποία μπορεί να αναπτυχθεί υπό κανονικές συνθήκες μεταφοράς.

Οι συσκευασίες όπου αναγράφεται η πίεση της υδραυλικής πίεσης (ως προβλέπεται στο περιθώριο 3512 (I) δ, θα γεμισθούν μόνον με ένα ρευστό που έχει πίεση ατμού.

α. Ώστε η συνολική μανομετρική πίεση στη συσκευασία (δηλαδή η πίεση ατμού του υλικού που την περιέχει, συν την τμηματική πίεση του αέρα ή άλλων αδρανών αερίων και μείον 100 KPa) σε 55°C καθορισμένο για μέγιστο ποσοστό γέμισης σύμφωνα με το (4) ανωτέρω, και μία θερμοκρασία γέμισης 15°C δεν υπερβαίνει τα 2/3 της πίεσης της δοκιμασίας που αναγράφεται.

β. Η κατώτερη με 50°C στις 4/7 του συνόλου της πίεσης δοκιμασίας που αναγράφεται και 100 KPa.

γ. Η κατώτερη με 55°C στα 2/3 του συνόλου της πίεσης δοκιμασίας που αναγράφεται και 100 KPa.

3501
-3509

Τμήμα II Τύποι συσκευασίας

(I) Με την επιφύλαξη, ως προς τις ειδικές διατάξεις εκά-

στης κλάσης, οι εξής αναφερόμενες δοκιμασίες μπορούν να χρησιμοποιηθούν.

Βαρέλια: Κυλινδρικές συσκευασίες με επίπεδη ή κυρτή βάση από μέταλλο ή χαρτόνι, πλαστικό - κόντρα πλακέ ή άλλο κατάλληλο υλικό. Αυτός ο ορισμός συμπεριλαμβάνει τις συσκευσίες που έχουν άλλες μορφές από μέταλλο ή πλαστικό π.χ. οι στρογγυλές συσκευασίες με κωνικό κιονόκρανο ή οι συσκευασίες με μορφή κουβά.

Τα ξύλινα βαρέλια και μπιτόνια δεν καλύπτονται από τον ορισμό αυτό.

Ξύλινα βαρέλια. Συσκευασίες από φυσικό ξύλο με κυκλική τομή, με κυρτό τοίχωμα αποτελούμενα από δούγες και βάσεις και εφοδιασμένες με κύκλους.

Μπιντόνια: Συσκευασίες από μέταλλο ή πλαστικό με παραλληλόγραμμη τομή ή πολυγωνική τομή εφοδιασμένα με μία ή πλείονες οπές.

Κουτιά: Συσκευασίες με γεμάτες φάτσες παραλληλόγραμμες ή κόντρα - πλακέ, ανασυνιστώμενο ξύλο, χαρτόνι, πλαστικό ή άλλο κατάλληλο υλικό χωρίς οπή.

Σάκκοι. Εύκαμπτες συσκευασίες από χαρτί, από ταινία πλαστική από ύφασμα από υφαντό υλικό ή άλλο κατάλληλο υλικό.

Σύνθετη συσκευασία (πλαστικό υλικό)

Συσκευασία αποτελουμένη από εσωτερικό πλαστικό δοχείο και εξωτερική συσκευασία (μέταλλο χαρτόνι κόντρα πλακέ κλπ).

Έτσι και συναρμολογηθεί αυτή η συσκευασία θα μείνει ένα αδιαίρετο σύνολο.

Γεμίζεται, στοκάρεται, αποστέλλεται και αδειάζεται ως είναι.

Σύνθετη συσκευασία. (Γυαλί, πορσελάνη, ψαμμόλιθος).

Συσκευασία που αποτελείται από εσωτερικό δοχείο από γυαλί πορσελάνη, ψαμμόλιθο και από εξωτερική συσκευασία (μέταλλο, ξύλο, πλαστικό, διάχυτο πλαστικό κλπ).

Έτσι και συναρμολογηθεί αυτή η συσκευασία θα παραμείνει ένα αδιαίρετο σύνολο.

Γεμίζεται, στοκάρεται, αποστέλλεται και αδειάζεται ως έχει.

Πρέπει να υποβάλλεται στις δοκιμασίες που προβλέπονται στα περιθώρια 3552 (Ια ή β. 3553 και 3554.

Συνδυασμένη συσκευασία

Συνδυαμός συσκευασιών για την μεταφορά αποτελούμενος από μία ή περισσότερες συσκευασίες υποκείμενες σε μία εξωτερική συσκευασία όπως προβλέπεται στο περιθώριο 3500 (5).

(2) Με την επιφύλαξη ως προς τις ειδικές διατάξεις εκάστης κλάσης, μπορούν να χρησιμοποιηθούν οι εξής συσκευασίες.

Σύνθετη συσκευασία (υαλός πορσελάνη ψαμμόλιθος) Εφόσον υπέστησαν τις δοκιμασίες που προβλέπονται στο περιθώριο 3552 (Ι) 3ε).

Ελαφρές μεταλλικές συσκευασίες.

Συσκευασίες με κυκλική τομή, ελλειψοειδή, παραλληλόγραμμη ή πολυγωνική επίσης κωνική, όπως και συσκευασίες με κωνικό κιονόκρανο ή σε σχήμα κουβά, σε λευκοσίδηρο ή ελαφρά μέταλλα που έχουν πάχος καμιά φορά κατωτέρο από 0,5 μμ με επίπεδη ή κυρτή βάση, εφοδιασμένα με μία ή πλείονες οπές και όχι καλυμένα από τους ορισμούς που δίδονται για τα βαρέλια και τα μπιντόνια, του περιθωρίου 3510 (Ι).

(3) Οι ορισμοί που αναφέρονται κατωτέρω εφαρμόζονται στις συσκευασίες που απαριθμούνται υπό (1) και (2) πιο κάτω.

Δέμα. Τελικό προϊόν της επιχείρησης συσκευασίας, έτοιμο για την αποστολή αποτελούμενο από την ίδια την συσκευασία με το περιεχόμενό του.

Μεγίστη περιεκτικότης (ως αναφέρεται στο τμήμα ΙΙΙ).

Μέγιστος εσωτερικός όγκος των δοχείων ή των συσκευασιών που εκφράζονται σε λίτρα.

Συσκευασία. Δοχείο και όλα τα άλλα στοιχεία ή υλικά αναγκαία για να επιτραπεί στο δοχείο να εκτελεί την ιδιότητα συστολής).

Εξωτερική συσκευασία. Εξωτερική προστασία μιάς σύνθετης συσκευασίας ή συνδιασμένης συσκευασίας με απορροφητικά υλικά στοιβασμένα υλικά και οποιαδήποτε άλλα στοιχεία για να περιέχουν και προστατεύουν τα εσωτερικά δοχεία ή τις εσωτερικές συσκευασίες.

Εσωτερικές συσκευασίες. Συσκευασίες που πρέπει να έχουν εφοδιαστεί από εξωτερική συσκευασία για την μεταφορά, «Κλείσιμο» Σύστημα που χρησιμοποιείται να κλείνει το άνοιγμα ενός δοχείου.

Καθαρή μέγιστη μάζα. Η καθαρή μέγιστη μάζα του περιεχομένου μιας μοναδικής συσκευασίας και του περιεχομένου των εκφραζόμενη σε Χγ.

Δοχείο. Περίβολος συγκράτησης που προορίζεται για την αποδοχή ή για να περιέχει υλικά ή πράγματα περιλαμβανόμενα και τα μέσα κλεισίματος όποια και νάναι.

Εσωτερικό δοχείο: Δοχείο που πρέπει να έχει προβλεφθεί από εξωτερική συσκευασία για να εκτελεί την ιδιότητα παρακράτησης.

«Σημείωση».

Το εσωτερικό στοιχείο των συνδυασμένων συσκευασιών, ονομάζεται πάντα «εσωτερική συσκευασία» και όχι εσωτερικό δοχείο.

Ένα υάλινο μπουκάλι είναι παράδειγμα «εσωτερικής συσκευασίας.

Το «εσωτερικό στοιχείο μιάς «σύνθετης συσκευασίας» ονομάζεται κανονικά «εσωτερικό δοχείο» πχ το εσωτερικό στοιχείο μιάς σύνθεσης συσκευασίας του τύπου 6ΗΑΙ (πλαστικό είνει «εσωτερικό δοχείο» του τύπου αυτού, δεδομένου ότι δεν προορίζεται κανονικά για να εκτελεί την ιδιότητα «της παρακράτησης» χωρίς την «εξωτερική συσκευασία» και δεν πρόκειται λοιπόν για εσωτερική συσκευασία».

Κωδικοποίηση των τύπων κατασκευών για συσκευασίες σύμφωνες με το περιθώριο 3510 (1) και (2). 3511

(Ι) Ο κώδικας αποτελείται από ένα αραβικό αριθμό που δείχνει τον τύπο συσκευασίας π.χ. βαρέλι μπιτόνι κ.λπ. από ένα ή περισσότερα κεφαλαία γράμματα σε λατινικούς χαρακτήρες που δείχνουν το υλικό ατσάλι ξύλο κ.λπ. διαφορετικά, ένας αραβικός αριθμός δείχνει την κατηγορία συσκευασίας στο πλαίσιο του τύπου στον οποίο ανήκει η συσκευασία αυτή.

Σε περίπτωση σύνθετων συσκευασιών, δύο κεφαλαία γράμματα σε λατινικούς χαρακτήρες θα χρησιμοποιηθούν.

Το πρώτο δείχνει το υλικό του εσωτερικού δοχείου, και το δεύτερο εκείνο της εξωτερικής συσκευασίας.

Σε περίπτωση συνδυασμένων συσκευασιών μόνον ο κώδικας που δείχνει την εξωτερική συσκευασία θα χρησιμοποιηθεί.

Οι εξής αριθμοί δείχνουν τον τύπο συσκευασίας.

1. Βαρέλι.
2. Βαρέλι από ξύλο.
3. Μπιτόνι.
4. Κουτί.
5. Σάκκος.
6. Σύνθετη συσκευασία.
0. Μεταλλικές ελαφρές συσκευασίες.

Τα κεφαλαία γράμματα που αναφέρονται κατωτέρω δείχνουν το υλικό.

A Ατσάλι

(περιλαμβάνει όλους τους τύπους και όλες τις μεταχειρίσεις της επιφανείας).

B Αλουμίνιο

C Φυσικό ξύλο

D Κόντρα - πλακέ.

F Ανακατασκευασμένο ξύλο

G Χαρτόνι

H Πλαστικό, συμπεριλαμβανομένου και του διαχυμένου πλαστικού.

L Ύφασμα

M Χαρτί πολυζαρωμένο.

N Μέταλλο (άλλο από ατσάλι ή το αλουμίνιο)

P Γυαλί πορσελάνη ή ψαμμόλιθος

(2) Τρεις ομάδες συσκευασιών προβλέπονται στις ειδικές οδηγίες για κάθε κλάση, ανάλογα με το βαθμό κινδύνου που παρουσιάζουν τα μεταφερτέα υλικά.

Ομάδα συσκευασίας I. Για τα υλικά της ομάδας A
Ομάδα συσκευασίας II. Για τα υλικά της ομάδας B
Ομάδα συσκευασίας III. Για τα υλικά της ομάδας C των αριθμών της απαρίθμησης των υλικών.

Ο κωδικός συσκευασίας ακολουθείται στη σημείωση, από ένα γράμμα που δείχνει τις ομάδες των υλικών για τα οποία ο τύπος κατασκευής έχει εγκριθεί δηλαδή X για τις ομάδες συσκευασίας I έως III.



Y Για τις ομάδες συσκευασίας II και III
Z Για την ομάδα συσκευασίας III.

Σημείωση. 3512

(1) Εκάστη συσκευασία πρέπει να φέρει σημειώσεις διαρκείας πολύ οφθαλμοφανείς.

Η σημείωση των καινούργιων συσκευασιών που κατασκευάζονται σύμφωνα με τον τύπο της εγκεκριμένης κατασκευής αποτελείται:

α. ι σύμβολο $\frac{u}{n}$

για τις συσκευασίες σύμφωνα με το περιθώριο 3510 (1).

Για τις μεταλλικές συσκευασίες όπου η σημείωση γίνεται με εκτύπωση γραμμάτων «UN» μπορούν να εφαρμοσθούν αντί του συμβόλου

$$\frac{u}{n}$$

ιι. Το σύμβολο «ADR» (ή «RID/ADR» για τις εγκεκριμένες συσκευασίες τόσο για την σιδηροδρομική μεταφορά όσο και για την οδική), αντί του

$$\frac{u}{n}$$

για τις συσκευασίες σύμφωνα με το περιθώριο 3510 (2).

β. Το κωδικό συσκευασίας, σύμφωνα με το περιθώριο 3511 (1).

C) Με κωδικό που αποτελείται από 2 τμήματα.

ι. με ένα γράμμα (X/Y/Z) που δείχνει την ομάδα ή τις ομάδες συσκευασίας για τις οποίες ο τύπος κατασκευής έχει εγκριθεί.

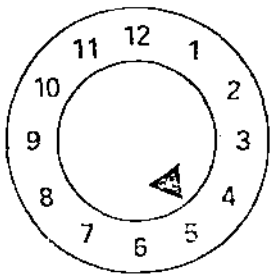
ιι. Για τις συσκευασίες χωρίς εσωτερικές συσκευασίες που προορίζονται για να περιέχουν ρευστά υλικών των οποίων η ιξωδότης, ε 23 °C είναι κατώτερη ή ίση με 200 $μm^2$/δευτ της σημείωσης της σχετικής πυκνότητος (στρογγυλοποιημένη στο πρώτο δέκατο) του υλικού με το οποίο ο τύπος κατασκευής δοκιμάστηκε όταν η πυκνότητα αυτή είναι ανώτερη από 1,2.

Για τις συσκευασίες που προορίζονται να περιέχουν ρευστά υλικά των οποίων η ιξωδότητα με 23° C είναι ανώτερη από 200 $μm^2$% δευτερ, των στερεών υλικών ή των εσωτερικών συσκευασιών, της σημείωσης της μέγιστης μικτής μάζας σε ΧΥ·

δ. Από το γράμμα «S» αν η συσκευασία προορίζεται να περιέχει ρευστά υλικά των οποίων η ιξωδότης με 23° C είναι ανώτερη από 200 $μm^2$/δευτερ. των στερεών υλικών ή των εσωτερικών συσκευασιών, δηλαδή αν η συσκευασία υπέστη επιτυχώς τη δοκιμασία υδραυλικής πίεσης, της σημείωσης της πίεσης δοκιμασίας σε KP α-στρογγυλοποιημένης στο δέκατο.

ε) Του έτους κατασκευής (οι δύο τελευταίοι αριθμοί). Εξ άλλου, για τις συσκευασίες των τύπων 1H και 3H τουλάχιστον της κατασκευής, που μπορεί επίσης να σημειωθεί σε μέρος διαφορετικό από το υπόλοιπο της σημείωσης.

Για το σκοπό αυτό μπορούμε να χρησιμοποιήσουμε το εξής σύστημα:



ζ) Το σήμα του Κράτους που εγκρίθηκε.

(Διακριτικό σήμα στη διεθνή κυκλοφορία που προβλέπεται από τη Σύμβαση της Βιέννης περί της οδικής κυκλοφορίας (Βιέννη 1968).

η) Ένα αριθμό εγγραφής και το όνομα ή το σήμα του κατασκευαστή ή άλλο διακριτικό σήμα της συσκευασίας, καθορισμένο από τις αρμόδιες αρχές.

(2) Κάθε συσκευασία που επαναχρησιμοποιήτο που ίσως θα υποβληθεί σε ανακατασκευή θα μπορούσε να σβήσει το σήμα, θα πρέπει να φέρει τις σημειώσεις υπό α) β), γ) δ) και ε) υπό μόνιμη μορφή (π.χ. εκτύπωση, ώστε να αντέχουν στην ανακατασκευή.

(3) Ο αριθμός εγγραφής ισχύει μόνον για ένα μόνο τύπο κατασκευής ή για μία σειρά τύπων κατασκευών. Διάφορες ενέργειες επιφανείας ανήκουν στον ίδιο τύπο κατασκευής.

Ανά σειρά τύπων κατασκευής, πρέπει να θεωρήσουμε συσκευασίες της ίδιας κατασκευής του ιδίου πάχους των τοιχωμάτων, ενός ιδίου υλικού, και ιδίας τομής που διαφοροποιούνται μόνο στα ύψη κατωτέρων κατασκευών, ανάλογα με τον εγκεκριμένο τύπο κατασκευής.

Τα κλεισίματα των δοχείων πρέπει να αναγνωρίζονται όπως αυτά που αναφέρονται στην έκθεση δοκιμασίας.

(4) Ο ανακατασκευαστής συσκευασίας πρέπει μετά την ανακατασκευή να επιφέρει στις συσκευασίες πλησίον των σημάτων διαρκείας που προβλέπονται στο α και ε ένα σήμα που αναφέρει με την εξής σειρά:

θ) το σήμα του Κράτους όπου έγινε η ανακατασκευή.

Διακριτικό σήμα στη διεθνή κυκλοφορία προβλεπόμενο από τη σύμβαση της Βιέννης περί της οδικής κυκλοφορίας Βιέννη 1968.

ι. Το εγκεκριμένο σύμβολο ή όνομα του ανακατασκευαστή.

κ. Το έτος της ανακατασκευής, το γράμμα «R» και για κάθε συσκευασία που υπέστη επιτυχώς την δοκιμασία στεγανότητος σύμφωνα με το περιθώριο 3500 (10) το συμπληρωματικό γράμμα «L».

(5) Οι συσκευασίες των οποίων η σημείωση συμφωνεί με το παρόν περιθώριο, αλλά που εγκρίθηκαν σε ένα Κράτος που δεν είναι συμβεβλημμένο με το ADR, μπορούν επίσης να χρησιμοποιούνται για τη μεταφορά σύμφωνα με το ADR.

(6) Παραδείγματα για τις σημειώσεις.

Για το καινούργιο βαρέλι σε ατσάλι.

υ IAI/Y14/150/83 α) ι), β), γ), δ) και ε
η NL./VLI23 J) και η.

Για ανακατασκευασμένο βαρέλι από ατσάλι
u IAI/Y I 4/150/83 α) ι) β) γ) δ) και ε)
η NL/RB/84/RI. θ), ι) και κ)

Για καινούργιες ελαφρές μεταλλικές συσκευασίες RID/ADR/OAI/4/75/83 α) ιι) β) γ) δ) και ε) με το επάνω μη κινητό.

NL/VL 123 j) η)

RID/ADR/OA2/Y/83 α) ιι) β) γ) και ε) με το επάνω κινητό, προοριζόμενα για τα ρευστά υλικά των οποίων η ιξωδότης με 23°C είναι ανώτερη από 200 $μ^2$/δευτερ.

NL./VL 124 j, η.

ΒΕΒΑΙΩΣΗ 3513

Ο κατασκευαστής βεβαιώνει με την σημείωση, σύμφωνα με το περιθώριο 3512 (Ι) ότι οι συσκευασίες που κατασκευάστηκαν σε σειρα ανταποκρίνονται στον τύπο εγκεκριμένης κατασκευής και ότι οι προυποθέσεις που αναφέρονται στην έγκριση έχουν πληρωθεί.

Ευρετήριο των συσκευασιών 3514

τύπου	υλικού	κατηγορία	Κωδικός	Περιθώριο
Α Συσκευασίες σύμφωνα με το περιθ. 3510 (Ι) φέρουσες το σήμα «UN»				
1 Βαρέλια	Α Ατσάλινα	Με άνω τμήμα μη κινητ. με άνω τμήμα κινητό	1A1 1A2	3520
	Β Αλουμίνιο	Με άνω τμήμα μη κινητ. με άνω τμήμα κινητό	1B1 1B2	3521
	D Κόντρα-πλακε		1D	3523
	G Χαρτόνι		1G	3525
	Η πλαστικό	με άνω τμ . μη κινητό με άνω τμ. κινητό	1H1 1H2	3526
2 Βαρέλια	C Ξύλο	με κλείθρο με άνω τμήμα κινητό	2C1 2C2	3524
3 Μπιτόνια	Α Ατσάλι	Με άνω τμήμα μη κινητό με άνω τμήμα κινητό	3A1 3A2	3522
	Η Πλαστικό	Με άνω τμήμα μη κινητό με άνω τμήμα κινητό	3H1 3H2	3526
4 Κουτιά	Α Ατσάλι	 με εσωτερική επένδυση	4A1 4A2	3532
	Β Αλουμίνιο	 με εσωτερ. επένδυση	4B1 4B2	3532
	C Φυσικό ξύλο	συνηθισμένο Με στεγανά τοιχώματα στα κονιορτώδη υλικά	4C1 4C2	3527
	D Κόντρα-πλακέ		4D	3528
	F Ανακατασκευασμένο ξύλο		4F	3529
	G Χαρτόνι		4G	3530
	Η πλαστικό	διεσταλμένο σκληρό	4H1 4H2	3531
5 Σάκκοι	Η Υφασμα πλαστικό	Χωρίς εσωτ. επένδυση μη κοσκινίζοντας ανθετικά στο νερό	5H1 5H2 5H3	3534
	Η. Ταινία πλαστική		5H4	3535
Σύμφωνα με το περιθώριο 3538, αυτές οι συσκευασίες μπορούν να χρησιμοποιηθούν σαν εξωτερικές συσκευασίες συνδιασμένων συσκευασιών.				
5 Σάκκοι	L Ύφασμα	Χωρίς εσωτ. επένδυση μη κοσκινίζοντες ανθεκτικά στο νερό	5L1 5L2 5L3	3533
	Μ Χαρτί	Πολυζαρωμένο πολυζαρωμένο ανθεκτ. στο νερό.....	5M1 5M1	3536

6 Σύνθετες συσκευασίες	Δοχείο πλαστικό	Με εξωτερ. βαρέλι από ατσάλι	6HA1	
		Με χιβώτιο ή εξωτερικό κουτί από ατσάλι	6HA2	
		Με εξωτερικό βαρέλι αλουμινίου	6HB1	
		Με χιβώτιο ή εξωτ. κουτί από αλουμίνιο	6HB2	
		Με εξωτερ. κουτί ξύλου	6HC	3537
		Με εξωτ. βαρέλι από κόντρα πλακέ	6HD1	
		Με εξωτερικό κουτί από κόντρα πλακέ	6HD2	
		Με εξωτ. βαρέλι από χαρτόνι	6HG1	
		Με εξωτ. κουτί από χαρτόνι	6HG2	
		Με εξωτερικο βαρέλι από πλαστικό	6HH1	
Β. Συσκευασίες που μπορούν να είναι σύμφωνες ως προς το περιθώριο 3510 (1) ή (2).				
6. Σύνθετες συσκευασίες	Δοχείο από γυαλί, πορσελάνη ή ψαμμόλιθο	Με εξωτερικό βαρέλι από ατσάλι	6PA1	
		Με εξωτερικό κιβώτιο αλουμινίου	6PB1	
		Με κιβώτιο ή εξωτερ. κουτί αλουμινίου	6PB2	
		Με εξωτερικό κουτί ξύλου	6RC	
		Με εξωτερικό βαρέλι από κόντρα πλακέ	6PD1	
		Με εξωτερικό καλάθι ξύλινο	6PD2	3539
		Με εξωτερικό βαρέλι από χαρτόνι	6PG1	
		Με εξωτερικό κουτί από χαρτόνι	6PC2	
		Με εξωτερική συσκευασία από διεσταλμένο υλικό πλαστικό	6PH1	
		Με εξωτερική συσκευασία από σκληρό πλαστικό	6PH2	
C. Συσκευασίες σύμφωνες αποκλειστικά με το περιθώριο 3510 (2) με το σήμα «ADR» (OU «RID/ADR»)				
ο. Ελαφρές μεταλλικές συσκευασίες	Α Ατσάλι	Με επάνω μη κινητό	0A1	3540
		Με επάνω κινητό	0A2	

Τμήμα ΙΙΙ. Απαιτήσεις σχετικές με τις συσκευασίες.

Α. Συσκευασίες σύμφωνες με το περιθώριο 3510(Ι).

Βαρέλια από ατσάλι 3520

ΙΑΙ με επάνω μη κινητό

ΙΑ2 Με επάνω κινητό

α. Η λαμαρίνα του κρίκου και των βάσεων πρέπει να είναι από κατάλληλο ατσάλι.

Το πάχος του πρέπει να είναι ανάλογο με την περιεκτικότητα του βαρελιού, και της χρήσης για την οποία προορίζεται.

β. Οι ενώσεις του κρίκου πρέπει να συγκολλούνται στα βαρέλια που προορίζονται για να περιέχουν πλέον από 40 λίτρα ενός υγρού. Οι ενώσεις του κρίκου πρέπει να σφίγγονται μηχανικά ή να συγκολλούνται στα βαρέλια που προορίζονται για να περιέχουν στερεά υλικά ή 40 λίτρα ή λιγότερο από 40 λίτρα ρευστού.

C. Οι ενώσεις των βάσεων των χειλών πρέπει να σφηνώνονται μηχανικά ή να συγκολλούνται.

δ) Αν οι κύκλοι του ρουλεμάν επιστρέφονται πρέπει να είναι σφιχτά εναρμονισμένα στον κρίκο και να σταθεροποιούνται ώστε να μην μπορέσουν να μετακινηθούν. Οι κύκλοι κυλίσματος δεν πρέπει να συγκολλούνται ανά τα σημεία.

ε) Οι εσωτερικές επενδύσεις όπως οι επενδύσεις από μόλυβδο, γαλβανισμένες, κασσιτερομένες, βερνικοποιημένες κ.λπ., πρέπει να είναι ανθεκτικές και ευλύγιστες και να κολληθούν σ' οποιοδήποτε σημείο στο ατσάλι συμπεριλαμβανομένων και των κλειδαριών.

ζ) Οι οπές γεμίσματος – αδειάσματος και εξαερισμού στον κρίκο ή στις βάσεις των βαρελιών με το επάνω μέρος μη κινητό (ΙΑ1, δεν πρέπει να υπερβαίνουν τα 7 εκατοστά διάμετρο. Τα βαρέλια που είναι εφοδιασμένα με οπές πιο φαρδιές θεωρείται του τύπου με το επάνω μέρος κινητό (ΙΑ2).

η) Οι κλειδαριές πρέπει να φέρουν μία ένωση (γαρνιτούρα στεγανότητος) εκτός αν μία κωνική συρματοποίηση εξασφαλίζει συγκρατητέα στεγανότητα.

θ) Οι κλειδαριές των βαρελιών με το επάνω μέρος μη κινητό, πρέπει να είναι συρματοποιημένου τύπου, ή να μπορούν να εξασφαλίζονται από ένα συρματοποιημένο σύστημα ή από άλλο τύπο τουλάχιστον εξ ίσου αποτελεσματικό.

ι) Τα συστήματα κλεισίματος των βαρελιών με το επάνω μέρος κινητό πρέπει να έχουν πραγματοποιηθεί έτσι ώστε να παραμείνουν πολύ καλά κλεισμένα και να παραμείνουν τα βαρέλια στεγανά υπό κανονικές συνθήκες μεταφοράς.

Τα επάνω μέρη που είναι κινητά πρέπει να είναι εφοδιασμένα με ενώσεις ή άλλα στοιχεία στεγανότητος.

κ) Μεγίστη περιεκτικότητα των βαρελιών 450 λίτρα.

λ) Μεγίστη καθαρή μάζα 400 χγ.

Βαρέλια από αλουμίνιο 3521

ΙΒ1 Με επάνω μέρος μη κινητό

ΙΒ2 Με επάνω μέρος κινητό.

α) Ο κρίκος και οι βάσεις πρέπει να είναι από αλουμίνιο με 99% τουλάχιστον καθαρότητα ή από κράμα με βάση το αλουμίνιο με ανθεκτικότητα στη διάβρωση και μηχανικές ιδιότητες κατάλληλες για την περιεκτικότητα του βαρελιού για την χρήση την οποία προορίζονται.

β) Οι οπές γεμίσματος αδειάσματος και αερισμού στον κρίκο ή στις βάσεις των βαρελιών, με το επάνω μέρος μη κινητό (ΙΒ1) δεν πρέπει να υπερβαίνουν τα 7 εκατοστά διάμετρο.

Τα βαρέλια που είναι εφοδιασμένα από πιο φαρδιές οπές θεωρούνται σαν να είναι του τύπου με επάνω έρος κινητό (ΙΒ2).

γ) Βαρέλια από αλουμίνιο ΙΒ1.

Οι ενώσεις των βάσεων εάν υπάρχουν πρέπει να έχουν ενισχυθεί αρκετά για να εξασφαλιστεί η προστασία των.

Οι ενώσεις του κρίκου και των βάσεων αν υπάρχουν πρέπει να συγκολλούνται.

Η κλειδαριά πρέπει να είναι του τύπου συρματώδους, για να μπορέσει να εξασφαλιστεί από το συρματώδες σύστημα ή άλλο τύπο εξ ίσου αποτελεσματικό.

Οι κλειδαριές πρέπει να αποτελούνται από μία ένωση (στεγανή γαρνιτούρα) εκτός αν μία κωνική συρματοποίηση εξασφαλίζει συγκριτητέα στεγανότητα.

δ) Βαρέλια από αλουμίνιο ΙΒ2.

Ο κρίκος του βαρελιού πρέπει να είναι χωρίς ένωση, ήτοι να έχει ένωση συγκολλημένη.

Τα συστήματα του κλεισίματος πρέπει να έχουν κατασκευαστεί έτσι ώστε να παραμένουν καλώς κλειστά και να παραμένουν στεγανά.

Τα βαρέλια υπό κανονικές συνθήκες μεταφοράς.

Τα επάνω κινητά τμήματα πρέπει να έχουν εφοδιαστεί από ενώσεις ή άλλα στοιχεία στεγανότητος.

ε) Μεγίστη περιεκτικότης βαρελιών 450 λίτρα.

ζ) Μεγίστη καθαρή μάζα 400 Χγ.

Μπιντόνια από ατσάλι. 3522

3Α1 Με επάνω τμήμα μη κινητό

3Α2 Με επάνω τμήμα κινητό.

α) Ο κρίκος και οι βάσεις πρέπει να έχουν κατασκευαστεί από ατσάλινη λαμαρίνα ενός κατάλληλου τύπου και επαρκούς πάχους λόγω του περιεχομένου του μπιντονιού και για την χρήση για την οποία προορίζονται.

β) Το χείλος όλων των μπιντονιών πρέπει να έχουν σφηνωθεί μηχανικά ή συγκολληθεί.

Οι ενώσεις του κρίκου των μπιντονιών που προορίζονται για την μεταφορά 40 λίτρων ρευστού πρέπει να έχουν συγκολληθεί.

Οι ενώσεις του κρίκου των μπιντονιών που προορίζονται για την μεταφορά 40 λίτρων ή λιγώτερο πρέπει να έχουν σφηνωθεί μηχανικά ή συγκολληθεί.

γ) Οι οπές των μπιντονιών 3Α1 δεν πρέπει να είναι μεγαλύτερες σε διάμετρο πάνω από 7 εκατοστά.

Τα μπιντόνια που έχουν μεγαλύτερες οπές θεωρούνται ως του τύπου με επάνω τμήμα κινητό (3Α2).

δ) Η κλειδαριά πρέπει να είναι του τύπου συρματοποιημένου δηλαδή να μπορεί να έχει εξασφαλιστεί από συρματοποιημένο σύστημα, ή άλλο τύπο εξ ίσου αποτελεσματικό.

ε) Μεγίστη περιεκτικότης των μπιντονιών. 60 Λίτρα.

ζ) Μέγιστη καθαρή μάζα 120 Χγ.

Βαρέλια από κόντρα-πλακέ. 3523

1D

α) Το ξύλο που χρησιμοποιείται, έχει ξεραθεί καλώς, εμπορικά απαλλαγμένο από υγρασία και καθαρό από ελάττωμα της φύσης που εμποδίζει την αποτελεσματικότητα του βαρελιού για την προβλεπόμενη χρήση.

Αν χρησιμοποιείται άλλο από το κόντρα-πλακέ υλικό για την κατασκευή των βάσεων, πρέπει να έχει την ίδια ποιότητα με εκείνη του κόντρα-πλακέ.

β) Το κόντρα πλακέ που χρησιμοποιείται πρέπει να έχει τουλάχιστον 2 πτυχές για τον κρίκο και τουλάχιστον 3 πτυχές για τις βάσεις. Οι πτυχές πρέπει να σταυρώνονται στην κατεύθυνση των νερών και να έχουν κολληθεί γερά με κόλλα που αντέχει στο νερό.

γ) Ο κρίκος και οι βάσεις πρέπει να έχουν κατασκευαστεί σύμφωνα με την περιεκτικότητα του βαρελιού και της χρήσης για την οποία προορίζονται.

δ) Για να αποφευχθεί η διαρροή του περιεχομένου από τα ενδιάμεσα διαστήματα (αρμούς) τα καλύμματα θα έχουν επενδυθεί από χαρτί KRAAFT ή άλλο ανάλογο υλικό που πρέπει να στερεοποιείται γερά στο κάλυμμα και να επεκταθεί απ' έξω σε όλη την περιφέρεια.

ε) Μεγίστη περιεκτικότης των βαρελιών 250 λίτρα.

ζ) Μέγιστη καθαρή μάζα 400 Κγ.

Βαρέλια από φυσικό ξύλο. 3524

2C1 Με οπή και κλείσιμο.

2C2 Με επάνω τμήμα κινητό.

α) Το χρησιμοποιούμενο ξύλο πρέπει να έχει καλή ποιότητα με ίσες ίνες να έχει αποξηρανθεί καλώς, απηλλαγμένο από κόμβους και φλοιούς από μούχλα και κόμβους ή άλλα ελαττώματα των οποίων η φύση εμποδίζει την αποτελεσματικότητα του βαρελιού για την προβλεπόμενη χρήση.

β) Ο κρίκος και οι βάσεις πρέπει να έχουν κατασκευαστεί σύμφωνα με την περιεκτικότητα του βαρελιού και την χρήση για την οποία προορίζεται.

γ) Οι δούγες και οι βάσεις πρέπει να έχουν πριονιστεί ή ανασχισθεί προς την κατεύθυνση του ξύλου ώστε κανένας ετήσιος κόμβος να μην επεκταθεί πλέον από το 1/2 του πάχους της δούγας ή της βάσης.

δ) Τα στεφάνια του βαρελιού πρέπει να είναι από ατσάλι ή σίδηρο και καλής ποιότητος. Για τα βαρέλια που το άνω τμήμα τους είναι κινητό 2C2 εγκρίνονται και στεφάνια από κατάλληλο σκληρό ξύλο.

ε) Βαρέλια από φυσικό ξύλο 2C1.

Η διάμετρος της λωρίδας δεν πρέπει να εξέχει στο μισό του φάρδους της δούγας όπου τοποθετείται η οπή κλεισίματος.

ζ) Βαρέλια από φυσικό ξύλο 2C2.

Οι βάσεις πρέπει να εφαρμόζουν καλά στις υποδοχές.

θ) Μεγίστη περιεκτικότης βαρελιών 250 λίτρα.

ι) Μεγίστη καθαρή μάζα 400 χγ.

Βαρέλια από χαρτόνι. 3525

1G

α) Ο κρίκος του βαρελιού πρέπει να έχει κατασκευαστεί με πολλαπλές πτυχές από παχύ χαρτί ή χαρτόνι (μη κυματώδες) που έχουν κολληθεί ή ελασματοποιηθεί γερά και μπορεί να αποτελείται από μερικά στρώματα ασφάλτου παραφινοποιημένου χαρτιού KRAFT μεταλλικό φύλλο, πλαστικό κ.λπ.

β) Οι βάσεις πρέπει να είναι από φυσικό ξύλο, χαρτόνι, μέταλλο κόντρα-πλακέ ή πλαστικό που μπορούν να έχουν επενδυθεί με 1 ή πολλαπλά στρώματα προστασίας από άσφαλτο, παραφινοποιημένο χαρτί KRAFT μεταλλικό φύλλο, πλαστικό κ.λπ.

γ) Ο κρίκος του βαρελιού οι βάσεις και οι ενώσεις του πρέπει να έχουν κατασκευαστεί σύμφωνα με το περιεχόμενο του βαρελιού και με τη χρήση για την οποία προορίζεται.

δ) Η συναρμολογούμενη συσκευασία πρέπει να είναι αρκετά ανθεκτική στο νερό για να μην υπάρχει αποκόλληση των στρωμάτων υπό κανονικές συνθήκες μεταφοράς.

ε) Μεγίστη περιεκτικότης του βαρελιού 450 ΛΙΤΡΑ.

ζ) Μεγίστη καθαρή μάζα 400 Χγ.

Βαρέλια και μπιντόνια από πλαστικό. 3526

1H1 Βαρέλια με πάνω τμήμα μη κινητό.

1H2 Βαρέλια με άνω τμήμα κινητό.

3H1 Μπιντόνια με άνω τμήμα μη κινητό.

3H2 Μπιντόνια με άνω τμήμα κινητό.

α) Οι συσκευασίες πρέπει να μπορέσουν να ανθέξουν στις φυσικές (ειδικά μηχανικές και θερμικές) και χημικές αναζητήσεις σχετικές με τη μεταφορά και να παραμείνουν στεγανά. Πρέπει να μπορέσουν να αντέξουν στα επικίνδυνα υλικά και στις αναθυμιάσεις των. Πρέπει επίσης να μπορέσουν να αντέξουν κατά το απαιτούμενο μέτρο στην παλαίωση και στις υπεριώδεις ακτίνες. Οι συσκευασίες πρέπει να προσφέρονται για σίγουρη μεταχείριση.

β) Η επιτρεπόμενη χρήση των συσκευασιών για τη μεταφορά επικίνδυνων φορτίων είναι πέντε χρόνια από την κατασκευή των, εφόσον οι συνθήκες της μεταφοράς των διαφόρων κλάσεων δεν προβλέπουν συντομότερη διάρκεια χρήσης.

γ) Εάν χρειάζεται προστασία για τις υπεριώδεις ακτίνες, πρέπει να έχει πραγματοποιηθεί με ενσωμάτωση μαύρου του άνθρακα ή άλλων κατάλληλων χρωστικών ή αντενεργών.

Τα πρόσθετα αυτά πρέπει να είναι συμβιβάσιμα με το περιεχόμενο και πρέπει να διατηρούν την αποτελεσματικότητά τους καθ' όλη τη διάρκεια της χρήσης της συσκευασίας.

Σε περίπτωση χρήσης μαύρου του άνθρακα – χρωστικών ή αντενεργικών – που διαφέρουν από εκείνα που χρησιμοποιούνται για την κατασκευή του τύπου δοκιμασίας της κατασκευής, μπορούμε να μην ξανακάνομε τις δοκιμασίες αν η περιεκτικότης σε μαύρο του άνθρακος δεν υπερβαίνει τα 2% σε μάζα ή αν η περιεκτικότης σε χρωστικά δεν υπερβαίνει τα 3% σε μάζα.

Η περιεκτικότης σε αντενεργά υπεριωδών ακτίνων δεν έχει όρια.

δ) Τα προσθετικά που χρησιμοποιούνται για άλλους σκοπούς από την προστασία από υπεριώδεις ακτίνες μπορούν να εισέλθουν στην σύνθεση της πλαστικής ύλης εφόσον δεν αλλοιώνουν τις χημικές και φυσικές ιδιότητες του υλικού συσκευασίας.

Σε τοιαύτη περίπτωση η υποχρέωση να επαναληφθούν οι δοκιμασίες μπορεί να εξαφανιστεί.

3. Πρέπει να ληφθούν κατάλληλα μέτρα για να εξασφαλιστεί ότι η χρησιμοποιηθείσα ύλη για την κατασκευή της συσκευασίας είναι συμβιβάσιμη με τα εμπορεύματα που οι συσκευασίες προορίζονται να περιέχουν (βλ. περιθ. 3551(5).

Ζ) Οι συσκευασίες πρέπει να κατασκευάζονται από κατάλληλο πλαστικό υλικό που η προέλευση και ειδικά τα στοιχεία είναι γνωστά. Η κατασκευή των πρέπει να αρμόζει τέλεια στα πλαστικά υλικά και να ανταποκριθεί στην ανάπτυξη της τεχνικής. Για τις καινούργιες συσκευασίες δεν μπορούμε να χρησιμοποιούμε χρησιμοποιημένα υλικά, διαφορετικά από τα υπόλοιπα της παραγωγής που προέρχονται από την ίδια σειρά.

θ) Το πάχος του τοιχώματος πρέπει να είναι σε κάθε σημείο της συσκευασίας ανάλογο στην περιεκτικότητά του και στη χρήση για την οποία προορίζεται, λαμβάνοντας υπόψη μας τις συνθήκες στις οποίες μπορεί να εκτίθεται κάθε σημείο.

ι) Οι οπές γεμίσματος, αδειάσματος και εξαερισμού στον κρίκο ή στις βάσεις των βαρελιών με άνω τμήμα μη κινητό (1H1) και των μπιντονιών με άνω τμήμα μη κινητό (3H1) δεν πρέπει να έχουν διάμετρο άνω των 7 εκατοστών.

Τα βαρέλια και τα μπιντόνια που έχουν μεγαλύτερες οπές θεωρούνται ως του τύπου με κινητό άνω τμήμα (1H2, 3H2).

4. Τα βαρέλια με επάνω κινητό τμήμα (1H2) και τα μπιντόνια (3H2) άνω κινητό τμήμα που χρησιμοποιούνται για στερεά υλικά πρέπει να παραμένουν σε κάθε σημείο στεγανά σχετικά με το υλικό γεμίσματος.

Τα συστήματα κλεισίματος των βαρελιών και μπιντονιών με άνω τμήμα κινητό πρέπει να κατασκευάζονται έτσι ώστε να παραμένουν καλά κλειστά και στεγανά υπό κανονικές συνθήκες μεταφοράς.

Τα άνω κινητά τμήματα πρέπει να εφοδιάζονται με ενώσεις στεγανότητος εκτός εάν από την φύση και κατασκευή των το βαρέλι ή το μπιντόνι είναι στεγανό ακόμη όταν το άνω κινητό τμήμα στερεοποιείται σωστά.

κ) Η μεγίστη επιτρεπομένη διαπερατότης (PERMEATION) για τα εύφλεκτα ρευστά είναι $\frac{0{,}008\,\text{γ}}{1\ \text{ώρα}}$ με 23°C.

Βλέπε περιθ. 3556.

B-47/II/100-105

λ) Μεγίστη περιεκτικότης των βαρελιών και μπιντονιών

1H1 και 1H2 450 Λίτρα.

3H1 και 3H2 60 λίτρα.

μ) Μεγίστη καθαρή μάζα

1H1 και 1H2 400 χγ.

3H1 και 3H2 120 χγ.

Κιβώτια από φυσικό ξύλο. 3527

4C1 - κοινά.

4C2 - Με σταγανά στα κονιορτώδη υλ. τοιχώματα.

Σημείωση. Για τα κιβώτια από κόντρα πλακέ, βλέπε 3528, για τα κιβώτια από ανακατασκευή ξύλου βλέπε περ. 3529.

α. Το ξύλο που χρησίμοποιείται πρέπει να έχει καλά αποξηρανθεί από εμπορική άποψη, απαλλαγμένο από υγρασία και καθαρό από ελαττώματα που τυχόν μειώνουν την ανθεκτικότητα εκάστου συστατικού στοιχείου του κιβωτίου. Η ανθεκτικότητα του χρησιμοποιημένου υλικού και ο τρόπος κατασκευής πρέπει να έχουν προσαρμοστεί στην περιεκτικότητα του κιβωτίου και στη χρήση για την οποία προορίζεται.

Το άνω μέρος και η βάση μπορούν να είναι από ανακατασκευασμένο ξύλο, ανθεκτικό στο νερό, όπως σκληρή σανίδα, σανίδα από μικρότερα στοιχεία ή άλλο κατάλληλο τύπο.

β. Κιβώτια από σανίδες στεγανές στα κονιορτώδη 402.

Κάθε συστατικό στοιχείο του κιβωτίου πρέπει να είναι μονοκόμματο ή ανάλογο. Τα στοιχεία θεωρούνται ως ανάλογα σε μονοκόμματα στοιχεία όταν συναρμολογούνται από συγκόλληση, σύμφωνα με μία από τις εξής μεθόδους.

Συναρμολόγηση LINDERMANN (με ουρά χελιδονιού) με ρέλι και γλωσσίτσα, με ημι-ξύλο ή πλακέ ένωση, με τουλάχιστον δύο κυματώδη συνδετικά ελάσματα από μέταλο σε κάθε ένωση.

γ. Μέγιστη καθαρή μάζα 400 χγ.

Κιβώτιο από κόντρα πλακέ. 3528

4D.

α. Το χρησιμοποιημένο κόντρα πλακέ πρέπει να έχει τουλάχιστον 3 πτυχές.

Πρέπει να αποτελείται από φύλλα που έχουν αποξηρανθεί καλώς και που έχουν γίνει διά ξετυλίγματος, αποκοπής τεμαχισμού ή πριονίσματος, από εμπορική άποψη απαλλαγμένα από υγρασία και από ελαττώματα της φύσης να ελαττώσει τη δυνατότητα του κιβωτίου.

Όλες οι πτυχές πρέπει να κολλούνται με κόλλα που αντέχει στο νερό. Άλλα κατάλληλα υλικά μπορούν να χρησιμοποιηθούν με κόντρα πλακέ για την κατασκευή των κιβωτίων. Οι σανίδες των κιβωτίων πρέπει να έχουν καρφωθεί γερά ή να έχουν στερεοποιηθεί στα πλευρά των γωνιών ή στις άκρες ή να έχουν συναρμολογηθεί με άλλα συστήματα εξ ίσου κατάλληλα.

β. Μεγίστη καθαρή μάζα.

Κιβώτια από ανακατασκευασμένο ξύλο. 3529

4F

α. Τα τοιχώματα των κιβωτίων πρέπει να είναι από ανακατασκευασμένο ξύλο που να αντέχει στο νερό, όπως οι σκληρές σανίδες από σωματίδια ή άλλο κατάλληλο τύπο. Η ανθεκτικότης του χρησιμοποιημένου υλικού και ο τρόπος κατασκευής, πρέπει να εφαρμόζονται στην περιεκτικότητα του κιβωτίου και στη χρήση για την οποία προορίζεται.

β. Τα άλλα τμήματα του κιβωτίου μπορούν να συνίστανται από άλλα κατάλληλα υλικά.

γ. Τα κιβώτια πρέπει να συναρμολογούνται γερά με κατάλληλα συστήματα.

δ. Μεγίστη καθαρή μάζα. 400 χγ.

4G 3530

α. Ένα συμπαγές χαρτόνι ή κυματώδες χαρτόνι «ντουμπλ-φας» (με ένα ή περισσότερα στρώματα) καλής ποιότητος, εφαρμοσμένο στη χωρητικότητα και στη χρήση για την οποία προορίζεται πρέπει να χρησιμοποιηθεί. Η ανθεκτικότης στο νερό της εξωτερικής επιφανείας πρέπει να είναι τοιαύτη ώστε η αύξηση της μετρημένης μάζας κατά τη δοκιμασία καθορισμού της απορρόφησης νερού, διαρκείας 30 λεπτών, κατά τη μέθοδο του COBB, να μην είναι ανώτερη από 155 γρ/μ^2 (σύμφωνα με τον κανόνα ISO 535-1976).

Το χαρτόνι πρέπει να έχει την κατάλληλη ιδιότητα να λυγίζεται χωρίς να σπάει. Το χαρτόνι πρέπει να έχει κοπεί να έχει λυγίσει χωρίς σκίσιμο και να συναρμολογείται χωρίς ρίγματα, χωρίς να έχει σπάσει στην επιφάνεια ή με υπερβολική ευκαμψία. Οι ραβδώσεις πρέπει να έχουν κολληθεί γερά στα φύλλα επικαλύψεως.

β. Οι κεφαλές των κιβωτίων μπορούν να έχουν ξύλινο πλαίσιο ή ολόκληρο ξύλο.

Μπορούν να χρησιμοποιηθούν ενισχύσεις από ξύλινους ράβδους.

γ. Οι ενώσεις των κιβωτίων πρέπει να είναι γομμαρισμένες με λωρίδα κολλημένη ή καρφιτσωμένη.

Οι ενώσεις με πόδι πρέπει να παρουσιάζουν κατάλληλη επικάλυψη.

Όταν το κλείσιμο γίνεται με κόλλα ή με γομαρισμένη λωρίδα η κόλλα πρέπει να είναι ανθεκτική στο νερό.

Οι διαστάσεις του κιβωτίου πρέπει να έχουν εφαρμοστεί στο περιθώριο.

δ. Μέγιστη καθαρή μάζα 400 χγ.

Κιβώτια από πλαστικό 3531

4H1 κιβώτια από διασταλλόμενο πλαστικό

4H2 Κιβώτια από σκληρό πλαστικό.

α. Το κιβώτιο πρέπει να είναι από κατάλληλο πλαστικό και να έχει σκληρότητα εφαρμοσμένη στην περιεκτικότητα και στη χρήση για την οποία προορίζεται. Πρέπει να έχει αρκετή ανθεκτικότητα, στην παλαίωση και στην αλλοίωση που προκαλείται είτε από το μεταφερθέν υλικό είτε από υπεριώδεις ακτίνες.

Β. Ένα κιβώτιο από διασταλμένο πλαστικό πρέπει να συμπεριλαμβάνει δύο τμήματα από χυτό διασταλμένο πλαστικό, ένα κάτω τμήμα περιλαμβάνοντας κυψέλες για τις εσωτερικές συσκευασίες και ένα άνω τμήμα που καλύπτει το κάτω τμήμα και που εφαρμόζεται μέσα σ' αυτό.

Τα άνω και κάτω τμήματα πρέπει να έχουν κατασκευαστεί έτσι ώστε να ενσωματώνονται οι εσωτερικές συσκευασίες χωρίς επί πλέον σύστημα. Για πώματα των εσωτερικών συσκευασιών δεν πρέπει να έλθουν σε επαφή με την εσωτερική επιφάνεια του άνω τμήματος του κιβωτίου.

γ. Για την αποστολή, τα κιβώτια από διεσταλμένο πλαστικό πρέπει να κλείνονται με αυτοκόλλητη ταινία που είναι ανθεκτική στην έλξη για να εμποδίσουμε να ανοίξει το κιβώτιο. Η αυτοκόλλητη ταινία πρέπει να είναι ανθεκτική στις κακοκαιρίες και η κόλλα της πρέπει να είναι συμβιβασμένη με το διεσταλμένο πλαστικό του κιβωτίου.

Άλλα συστήματα κλεισίματος μπορούν να χρησιμοποιηθούν εφ' όσον έχουν εξ ίσου αποτελεσματικότητα.

δ. Για τα κιβώτια από σκληρό πλαστικό η προστασία κατά τις υπεριώδεις ακτίνες αν χρειάζεται πρέπει να γίνεται πρόσθεση του μαύρου του άνθρακα ή άλλου χρωστικού ή καταλλήλων αντενεργών.

Τα προσθετικά αυτά πρέπει να είναι συμβιβάσιμα με το περιεχόμενο και πρέπει να κρατάνε την αποτελεσματικότητά τους καθ' όλη τη διάρκεια χρήσης του κιβωτίου.

Αν γίνεται χρήση του μαύρου άνθρακα, χρωστικών ή αντενεργών που διαφέρουν απ' αυτά που χρησιμοποιούνται για την κατασκευή του τύπου της δοκιμασμένης κατασκευής, η υποχρέωση να γίνουν καινούργιες δοκιμασίες παύσει. αν η περιεκτικότητα σε μαύρο του άνθρακα δεν υπερβαίνει το 2% σε μάζα ή αν η περιεκτικότητα σε χρωστικό δεν υπερβαίνει το 3% σε μάζα.

Η περιεκτικότης σε αντενεργείς υπεριώδεις ακτίνες δεν έχει οριοθετηθεί.

ε) Τα κιβώτια από σκληρό πλαστικό πρέπει να έχουν συστήματα κλεισίματος κατασκευασμένα από κατάλληλο υλικό, αρκετά γερό και η κατασκευή των πρέπει να είναι έτσι ώστε να αποκλείει κάθε απρόβλεπτο άνοιγμα.

ζ) Τα πρόσθετα που χρησιμοποιούνται για άλλους σκοπούς εκτός της προστασίας εκ των υπεριωδών ακτίνων, μπορούν να συμπεριληφθούν στη σύνθεση του πλαστικού των κιβωτίων (4H1 και 4H2) εφ' όσον δεν αλλοιώσουν τις φυσικές και χημικές ιδιότητες του υλικού συσκευασίας. Σε τοιαύτη περίπτωση η υποχρέωση να προβούμε σε νέες δοκιμασίες μπορεί να εξαφανιστεί.

η) Μεγίστη καθαρή μάζα 4H1 60 χγ.
4H2 400 χγ.

Κιβώτια από ατσάλι ή από αλουμίνιο. 3532

4A1 από ατσάλι.

4A2 από ατσάλι με εσωτερική επένδυση.

4B1 από αλουμίνιο

4B2 από αλουμίνιο με εσωτερική επένδυση.

α. Η σκληρότης «ανθεκτικότητα» και η κατασκευή του κιβωτίου πρέπει να είναι ανάλογες με την περιεκτικότητά του και στη χρήση για την οποία προορίζεται.

β. Τα κιβώτια 4A2 και 4B2 πρέπει να έχουν εσωτερική επένδυση από χαρτόνι ή από φόδρα επένδυσης, ανάλογα με την περίπτωση ή πρέπει να έχουν πρόβλεψη με κατάλληλη εσωτερική επένδυση.

Αν η επένδυση είναι μεταλλική με διπλό κάρφωμα, πρέπει να ληφθούν μέτρα για να αποφευχθεί η εισαγωγή υλικών στα ενδιάμεσα των ενώσεων.

γ. Οι κλειδαριές μπορούν να είναι από κάθε κατάλληλο τύπο. Πρέπει να παραμένουν κλειστά καλά υπό κανονικές συνθήκες μεταφοράς.

δ. Μεγίστη καθαρή μάζα 400 χγ.

Σάκκοι υφασμάτινοι. 3533

5L1 Χωρίς φόδρα ή εσωτερική επένδυση.

5L2 Μη κοσκινώδεις

5L3 Ανθεκτικοί στο νερό.

α) Τα υφάσματα που χρησιμοποιούνται πρέπει να έχουν καλή ποιότητα.

Η ανθεκτικότητα του υφάσματος και η κατασκευή του σάκκου πρέπει να είναι ανάλογη στην περιεκτικότητα του σάκκου και της χρήσης για την οποία προορίζεται.

β) Μη κοσκινώδεις σάκκοι. 5L2.

Οι σάκκοι πρέπει να έχουν στεγανότητα στα κονιορτώδη δια π.χ.

– ένα χαρτί κολλημένο στην εσωτερική επιφάνεια του σάκκου με μία κόλλα που αντέχει στο νερό όπως η άσφαλτος.

– με μια ταινία πλαστική κολλημένη στην εσωτερική επιφάνεια του σάκκου.

– με μία ή πολλαπλές εσωτερικές φόδρες από χαρτί ή πλαστικό.

γ) Σάκκος που αντέχει στο νερό 5L3.

Ο σάκκος πρέπει να έχει γίνει αδιάβροχος ώστε να αποφευχθεί κάθε εισαγωγή υγρασίας π.χ.

– με εσωτερικές ξεχωριστές φόδρες από χαρτί ανθεκτικό στο νερό π.χ. χαρτί KRAFT παραφινοποιημένο ή ασφαλτοποιημένο χαρτί ή χαρτί KRAFT επικαλλυμένο με πλαστικό.

– με πλαστική ταινία που έχει κολληθεί στην εσωτερική επιφάνεια του σάκκου.

– μία ή περισσότερες εσωτερικές φόδρες από πλαστικό.

δ) Μεγίστη καθαρή μάζα.

3534 Σάκκοι από πλαστικό ύφασμα.

5H1 Χωρίς φόδρα ή εσωτερική επένδυση.

5H2 Μη κοσκινώδεις.

5H3 Ανθεκτικοί στο νερό.

α) Οι σάκκοι πρέπει να έχουν κατασκευαστεί από ταινίες ή μονο-νήματα από κατάλληλο πλαστικό που να έχουν τραβηχτεί με έλξη.

Η ανθεκτικότητα του χρησιμοποιημένου υλικού και η κατασκευή του σάκκου πρέπει να είναι ανάλογες στην περιεκτικότητα του σάκκου και της χρήσης στην οποία προορίζεται.

β) Οι σάκκοι μπορούν να έχουν προβλεφθεί από εσωτερική επένδυση από πλαστική ταινία ή από λεπτή εσωτερική επένδυση από πλαστικό.

γ) Αν το φύλλο υφάσματος που χρησιμοποιείται είναι επίπεδο, οι σάκκοι πρέπει να κατασκευάζονται με ραφή ή άλλο μέσο που να εξασφαλίζει το κλείσιμο της βάσης και τη μία πλευρά. Αν το ύφασμα είναι σωληνοειδές η βάση της ταάντας πρέπει να κλείνεται με ραφή ή με ύφανση ή με άλλο τύπο κλεισίματος που προσφέρει τέτοια ανθεκτικότητα.

δ) Μη κοσκινώδεις σάκκοι 5H2.

Η ταάντα πρέπει να έχει γίνει στεγανή στα κονιορτώδη δια π.χ. ενός πλαστικού χάρτου ή ταινίας κολλημένης στην εσωτερική επιφάνεια του σάκκου.

– με μία ή περισσότερες ξεχωριστές εσωτερικές φόδρες από χαρτί ή πλαστικό.

ε) Σάκκους που αντέχουν στο νερό 5H3.

Ο σάκκος πρέπει να έχει γίνει στεγανός ώστε να αποφευχθεί κάθε είσοδος υγρασίας με π.χ.

– εσωτερικές ξεχωριστές φόδρες από χαρτί που αντέχει στο νερό (π.χ. χαρτί KRAFT) παραφινοποιημένο – διπλό ασφαλτοποιημένο ή επενδεδυμένο με πλαστικό).

– με πλαστική ταινία κολλημένη στην εσωτερική ή εξωτερική επιφάνεια του σάκκου.

– με μία ή περισσότερες εσωτερικές φόδρες από πλαστικό.

ζ) Μεγίστη καθαρή μάζα 50 χγ.

Σάκκοι από πλαστική ταινία. 3535

5H4

α) Οι σάκκοι πρέπει να έχουν κατασκευαστεί από κατάλληλο πλαστικό. Η ανθεκτικότητα του χρησιμοποιούμενου υλικού και η κατασκευή του σάκκου πρέπει να είναι ανάλογη με την περιεκτικότητα του σάκκου και της χρήσης στην οποία προορίζεται.

Οι ενώσεις πρέπει να αντέχουν στις πιέσεις και στις συγκρούσεις που μπορεί να υποστεί η ταάντα υπό κανονικές συνθήκες μεταφοράς.

β) Μεγίστη καθαρή μάζα 50 χγ.

Σάκκοι από χαρτί. 3536

5M1 Πολύπτυχοι

5M2 Πολύπτυχοι ανθεκτικοί στο νερό.

α) Οι σάκκοι πρέπει να κατασκευάζονται από κατάλληλο χαρτί KRAFT ή από ανάλογο χαρτί συνιστώμενο από τουλάχιστον 3 πτυχές.

Η ανθεκτικότητα του χάρτου και η κατασκευή του σάκκου πρέπει να είναι ανάλογες με την περιεκτικότητα του σάκκου και της χρήσης για την οποία προορίζεται.

Οι ενώσεις και οι κλειδαριές πρέπει να είναι στεγανές στα κονιορτώδη.

β) Σάκκοι από χαρτί 5M2.

Πρέπει να χρησιμοποιηθεί χαρτί που αντέχει στο νερό για τις εξωτερικές πτυχές ή για εκείνον που θα έλθει σε επαφή με αυτόν. Αν υπάρχει κίνδυνος αντίδρασης του περιεχομένου με την υγρασία ή αν το περιεχόμενο συσκευάζεται σε υγρή κατάσταση, η εσωτερική πτυχή θα πρέπει επίσης να αντέχει στο νερό.

Οι ενώσεις της πλευράς όπως και οι άνω και κάτω κλειδαριές πρέπει να είναι στεγανές στα κονιορτώδη και ανθεκτικές στο νερό.

γ) Μεγίστη καθαρή μάζα 50 Χγ.

Σύνθετες συσκευασίες (πλαστικό υλικό). 3537

6HA1 Πλαστικό δοχείο με εξωτερικό βαρέλι από ατσάλι.

6HA2 Πλαστικό δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό ατσάλινο κιβώτιο.

6HB1 Πλαστικό δοχείο με εξωτερικό βαρέλι από αλουμίνιο.

6HB2 Πλαστικό δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό αλουμίνιο κιβώτιο.

6HC Πλαστικό δοχείο με εξωτερικό ξύλινο κιβώτιο.

6HD1 Πλαστικό δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ.

6HD2 Πλαστικό δοχείο με εξωτερικό κιβώτιο από κόντρα πλακέ.

6HG1 Πλαστικό δοχείο με εξωτερικό βαρέλι από χαρτόνι.

6HG2 Πλαστικό δοχείο με εξωτερικό κιβώτιο από χαρτόνι.

6HH1 Πλαστικό δοχείο με εξωτερικό βαρέλι από πλαστικό.

α. Εσωτερικό δοχείο.

(1) Το εσωτερικό πλαστικό δοχείο πρέπει να πληρεί τις διατάξεις του περιθωρίου 3526 α και γ μέχρι θ.

(2) Το εσωτερικό πλαστικό δοχείο πρέπει να εφαρμόζεται χωρίς συμπληρωματικό σύστημα, στην εξωτερική συσκευασία που δεν πρέπει να συμπεριλαμβάνει ανωμαλίες (εξοχές) που μπορούν να προκαλούν αποξύσεις του πλαστικού.

(3) Μεγίστη περιεκτικότης του εσωτερικού δοχείου 6HA1, 6HB1, 6HD1, 6HG1, 6HH 250 λίτρα.

6HA2, 6HB2, 6HC, 6HD2, 6HG2 60 λίτρα.

(4) Μεγίστη καθαρή μάζα.

6HA1, 6HB1, 6HD1, 6HG1, 6HH 400 χγ.

6HA2, 6HB2, 6HC, 6HD2, 6HG2 75 χγ.

Β. Εξωτερική συσκευασία

(1) Πλαστικό δοχείο με εξωτερικό ατσάλινο ή από αλουμίνιο βαρέλι 6HA1 ή 6HB1.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται ανάλογα με την περίπτωση στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3520 α μέχρι ι ή 3521 α) μέχρι δ.

(2) Πλαστικό δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό κιβώτιο από ατσάλι ή αλουμίνιο 6HA2 ή 6HB2.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της συσκευασίας που αναφέρεται στο περιθώριο 3532.

(3) Πλαστικό δοχείο με εξωτερικό κιβώτιο από ξύλο 6HC.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά κατασκευής που αναφέρονται στο περιθώριο.

(4) Πλαστικό δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ. 3527

6HD1 Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά κατασκευής που αναφέρονται στο περιθώριο 3523.

(5) Πλαστικό δοχείο με εξωτερικό κιβώτιο από κόντρα-πλακέ 6HD2. Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3528.

(6) Πλαστικό δοχείο με εξωτερικό βαρέλι από χαρτόνι 6HD1. Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3525 α μέχρι δ.

(7) Πλαστικό δοχείο με εξωτερικό κιβώτιο από χαρτόνι 6HG2. Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3530.

α μέχρι γ.

8. Πλαστικό δοχείο με εξωτερικό βαρέλι από πλαστικό 6HH. Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3526 α και γ μέχρι θ.

Συνδιασμένες συσκευασίες.

α. Εσωτερικές συσκευασίας.

Μπορούν να χρησιμοποιηθούν

– συσκευασίες από γυαλί, πορσελάνη ή ψαμμόλιθο που μπορούν να περιέχουν το πολύ 5 λίτρα ρευστά ή 5 χγ στερεά υλικά.

– συσκευασίες από πλαστικό που μπορούν να περιέχουν το πολύ 30 λίτρα ρευστά ή 30 χγ στερεά υλικά.

– συσκευασίες από μέταλλα που μπορούν να περιέχουν το πολύ 40 λίτρα ρευστά ή 40 χγ στερεά υλικά.

– Τσάντες ή σάκκους από χαρτί, ύφασμα ή πλαστικό ή πλαστική ταινία που μπορούν να περιέχουν το πολύ 5χγ ρευστά υλικά σε τσάντες και 5 χγ σε σάκκους.

– κουτιά χαρτονένια που λυγίζουν και κιβώτια από χαρτόνι ή πλαστικό που μπορούν να περιέχουν το πολύ 10 χγ στερεά υλικά.

– Μικρές συσκευασίες άλλου τύπου, όπως σωλήνες που μπορούν να περιέχουν το πολύ 1 λίτρο ρευστό ή 1 χγ στερεό υλικό.

β. Εξωτερικές συσκευασίες.

Μπορούν να χρησιμοποιηθούν:

– εξωτερικές συσκευασίες από ατσάλι ή από αλουμίνιο (περιθώριο 3532).

Κόντρα πλακέ (περιθώριο 3528 φυσικό ξύλο (περιθώριο 3527) χαρτόνι (περιθώριο 3530) ανακατασκευασμένο ξύλο περιθώριο 3529 και πλαστικό περιθώριο 3531.

Β. Συσκευασίες που μπορούν να συμφωνούν στα περιθώρια 3510 (1) ή (2).

Σύνθετες συσκευασίες (γυαλί πορσελάνη ή ψαμμόλιθος) 3539

6PA1 – δοχείο με εξωτερικό βαρέλι από ατσάλι.

6PA2 – δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό ατσάλινο κιβώτιο.

6PB1 – δοχείο με εξωτερικό βαρέλι από αλουμίνιο.

6PB2 – δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό κιβώτιο από αλουμίνιο.

6PC δοχείο με εξωτερικό κιβώτιο από ξύλο.

6PD1 δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ.

6PD2 δοχείο με εξωτερικό λύγινο καλάθι.

6PG1 δοχείο με εξωτερικό βαρέλι από χαρτόνι.

6PG2 δοχείο με εξωτερικό κιβώτιο από χαρτόνι.

6PH1 δοχείο με εξωτερική συσκευασία από διασταλμένο πλαστικό.

6PH2 δοχείο με εξωτερική συσκευασία από σκληρό πλαστικό.

α) Εσωτερικό δοχείο.

(1) Τα δοχεία πρέπει να έχουν κατάλληλη μορφή (κυλινδρική ή απιοειδή) και να έχουν κατασκευαστεί από υλικό καλής ποιότητος απαλλαγμένο από ελαττώματα που έχουν την φύση να ελαττώνουν την αντοχή.

Τα τοιχώματα πρέπει να είναι σε κάθε σημείο αρκετά παχέα και απαλλαγμένα από εσωτερικές πιέσεις.

(2) Συρματοποιημένες κλειδωνιές από πλαστικό πώματα από τριμμένο γυαλί ή άλλες κλειδωνιές εξ ίσου αποτελεσματικές, μπορούν να χρησιμοποιηθούν σαν κλειδωνιές των δοχείων.

Όλα τα τμήματα των κλειδωνιών που θα μπορούσαν να έλθουν σ' επαφή με το περιεχόμενο του δοχείου πρέπει να είναι ανθεκτικά στη δράση του περιεχομένου.

Πρέπει να προσέχουμε την συναρμολόγηση των κλειδαριών ώστε να είναι στεγανές και να μπλοκάρονται κατά την μεταφορά, για να αποφεύγεται η χαλάρωσή των.

Αν οι κλειδωνιές με αερισμό χρειάζονται θα πρέπει να είναι στεγανές.

(3) Το δοχείο πρέπει να εφαρμόζεται καλά στην εξωτερική συσκευασία μέσω υλικών που μετριάζουν τους κραδασμούς ή με απορροφητικά υλικά.

(4) Μεγίστη περιεκτικότης του δοχείου 60 λίτρα.

(5) Μεγίστη καθαρή μάζα 75 Χγ.

Β. Εξωτερική συσκευασία.

(1) Δοχείο με εξωτερικό βαρέλι από ατσάλι 6PA1.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περι- 3528
θώριο α μέχρι ι).

Το κινητό πώμα που χρειάζεται για τον τύπο αυτό συσκευασίας μπορεί να έχει τη μορφή καπακιού.

(2) Δοχείο με εξωτερική δικτυωτή συσκευασία ή με εξωτερικό κιβώτιο από ατσάλι 6PA2.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3532 α μέχρι γ.

Αν τα δοχεία είναι κυλινδρικά και σε κάθετη θέση η εξωτερική συσκευασία πρέπει να υπερβαίνει σε ύψος άλλωστε και οι κλειδωνιές των.

Αν η εξωτερική συσκευασία σε μορφή εξωτερική δικτυωτή συσκευασία περιτυλίγει ένα απιοειδές δοχείο και αν η μορφή του προσαρμόζεται σ' αυτό πρέπει να είναι εφοδιασμένο από ένα πώμα προστασίας (καπέλο).

(3) Δοχείο με εξωτερικό βαρέλι από αλουμίνιο. 6PB1.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3521 α μέχρι δ.

4. Δοχείο με εξωτερική δικτυωτή συσκευασία ή εξωτερικό κιβώτιο από αλουμίνιο. 6PB2.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3532.

(5) Δοχείο με εξωτερικό κιβώτιο από ξύλο. 6PC.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά που αναφέρονται στο περιθώριο 3527.

(6) Δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ. 6PD1.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3523.

(7) Δοχείο με εξωτερικό λύγινο καλάθι. 6PD2.

Τα λύγινα καλάθια πρέπει να κατασκευάζονται κατάλληλα και από υλικό καλής ποιότητος. Πρέπει να εφοδιάζονται από προστατευτικό πώμα (καπέλλο) ώστε να αποφεύγουμε τη ζημία των δοχείων.

(8) Δοχείο με εξωτερικό βαρέλι από χαρτόνι. 6PG1.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που συνιστώνται στο περιθώριο 3525 α μέχρι δ).

9. Δοχείο με εξωτερικό κιβώτιο από χαρτόνι 6PG2.

Η εξωτερική συσκευασία πρέπει να ανταποκρίνεται στα χαρακτηριστικά της κατασκευής που αναφέρονται στο περιθώριο 3530 α μέχρι γ.

10. Δοχεία με εξωτερική συσκευασία από διασταλμένο πλαστικό ή από σκληρό πλαστικό. 6PH1 ή 6PH2.

Τα υλικά των δύο αυτών εξωτερικών συσκευασιών πρέπει να ανταποκρίνονται στις διατάξεις που αναφέρονται στο περιθώριο 3531 α μέχρι ζ. Η συσκευασία από σκληρό πλαστικό πρέπει να είναι από πολυαιθυλένιο μεγάλης πυκνότητος ή από άλλο πλαστικό υλικό που συγκρίνεται με αυτό.

Το κινητό πώμα που χρειάζεται για τον τύπο αυτό συσκευασίας, μπορεί να έχει τη μορφή καπακιού.

Γ. Συσκευασίες σύμφωνες μόνον με το περιθώριο 3510(2).

Ελαφρές μεταλλικές συσκευασίες 3540
ΟΑ1 με άνω τμήμα μη κινητό
ΟΑ2 με άνω τμήμα κινητό.

α) Η λαμαρίνα του κρίκου και των βάσεων πρέπει να είναι από κατάλληλο ατσάλι.

Το πάχος της πρέπει να είναι ανάλογο με την περιεκτικότητα των συσκευασιών και με την χρήση στην οποία προορίζεται.

β) Οι ενώσεις πρέπει να είναι συγκολλημένες και συναρμολογημένες τουλάχιστον με διπλό καρφίτσωμα ή να πραγματοποιούνται με ένα σύστημα που εξασφαλίζει ανάλογη αντοχή και στεγανότητα.

γ) Εσωτερικές επενδύσεις όπως γαλβανισμένες κασσιτεροποιημένες ή βερνικοποιημένες επενδύσεις κ.λπ., πρέπει να είναι ανθεκτικές και να κολλάνε σε κάθε σημείο στο ατσάλι συμπεριλαμβανομένων και των κλειδαριών.

δ) Οι οπές γεμίσματος αδειάσματος και εξαερισμού στον κρίκο ή στις βάσεις των συσκευασιών με άνω τμήμα μη κινητό (ΟΑ1), δεν πρέπει να εξέχουν τα 7 εκατοστά διάμετρο. Οι συσκευασίες που έχουν πιο φαρδιές οπές θεωρούνται κινητού τύπου. ΟΑ2.

ε) Οι κλειδωνιές των συσκευασιών με άνω τμήμα μη κινητό πρέπει να είναι είτε του τύπου συρματοποιημένου είτε να είναι εξασφαλισμένες από ένα συρματοποιημένο σύστημα ή άλλο τύπο εξ ίσου αποτελεσματικό.

ζ) Μέγιστη περιεκτικότητα των συσκευασιών 40 λίτρα.

η) Μέγιστη καθαρή μάζα 50 χγ.

Τμήμα IV Οδηγίες σχετικές με τις δοκιμασίες περί των συσκευασιών. 3541
-3549

Α' Δοκιμασίες περί των τύπων κατασκευών

Εκτέλεση και επανάληψη των δοκιμαστών 3550

1. Ο τύπος κατασκευής κάθε συσκευασίας πρέπει να δοκιμαστεί και να εγκριθεί από την αρμόδια αρχή ή από οργανισμό που ορίζεται απ' αυτή.

2. Οι δοκιμασίες σύμφωνα με την παράγραφο (1) πρέπει να επαναλαμβάνονται μετά από κάθε τροποποίηση του τύπου κατασκευής, εκτός εάν ο οργανισμός πρυβεί στις δοκιμασίες για τις οποίες είναι επιφορτισμένος, έδωσε την έγκριαή του για τροποποίηση του τύπου κατασκευής.

Στην τελευταία αυτή περίπτωση μία νέα έγκριση του τύπου κατασκευής δεν απαιτείται.

3. Η αρμόδια αρχή μπορεί ανά πάσα στιγμή να ζητήσει να αποδειχθεί, με δοκιμασίες σύμφωνα με τις οδηγίες του παρόντος τμήματος, ότι όλες οι συσκευασίες οι κατασκευασμένες σε σειρά ανταποκρίνονται στις απαιτήσεις των δοκιμασιών στον τύπο κατασκευής.

4. Ο οργανισμός ο επιφορτισμένος με τη διεξαγωγή των δοκιμασιών πρέπει να γράφει τα χρησιμοποιημένα για τη δοκιμασία υλικά, κατά τη διεξαγωγή των δοκιμασιών στα υλικά αυτά ή με τη διατήρηση των δειγμάτων ή των στοιχείων των υλικών.

5. Εάν χρειάζεται εσωτερική επένδυση για λόγους ασφαλείας, πρέπει να διατηρήσει τις προστατευτικές της ιδιότητες ακόμα και μετά τις δοκιμασίες.

Προετοιμασία των συσκευασιών και των δεμάτων για τις δοκιμασίες. 3551

1. Οι δοκιμασίες πρέπει να εκτελούνται επί συσκευασιών και δεμάτων που είναι έτοιμες προς αποστολή συμπεριλαμβανομένων και των εσωτερικών συσκευασιών και των συνδυαζομένων.

Οι εσωτερικές συσκευασίες ή δοχεία ή μοναδικές συσκευασίες πρέπει να γεμίζονται τουλάχιστον για 95% της περιεκτικότητός τους για τα στερεά υλικά και το 98% για τα ρευστά.

Τα υλικά που πρέπει να μεταφέρονται στα δέματα μπορούν να αντικαθιστούνται από άλλα υλικά εκτός εάν έχουν την φύση να δίδουν ψευδή αποτελέσματα των δοκιμαστών. Για τα στερεά υλικά αν χρησιμοποιείται άλλο υλικό, πρέπει να έχει τις ίδιες ιδιότητες (μάζα σπειρομέτρηση κ.λπ.) με το υλικό που θα μεταφερθεί. Επιτρέπεται η χρήση πρόσθετων βαρών όπως σάκκων με ψήγματα μολύβδου για να αποκτάμε την απαιτούμενη συνολική μάζα δέματος εφόσον τοποθετούνται έτσι ώστε να μην επηρεάζουν αρνητικά τα αποτελέσματα της δοκιμασίας.

Κατάλληλα μίγματα στερεών κονιορτωδών υλικών όπως π.χ. ακόνη πολυαιθυλένιου ή PVC με πριονίδι λεπτή άμμο κ.λπ. μπορούν να χρησιμοποιούνται σαν υλικά γεμίσματος ως αντικατάσταση των υλικών που έχουν με 23°C μία ιξωδότητα μεγαλύτερη από 2680μμ2/δευτ.

2. Για τις δοκιμασίες πτώσεως σχετικά με τα ρευστά όταν χρησιμοποιείται άλλο υλικό πρέπει να έχει πυκνότητα σχετική και ιωδότητα ανάλογη ως προς το υλικό που θα μεταφερθεί.

Το νερό μπορεί επίσης να χρησιμοποιείται για τις δοκιμασίες πτώσεως υπό τις προϋποθέσεις που καθορίζονται στο περιθώριο 3552(4).

3. Οι συσκευασίες από χαρτί ή χαρτόνι πρέπει να κλιματίζονται πρώτα επί 24 ώρες τουλάχιστον σε ατμόσφαιρα έχουσα σχετική υγρασία και θερμοκρασία που ελέγχονται.

Η επιλογή μεταξύ 3 λύσεων είναι δυνατή.

Οι συνθήκες που κρίνονται προτιμότερες για τον κλιματισμό αυτό είναι

23°C ± 2°C ± για θερμοκρασία και 50% + 2% για την σχετική υγρασία.

Οι άλλες δύο είναι αντιστοίχως 20°C ± 2°C και 65% ± 2% και 27°C ± 2°C και 65% ± 2%.

4. Τα βαρέλια από φυσικό ξύλο με οπή πρέπει να παραμένουν γεμάτα νερό τουλάχιστον 24 ώρες πριν από τις δοκιμασίες.

5. Τα βαρέλια και τα μπιντόνια από πλαστικό σύμφωνα με το περιθώριο 3526 και αν χρειαστεί οι σύνθετες κατασκευές (πλαστικές) σύμφωνες με το περιθώριο 3537 για να αποδείξουν την επάρκεια στο χημικό συμβιβασμό με τα ρευστά υλικά πρέπει να υποβάλλονται σε αποθήκευση στην επικρατούσα θερμοκρασία επί 6 μήνες, περίοδο κατά την οποία τα δείγματα δοκιμασίας θα παραμείνουν γεμάτα εμπορεύματα που προορίζονται για μεταφορά.

Κατά τις πρώτες και τελευταίες 24 ώρες της αποθήκευσης τα δείγματα δοκιμασίας θα τοποθετούνται με την κλειδωνιά τους προς τα κάτω. Όμως οι συσκευασίες εφοδιασμένες με εξαερισμό θα υποβάλλονται σ' αυτό μόνον για πέντε λεπτά κάθε φορά. Μετά την αποθήκευση τα δείγματα δοκιμασίας θα πρέπει να υποβάλλονται στις δοκιμασίες που προβλέπονται στα περιθώρια 3552 με 3556.

Για τα εσωτερικά δοχεία των σύνθετων συσκευασιών (πλαστικά) δεν χρειάζεται να αποδεικνύεται ο επαρκής συμβιβασμός όταν γνωρίζομε ότι οι ιδιότητες ανθεκτικότητας του πλαστικού δεν τροποποιούνται σημαντικά υπό τη δράση του υλικού γεμίσματος.

Υπο σημαντική τροποποίηση των ιδιοτήτων της ανθεκτικότητας εννοούμε:

α) Μία σημαντική ευθραυστότητα.

β) Μία σημαντική μείωση της ελαστικής πίεσης εκτός εάν συνδυάζεται με αύξηση τουλάχιστον ανάλογη με την ελαστική επιμήκυνση.

Σημείωση: Για τα πλαστικά βαρέλια και μπιντόνια και για τις πλαστικές σύνθετες συσκευασίες από πολυαιθυλένιο με υψηλή μοριακή μάζα βλέπε επίσης το (6) κατωτέρω.

6. Για τα βαρέλια και μπιντόνια σύμφωνα με το περιθώριο 3526 αν χρειάζεται για σύνθετες συσκευασίες σύμφωνα με το περιθώριο 3537 από πολυαιθυλένιο με υψηλή μοριακή μάζα ανταποκρινόμενο στις εξής ιδιότητες.

– σχετική πυκνότης με 23°C μετά από θερμικό κλιματισμό επί μία ώρα σε 100°C≥0,940 σύμφωνα με τον κανόνα ISO 1183.

– τιμή σύντηξης (MELT FLOW RATE) 190°C/21,6 χγ φορτίου (LOAD)≤12 γρ/10 λεπτά, σύμφωνα με τον κανόνα ISO 1133.

Ο χημικός συμβιβασμός με τα ρευστά υλικά που απαριθμούνται στον κατάλογο των υλικών τμήμα Η του συνημμένου στο παρόν μπορεί να αποδεικνύεται με τα τροποποιημένα ρευστά (STANDARD) βλέπε 1 του συνημμένου) ως εξής:

Ο επαρκής χημικός συμβιβασμός των συσκευασιών αυτών μπορεί να αποδεικνύεται με μία αποθήκευση επί 3 εβδο-

μάδες με 40°C με το κατάλληλο τυποποιημένο ρευστό. Όταν το τυποποιημένο ρευστό είναι νερό η απόδειξη του επαρκούς χημικού συμβιβασμού δεν απαιτείται.

Κατά τις πρώτες και τελευταίες 24 ώρες της αποθήκευσης τα δείγματα της δοκιμασίας θα τοποθετούνται με την κλειδαριά προς τα κάτω. Όμως οι συσκευασίες που είναι εφοδιασμένες με οπή εξαερισμού θα τοποθετούνται έτσι μόνον για 5 λεπτά κάθε φορά. Μετά την αποθήκευση αυτή τα δείγματα της δοκιμασίας θα πρέπει να υποβάλλονται στις δοκιμασίες που προβλέπονται στα περιθώρια 3552 έως 3556.

Όταν ένας τύπος συσκευασίας ικανοποιήσει τις δοκιμασίες εγκρίσεως με ένα τυποποιημένο ρευστό τα παρόμοια υλικά γεμίσματος που απαριθμήθηκαν στο τμήμα II του παρόντος συνημμένου μπορούν να γίνονται δεκτά για τη μεταφορά χωρίς καμμία άλλη δοκιμασία υπό τις εξής προϋποθέσεις:

– Οι σχετικές πυκνότητες των υλικών γεμίσματος δεν πρέπει να υπερβαίνουν αυτή που χρησιμοποιήθηκε για τον καθορισμό του ύψους πτώσεως για τη δοκιμασία πτώσεως και της μάζας για τη δοκιμασία της δεματοποίησης.

Οι πιέσεις των εξατμίσεων των υλικών γεμίσματος με 50°C ή 55°C δεν πρέπει να υπερβαίνουν εκείνη που χρησιμοποιήθηκε για τον καθορισμό της πίεσης για τη δοκιμασία της εσωτερικής πιέσεως.

7. Όταν τα βαρέλια και τα μπιντόνια σύμφωνα με το περιθώριο 3526 και αν χρειαστεί οι σύνθετες συσκευασίες σύμφωνα με το περιθώριο 3537 από πολυαιθυλένιο με υψηλή μοριακή μάζα ικανοποίησαν στη δοκιμασία σύμφωνα με την παράγραφο (6) του παρόντος περιθωρίου, άλλα υλικά γεμίσματος από αυτά που αναφέρονται στο τμήμα II του συνημμένου μπορούν επίσης να εγκρίνονται. Η έγκριση αυτή γίνεται μετά από δοκιμασίες σε εργαστήριο που θα πρέπει να αποδεικνύουν ότι η δράση των υλικών γεμίσματος στους δοκιμαστικούς σωλήνες είναι πιο ασθενής από αυτή των τυποποιημένων υγρών. Οι μηχανισμοί αλλοιώσεων που πρέπει να ληφθούν υπόψη είναι οι εξής:

Μάλαξη με φούσκωμα, έναρξη μιας σχισμής υπό κάποια πίεση και αντιδράσεις μοριακής εξασθένησης.

Οι ίδιες προϋποθέσεις με αυτές της παραγράφου 6 του παρόντος περιθωρίου εμφανίζονται όσον αφορά τις σχετικές πυκνότητες και την πίεση των εξατμίσεων.

Δοκιμασία πτώσεως (βλέπε κανόνα ISO 2248) 3552

1. Αριθμός δειγμάτων (ανά τύπο κατασκευής κατασκευαστού) και προσανατολισμού του δείγματος για τη δοκιμασία πτώσεως:

– Για τις δοκιμασίες πτώσεως που είναι διαφορετικές από τις επίπεδες δοκιμασίες το κέντρο βάρους πρέπει να βρίσκεται καθέτως από το σημείο κρούσης.

Συσκευασία	Αρ. Δειγμάτων ανά δοκιμασία	προσανατολισμός του δείγματος για την δοκιμασία πτώσεως
α. βαρέλια από ατσάλι βαρέλια από αλουμίνιο Μπιτόνια από ατσάλι Βαρέλια από κόντρα-πλακέ Βαρέλια από ξύλο Βαρέλια από χαρτόνι Βαρέλια και μπιτόνια από πλαστ. Σύνθετες (πλαστικές) συσκευασίες σε μορφή βαρελιών. Σύνθετες συσκευασίες (γυαλί πορσελάνη φαμμόλιθος σύμφωνα με περιθώριο 3510 (I) Πίεση σε μορφή βαρελίων Ελαφρές μεταλλικές συσκευασίες	έξ τρία για κάθε δοκιμασία	Πρώτη δοκιμασία (με τρία δείγματα) Η συσκευασία πρέπει να κτυπήσει την επιφάνεια κρούσεως διαγωνίως στο χείλος της βάσης ή αν δεν υπάρχει χείλος σε μια περιφερειακή ένωση ή άκρο. Δεύτερη δοκιμασία (με τα άλλα τρία δείγματα) η συσκευασία πρέπει να κτυπήσει την επιφάνεια κρούσεως στο πιο ασθενές τμήμα που δεν δοκιμάστηκε κατά την πρώτη δοκιμασία πτώσεως πχ σε μια κλειδωνιά ή για μερικά κυλινδρικά βαρέλια στην επιμήκη ένωση που είναι συγκολλημένη στον κρίκο.
β. Κιβώτια από φυσικό ξύλο Κιβώτια από κόντρα πλακέ Μπιτόνια από ανακατασκευασμένο ξύλο. κιβώτια από χαρτόνι –κιβώτια από πλαστικό κιβώτια από ατσάλι ή αλουμίνιο - σύνθετες συσκευασίες (πλαστικές σε μορφή κιβωτίου σύνθετες συσκευασίες γυαλί πορσελάνη φαμμόλιθο σύμφωνα με το περιθώριο 3510 (I) σε μορφή κιβωτίου	πέντε ένα για κάθε δοκιμασία πτώσεως.	Πρώτη δοκιμασία επίπεδη στη βάση Δεύτερη δοκιμασία Επίπεδη στο άνω τμήμα Τρίτη δοκιμασία επίπεδη στο μακρύτερο πλευρό Τέταρτη δοκιμασία επίπεδη στο κοντίτερο πλευρό Πέμπτη δοκιμασία σε μία γωνία
γ. Σάκκοι από ύφασμα Σάκκοι από χαρτί	Τρία (δύο δοκιμασίες) πτώσεως ανά συσκευασία)	Πρώτη δοκιμασία επίπεδη σε μία φάτσα του σάκκου Δεύτερη δοκ. στο άκρο του σάκκου
δ. Σάκκοι από ύφασμα πλαστικό Σάκκοι από ταινία πλαστική	Τρία τρεις δοκιμασίες πτώσεως ανά συσκευασία)	Ιη δοκιμ. επίπεδη σε ευρεία φάτσα του σάκκου 2η δοκιμασία επίπεδη σε στενή φάτσα του σάκκου. 3η δοκιμασία στο άκρο του σάκκου
ε) σύνθετες συσκευασίες (γυαλί πορσελάνη φαμμόλιθος. σύμφωνα με το περιθ. 3510 (2) σε μορφή βαρελιού ή κιβωτίου.	τρεις μία για κάθε δοκιμασία πτώσεως	Διαγώνιος στο χείλος της βάσης ή αν δεν υπάρχει χείλος στην περιφερειακή ένωση ή στο άκρο

(2) Ειδική προετοιμασία των δειγμάτων δοκιμασίας για την δοκιμασία πτώσεως.

Η δοκιμασία στα βαρέλια, μπιντόνια και κιβώτια από πλαστικό σύμφωνα με τα περιθώρια 3526 και 3531 στις σύνθετες (πλαστικές) συσκευασίες σύμφωνα με το περιθώριο 3537 και τις συνδιασμένες συσκευασίες, με εσωτερικές πλαστικές συσκευασίες σύμφωνα με το περιθώριο 3538 με εξαίρεση τους πλαστικούς σάκκους και κιβώτια πρέπει να χρησιμοποιείται μιά και η θερμοκρασία του δείγματος δοκιμασίας και του περιεχομένου τους έχει μειωθεί μέχρι -18°C ή χαμηλώτερα.

Αν τα δείγματα δοκιμασίας με την εξωτερική συσκευασία από χαρτόνι προετοιμάζονται κατ' αυτό τον τρόπο ο κλιματισμός που προβλέπεται στο περιθώριο 3551 (3) μπορεί να παραλείπεται. Τα ρευστά υλικά που χρησιμοποιούνται για την δοκιμασία πρέπει να διατηρούνται στη ρευστή κατάσταση αν χρειάζεται με την προσθήκη αντι-ψυκτικού.

3. Επιφάνεια κρούσης

Η επιφάνεια κρούσης πρέπει να είναι σκληρή επιφάνεια μη ελαστική επίπεδη και οριζόντια.

(4) Ύψος πτώσεως

Για τα στερεά υλικά

Ομάδα συσκ 1	Ομάδα συσκ 2	Ομάδα συσκ 3
1,8μ	1,2μ	0,8μ

Για τα ρευστά

Αν η δοκιμασία πραγματοποιείται με νερό

α. για τα υλικά που θα μεταφέρονται των οποίων η σχετική πυκνότης δεν υπερβαίνει το 1,2

Ομάδα συσκ 1	Ομάδα συσκ 2	Ομάδα συσκ 3
1,8μ	1,2μ	0,8μ

β. Για τα υλικά που θα μεταφέρονται και των οποίων η σχετική πυκνότης δεν υπερβαίνει το 1,2 ύψος πτώσεως πρέπει να υπολογίζεται ανάλογα με την σχετική πυκνότητα του υλικού που θα μεταφερθεί στρογγυλοποιημένη στο πρώτο δέκατο ως εξής

Ομάς συσκ 1	Ομάς συσκ 2	Ομάς συσκ III
σχετ πυκνότης X	σχετική πυκν X	σχετ πυκν X
1,5(μ)	1,0(μ)	0,67(μ)

γ. Για τις συσκευασίες από ελαφρό μέταλλο που προορίζονται για την μεταφορά των υλικών των οποίων η ιξωδότητα με 23°C είναι ανώτερη από 200μμ2/δευτ (που ανταποκρίνεται σε χρόνο ξεχυλίσματος των 30 δευτερολέπτων με ISO βάζο του οποίου το στόμιο έχει διάμετρο 6μμ σύμφωνα με τον κανόνα ISO 2431-1980)

ι. του οποίου η πυκνότης δεν υπερβαίνει το 1,2

Ομάδα συσκ 2	Ομάδα συσκ 3
0,6 μ	0,4 μ

ιι. Για τα υλικά που θα μεταφέρονται και των οποίων η σχετική πυκνότης υπερβαίνει το 1,2 ύψους πτώσεως πρέπει να υπολογίζεται ανάλογα με την σχετική πυκνότητα του υλικού που θα μεταφερθεί στρογγυλοποιημένη στο πρώτο δέκατο, ως εξής:

Ομάς συσκ II	Ομάς συσκ III
σχετική πυκνότητα X	σχετική πυκνότης X
0,5μ	0,33μ

Εάν η δοκιμασία πραγματοποιείται με το υλικό που θα μεταφερθεί ή με το ρευστό υλικό του οποίου η σχετική πυκνότης είναι τουλάχιστον ίση.

Ομάς συσκ I	Ομάς συσκ II	Ομάς συσκ III
1,8μ	1,2μ	0,8μ

(5) Κριτήριο αποδοχής

α. Κάθε συσκευασία περιέχοντας ένα ρευστό πρέπει να είναι στεγανή όταν η ισορροπία μεταξύ των εσωτερικών πιέσεων και εξωτερικών έχει επιτευχθεί. Όμως για τις εσωτερικές συσκευασίες των συνδιασμένων συσκευασιών ή των σύνθετων συσκευασιών (ύαλος πορσελάνη φαμμόλιθος) δεν χρειάζεται εξισορρόπηση των πιέσεων.

β. Αν βαρέλια που το άνω τμήμα των είναι κινητό, για ρευστά υλικά, υποβλήθηκαν σε δοκιμασία πτώσεως και κτύπησαν την επιφάνεια κρούσης στο άνω τμήμα το δείγμα δοκιμασίας υπέστη την δοκιμασία επιτυχώς εφ' όσον το περιεχόμενο συγκρατήθηκε ολόκληρο με εσωτερική συσκευασία (πχ πλαστικός σάκκος) ακόμη και αν η κλειδωνιά του βαρελιού στο άνω τμήμα δεν είναι πλέον στεγανή στα κονιορτώδη.

γ. Η εσωτερική πτυχή των σάκκων δεν πρέπει να παρουσιάζει αλλοιώσεις πού μπορούν να θέτουν σε κίνδυνο την ασφάλεια μεταφοράς.

δ. Η εξωτερική συσκευασία μιας σύνθεσης συσκευασίας ή συνδιασμένης συσκευασίας δεν πρέπει να παρουσιάζει αλλοιώσεις που μπορούν να θέσουν σε κίνδυνο την ασφάλεια της μεταφοράς.

Δεν πρέπει να υπάρχει διαρροή υλικού που περιέζεται η εσωτερική συσκευασία.

ε) Μια πολύ ελάχιστη διαρροή από την κλειδωνιά/ τις κλειδωνιές, κατά την σύγκρουση δεν πρέπει να θεωρηθεί σαν ελάττωμα της συσκευασίας εφ' όσον δεν υπάρχει άλλη διαρροή.

Δοκιμασία στεγανότητος 3553

(ι) Η δοκιμασία στεγανότητος πρέπει να πραγματοποιείται σε όλους τους τύπους συσκευασίας που προορίζονται για να περιέχουν ρευστά υλικά. Όμως αυτή η δοκιμασία δεν απαιτείται για

– τις εσωτερικές συσκευασίες των συνδιασμένων συσκευασιών.

– τα εσωτερικά δοχεία σύνθετων συσκευασιών (γυαλιού, πορσελάνης ή φαμμόλιθου) συμφώνως με το περιθώριο 3510(2)

– Οι συσκευασίες των οποίων το άνω τμήμα είναι κινητό που προορίζονται να περιέχουν υλικά των οποίων η ιξωδότης με 23οC είναι μεγαλύτερη από 200μμ2/δευτ..

2. Αριθμός δειγμάτων δοκιμασίας

Τρία δείγματα δοκιμασίας ανά τύπο κατασκευής και ανακατασκευής.

(3) Ειδική προετοιμασία των δειγμάτων για την δοκιμασία.

Ένα ουδέτερο σημείο του δείγματος δοκιμασίας πρέπει να τρυπάται για την εισαγωγή συμπεπιεσμένου αέρος, ώστε να μπορέσει να δοκιμαστεί η στεγανότητα της κλειδωνιάς.

Οι κλειδωνιές των συσκευασιών που είναι εφοδιασμένες με οπή εξαερισμού πρέπει να αντικαθιστούνται με κλειδωνιές χωρίς οπή εξαερισμού.

(4) Μέθοδος δοκιμασίας

Τα δείγματα δοκιμασίας πρέπει να τοποθετούνται κάτω από το νερό.

Ο τρόπος για να κρατηθούν τα δείγματα δοκιμασίας κάτω από το νερό, δεν πρέπει να αλλοιώσει το αποτέλεσμα της δοκιμασίας.

Οι ενώσεις ή τα άλλα τμήματα των συσκευασιών όπου θα μπορούσε να υπάρχει διαρροή, μπορούν επίσης να καλύπτονται από αφρό σαπουνιού από βαρύ λάδι ή οποιοδήποτε άλλο κατάλληλο ρευστό.

Άλλες μέθοδοι εξ ίσου αποτελεσματικές μπορούν επίσης να χρησιμοποιηθούν.

(5) Εφαρμοστέα πίεση αέρος.

Ομάς συσκ. 1	Ομάς συσκ. 2	Ομάς συσκ. 3
Τουλάχ. 30KPα	Τουλάχ. 20KPα	Τουλάχ. 20KPα

(6) Κριτήριο αποδοχής.
Καμμία διαρροή δεν πρέπει να παρατηρείται.

Δοκιμασία εσωτερικής πιέσεως (υδραυλική) 3554

(1) Η δοκιμασία υδραυλικής πίεσης πρέπει να πραγματοποιείται επί όλων των τύπων συσκευασιών από ατσάλι, αλουμίνιο ή πλαστικό, επί όλων των σύνθετων συσκευασιών που προορίζονται να περιέχουν ρευστά υλικά. Όμως αυτή η δοκιμασία δεν απαιτείται «για»

- τις εσωτερικές συσκευασίες των συνδιασμένων συσκευασιών
- τα εσωτερικά δοχεία των σύνθετων συσκευασιών (γυαλί πορσελάνη ή ψαμμόλιθο) σύμφωνα με το περιθώριο 3510.

(2)
- τις συσκευασίες με άνω τμήμα κινητό που προορίζονται να περιέχουν υλικά των οποίων η ιξωδότης με 23oC είναι ανώτερη από 200μμ2/δευτερ.

2 Αριθμός δειγμάτων δοκιμασίας
Τρία δείγματα δοκιμασίας ανά τύπο κατασκευής και ανακατασκευαστή.

(3) Ειδική προετοιμασία των συσκευασιών για την δοκιμασία.

Ένα ουδέτερο σημείο δείγματος δοκιμασίας πρέπει να τρυπηθεί για την εισαγωγή της πίεσης έτσι ώστε να μπορέσει να δοκιμαστεί η κλειδωνιά. Οι κλειδωνιές των συσκευασιών που έχουν οπή εξαερισμού πρέπει να αντικαθιστώνται από κλειδωνιές χωρίς οπή εξαερισμού.

(4) Μέθοδος και πίεση δοκιμασίας
Οι συσκευασίες πρέπει να υποβάλλονται επί 5 λεπτά (30 λεπτά για τις συσκευασίες από πλαστικό υλικό) σε υδραυλική πίεση που δεν πρέπει να είναι κατώτερη από

α. Την συνολική μανομετρική πίεση που μετράται μέσα στη συσκευασία (δηλαδή την πίεση της εξάτμισης του υλικού γεμίσματος και την τμηματική πίεση αέρος ή των άλλων αδρανών αερίων μείον 100 KPα με 55oC πολλαπλασιαζόμενο με ένα συντελεστή ασφαλείας των 1,5.

Αυτή η συνολική μανομετρική πίεση πρέπει να καθορίζεται για ένα μέγιστο βαθμό γεμίσματος σύμφωνα με αυτό που αναφέρεται στο περιθώριο 3500(4) και θερμοκρασία γεμίσματος 15oC ή

β. 1,75 φορές την πίεση των εξατμίσεων του υλικού γεμίσματος με 50°C μείον KPα όμως πρέπει να είναι τουλάχιστον 100KPα (μανομετρική πίεση) ή

γ. 1,75 φορές την πίεση των εξατμίσεων του υλικού γεμίσματος με 55°C μείον 100 KPα, όμως πρέπει να είναι τουλάχιστον 100KPα (μανομετρική πίεση).

Ο τρόπος να κρατηθούν οι συσκευασίες δεν πρέπει να αλλοιώσει τα αποτελέσματα της δοκιμασίας. Η πίεση πρέπει να αυξηθεί έτσι ώστε να είναι συνεχής χωρίς τινάγματα. Η πίεση της δοκιμασίας πρέπει να διατηρείται συνεχής καθ όλη την διάρκεια της δοκιμασίας.

Η ελαχίστη πίεση δοκιμασίας για τις συσκευασίες που ανταποκρίνονται στην ομάδα Ι ανέρχεται σε 250 KPα.

(5) Κριτήριο αποδοχής.
Καμμία συσκευασία δεν πρέπει να διαφεύγει.

Δοκιμασία Δεματοποιήσεως. 3555

(1) Η δοκιμασία δεματοποίησης πρέπει να πραγματοποιείται σ' όλους τους τύπους συσκευασίας με εξαίρεση τους σάκκους και τις σύνθετες συσκευασίες (γυαλί πορσελάνη ή ψαμμόλιθο) σύμφωνα με το περιθώριο 3510 (2) που δεν δεματοποιούνται.

(2). Αριθμός δειγμάτων δοκιμασίας.
Τρία δείγματα δοκιμασίας ανα τύπο κατασκευής και ανακατασκευής.

(3) Μέθοδος δοκιμασίας.
Τα δείγματα δοκιμασίας πρέπει να μπορέσουν να αντέξουν μια μάζα εφαρμοσμένη σε λεία-επίπεδη επιφάνεια στηριζόμενη στο δείγμα δοκιμασίας και που ισοδυναμεί στη συνολική μάζα των παρομοίων δεμάτων που θα μπορούσαν να δεματοποιούνται επάνω του κατά την μεταφορά.

Η δοκιμασία πρέπει να διαρκεί 24 ώρες εκτός εάν πρόκειται για βαρέλια και μπιντόνια από πλαστικό σύμφωνα με το περ 3526 ή για σύνθετες συσκευασίες από πλαστικό 6HH που προορίζονται να περιέχουν ρευστά.

Το ελάχιστο ύψος δεματοποίησης που πρέπει να ληφθεί υπ όψη είναι τα τρία μέτρα.
Για την δοκιμασία δεματοποίησης πρέπει να ληφθεί υπ' όψη η υψηλώτερη πυκνότης των υλικών γεμίσματος που μπορούν να επιτραπούν.

Τα βαρέλια και μπιντόνια από πλαστικό που συμφωνούν με το περιθώριο 3526 ή οι σύνθετες συσκευασίες από πλαστικό 6HH που προορίζονται για να περιέχουν ρευστά υλικά πρέπει να υποβάλλονται στη δοκιμασία δεματοποίησης για διάρκεια 28 ημερών με θερμοκρασία 40oC με το αυθεντικό υλικό γεμίσματος.

Το ελάχιστο ύψος δεματοποιήσεως που πρέπει να ληφθεί υπ' όψη είναι 3μ.
Σε περίπτωση δοκιμασίας σύμφωνα με το περιθώριο 3551 (6) μία δοκιμασία δεματοποίησης θα γίνεται επίσης με ένα τυποποιημένο ρευστό. Η μάζα που χρησιμοποιείται στο βάρος δεματοποίησης πρέπει να στερεοποιείται ανάλογα με την πιό υψηλή σχετική πυκνότητα των υλικών γεμίσματος που μπορεί να επιτραπεί.

(4) Κριτήρια αποδοχής.
Κανένα από τα δείγματα δεν πρέπει να διαφεύγει. Στις περιπτώσεις των σύνθετων συσκευασιών και των συνδιασμένων συσκευασιών δεν πρέπει να υπάρχει καμμία διαρροή του υλικού που περιέχεται στο εσωτερικό δοχείο ή την εσωτερική συσκευασία.

Κανένα από τα δείγματα δεν πρέπει να παρουσιάσει αλλοιώσεις που μπορούν να θέσουν σε κίνδυνο την ασφάλεια κατά την διάρκεια της μεταφοράς, ούτε παραμορφώσεις που ελαττώνουν την αυθεντικότητά τους ή που επιφέρουν έλλειψη σταθερότητος, όταν οι συσκευασίες στοιβάζονται ή επισωρεύονται.

Μία επαρκής ισορροπία της δεματοποίησης θεωρείται ως έχουσα επιτευχθεί όταν μετά από την δοκιμασία δεματοποίησης για τις συσκευασίες από πλαστικό μετά από κρύωμα με την επικρατούσα θερμοκρασία.
2 συσκευασίες γεμάτες με το ίδιο τύπο τοποθετημένες στο δείγμα δοκιμασίας διατηρούν την θέση τους.

Συμπληρωματική δοκιμασία διαπεράτωσης για τα βαρέλια και τα μπιντόνια από πλαστικό σύμφωνα με το περιθώριο 3526 και για τις σύνθετες συσκευασίες (πλαστικές με εξαίρεση τις συσκευασίες 6HA1 - σύμφωνες με το περιθώριο 3537 που προορίζονται για τη μεταφορά ρευστών έχοντας ένα σημείο φωτισμού ≤ 55°C. 3556

Ι. Για τις συσκευασίες από πολυαιθυλένιο η δοκιμασία αυτή θα πραγματοποιηθεί μόνον αν πρέπει να εγκρίνονται για τη μεταφορά βενζολίου τολουολίου ξυλολίου ή για μίγματα ή παρασκευάσματα που περιέχουν αυτές τις ουσίες.

(2) Αριθμός δειγμάτων δοκιμασίας «3 συσκευασίες.

(3) Ειδική προετοιμασία του δείγματος δοκιμασίας για τη δοκιμασία.

Τα δείγματα πρέπει να έχουν προ-αποθηκευθεί με το αυθεντικό υλικό γεμίσματος σύμφωνα με το περιθώριο 3551 (5) ή για τις συσκευασίες από πολυαιθυλαίνιο με υψηλή μοριακή μάζα με το τυποποιημένο ρευστό μίγμα υδατανθράκων (WHITE SPIRIT) σύμφωνα με το περιθώριο 3551 (6).

(4) Μέθοδος δοκιμασίας.

Τα δείγματα δοκιμασίας που γενίζονται με το υλικό για το οποίο θα επιτραπεί η συσκευασία πρέπει να ζυγίζονται πριν και μετά την αποθήκευση 28 ημερών με 23 °C και 50% σχετική ατμοσφαιρική υγρασία.

Για συσκευασίες από πολυαιθυλαίνιο με υψηλή μοριακή μάζα, η δοκιμασία μπορεί να πραγματοποιηθεί με το τυποποιημένο ρευστό μίγμα υδατανθράκων (WHITE SPIRIT) αντί του βενζολίου τολουολίου ή ξυλολίου.

5. Κριτήριο αποδοχής.

Η διαπερατότης δεν πρέπει να υπερβαίνει τα $\frac{0{,}008\gamma\rho}{\text{Iω.}}$

Συμπληρωματική δοκιμασία για τα βαρέλια από φυσικό ξύλο με οπή. 3557

(1) Αριθμός δειγμάτων δοκιμασίας 1 βαρέλι

(2) Μέθοδος δοκιμασίας

Να αφαιρεθούν όλοι οι κύκλοι που βρίσκονται επάνω από το κύτος του άδειου βαρελιού συναρμολογουμένου τουλάχιστον 2 μέρες πριν.

(3) Κριτήριο αποδοχής

Η αύξηση της διαμέτρου του άνω τμήματος του βαρελιού δεν πρέπει να είναι ανώτερη από 10%.

Έγκριση των συνδιασμένων συσκευασιών. 3558

Σημ «Οι συνδιασμένες συσκευασίες πρέπει να δοκιμάζονται σύμφωνα με τις διατάξεις τις εφαρμοστέες στις εξωτερικές συσκευασίες.

(1) Κατά τις δοκιμασίες επί των τύπων κατασκευής των συνδιασμένων συσκευασιών μπορούν ταυτόχρονα να εγκρίνονται οι συσκευασίες».

α. Με εσωτερικές συσκευασίες μικρότερου όγκου.

β. Καθαρής μάζας χαμηλώτερης από εκείνη του τύπου κατασκευής που δοκιμάστηκε.

(2) Αν διάφοροι τύποι συνδιασμένων συσκευασιών περιέχοντες διάφορους τύπους εσωτερικών συσκευασιών, εγκρίνονται οι διάφορες εσωτερικές συσκευασίες μπορούν επίσης να ενώνονται σε μία μόνον εξωτερική συσκευασία με την προϋπόθεση ότι ο αποστολέας βεβαιώνει ότι το δέμα ανταποκρίνεται στις διατάξεις δοκιμασίας.

(3) Εφόσον η ιδιότητα της αντοχής των εσωτερικών συσκευασιών από πλαστικό, των συνδιασμένων συσκευασιών, δεν τροποποιούνται σημαντικά από τη δράση του υλικού γεμίσματος, δεν είναι απαραίτητο να προσκομισθεί η απόδειξη του επαρκούς χημικού συμβιβασμού.

Σημαντική τροποποίηση των ιδιοτήτων ανθεκτικότητας εννούμε»

α. Μία σημαντική ευθραυστότητα.

β. Μία σημαντική μείωση της ελαστικής πίεσης εκτός αν συνδέεται με μία πλέον ή ελασσόν ανάλογο αύξηση της ελαστικής επιμήκυνσης.

Μία έκθεση δοκιμασίας πρέπει να καταρτίζεται και θα αναφέρει τουλάχιστον τις εξής πληροφορίες». 3559

1. Οργανισμό που προέβη στις δοκιμασίες.

2. Αιτούντα.

3. Κατασκευαστή της συσκευασίας.

4. Περιγραφή της συσκευασίας (π.χ. σημαντικά χαρακτηριστικά όπως το υλικό, την εσωτερική επένδυση, τις διαστάσεις, το πάχος των τοιχωμάτων μάζα κλειδωνιά χρωματισμό των πλαστικών).

5. Σχέδιο κατασκευής της συσκευασίας και των κλειδωνιών (άλλως φωτογραφίες).

6. Τρόπο κατασκευής.

7. Πραγματική περιεκτικότητα.

8. Επιτρεπόμενα υλικά γεμίσματος (ειδικά με την αναφορά των σχετικών πυκνοτήτων και των πιέσεων εξατμίσεων σε 50 °C ή 55 °C).

9. Ύψος πτώσεως.

10. Πίεση δοκιμασίας κατά τη δοκιμασία στεγανότητος σύμφωνα με το περιθώριο 3553.

11. Πίεση δοκιμασίας, της δοκιμασίας εσωτερικής πίεσης σύμφωνα με το περιθώριο 3554.

12. Ύψος δεματοποίησης.

13. Αποτελέσματα της δοκιμασίας.

14. Σημείωση στη συσκευασία και πληροφορίες που αναφέρονται στην ταυτότητα της κλειδωνιάς.

Β. Δοκιμασία στεγανότητος για όλες τις καινούργιες συσκευασίες ή που ανακατασκευάστηκαν οι οποίες προορίζονται να περιέχουν ρευστά υλικά. 3559

(1) Εκτέλεση της δοκιμασίας. 3560

Κάθε δοκιμασία που προορίζεται να περιέχει ρευστά υλικά πρέπει να υποβάλλεται στη δοκιμασία στεγανότητας.

– πριν χρησιμοποιηθεί για πρώτη φορά για τη μεταφορά,

– μετά την ανακατασκευή, πριν επαναχρησιμοποιηθεί για τη μεταφορά.

Η δοκιμασία αυτή δεν απαιτείται όμως για

– τις εσωτερικές συσκευασίες των συνδιασμένων συσκευασιών.

– τα εσωτερικά δοχεία των σύνθετων συσκευασιών (γυαλί, πορσελάνη, ή ψαμμόλιθο) σύμφωνα με το περιθώριο 3510 (2).

– τις συσκευασίες με άνω τμήμα κινητό που προορίζονται να περιέχουν υλικά των οποίων η ιξωδότης με 23 °C είναι ανώτερη από 200μμ2/δευτ.

– τις συσκευασίες από ελαφρό μέταλλο σύμφωνες με το περιθώριο 3510(2).

(2) Μέθοδος δοκιμασίας.

Ο συμπεπιεσμένος αέρας θα εισαχθεί για κάθε συσκευασία από την οπή γεμίσματος. Οι συσκευασίες πρέπει να τοποθετούνται κάτω από το νερό.

Ο τρόπος διατήρησης των συσκευασιών κάτω από το νερό δεν πρέπει να αλλοιώνει τα αποτελέσματα της δοκιμασίας. Οι ενώσεις και τα άλλα τμήματα των συσκευασιών όπου θα μπορούσε να παραχθεί μία διαρροή μπορούν επίσης να καλύπτονται με αφρό σαπουνιού, με βαφή λαδιού, ή με οποιοδήποτε άλλο κατάλληλο ρευστό. Άλλες μέθοδοι εξ ίσου αποτελεσματικές μπορούν επίσης να χρησιμοποιηθούν.

Δεν χρειάζεται οι συσκευασίες να εφοδιάζονται με δικές τους κλειδωνιές.

(3) Πίεση αέρος που πρέπει να εφαρμόζεται 3559

Ομάδα συσκ. 1	Ομάδα συσκ. 2	Ομάδα συσκ. 3
τουλ/στον 30KPa	τουλ/στον 20KPa	τουλ/στον 20KPa

(4) Κριτήριο αποδοχής.
Δεν πρέπει να έχει διαρροές αέρος.

3561
-3569

Τμήμα V – μεταβατική περίοδος. 3570

Οι συσκευασίες που δεν πληρούν τις διατάξεις του παρόντος, αλλά που μπορούν να χρησιμοποιούνται σύμφωνα με τις διατάξεις του ADR ισχύουσες την 30 Απριλίου 1985 για τα αντίστοιχα υλικά των κλάσεων 3 6.1 και 8, θα μπορούν να χρησιμοποιούνται επί μιάς μεταβατικής περιόδου 5 ετών μέχρι την 30 Απριλίου 1990 για την μεταφορά των υλικών αυτών.

Οι συσκευασίες που δεν πληρούν τις διατάξεις του παρόντος, που χρησιμοποιούνταν όμως για τα υλικά τα μη κανονισμένα από ADR, την 30 Αυγούστου 1985 αλλά που ανήκουν στις κλάσεις 3,6.1 και 8, με εφαρμογή από την 1η Μάη 1985, μπορούν να συνεχίζονται να χρησιμοποιούνται για τη μεταβατική περίοδο 5 ετών μέχρι την 30 Απριλίου 1990 για τη μεταφορά των υλικών αυτών, εφόσον οι διατάξεις των παραγράφων 1, 2, 4, 5, 6 και 7 του περιθωρίου 3500 του παρόντος τηρούνται.

3571
-3599

Συνημμένο του Α.5.
Τμήμα 1
Τυποποιημένα ρευστά για να αποδειχθεί ο χημικός συμβιβασμός των συσκευασιών από πολυαιθυλένιο με υψηλή μοριακή μάζα σύμφωνα με το περιθώριο 3551 (6).

Τα εξής τυποποιημένα ρευστά θα χρησιμοποιηθούν για το πλαστικό αυτό υλικό.

Διαβρεκτικά διαλύμματα
Διαβρεκτικό διάλυμμα για τα υλικά των οποίων τα αποτελέσματα σχισμού υπό πίεση στο πολυαιθυλένιο είναι δυνατά ειδικά για όλα τα διαλύματα και παρασκευάσματα που περιέχουν διαβρεκτικά.

Θα χρησιμοποιήσουμε υδατικά διαλύματα από 1 έως 10% ενός διαβρεκτικού. Η επιφανειακή πίεση του διαλύματος αυτού πρέπει να είναι με 23°C από 31 με 35μΝ%μ.

Η δοκιμασία δεματοποίησης θα πραγματοποιηθεί λαμβάνοντας βάση μια σχετική πυκνότητα τουλάχιστον 1,2.
Εάν ο επαρκής χημικός συμβιβασμός αποδεικνύεται με ένα διαβρεκτικό διάλυμα δεν χρειάζεται να προβούμε σε καμμία δοκιμασία συμβιβασμού με οξικό οξύ.

Β. Οξικό οξύ για τα υλικά και παρασκευάσματα που έχουν αποτελέσματα σχισμού υπό την πίεση πολυαιθυλενίου, ειδικά για το μονοκαρβοξυλικό οξύ και για τη μονοσθενή αλκοόλη.
Θα χρησιμοποιήσουμε οξικό οξύ σε συγκέντρωση 98 με 100%.

Σχετική πυκνότης 1,005.
Η δοκιμασία δεματισμού θα πραγματοποιηθεί λαμβάνοντας σαν βάση μια σχετική πυκνότητα τουλάχιστον 1.1.

Στις περιπτώσεις των υλικών γεμίσματος υπό την επορροή των οποίων το πολυαιθυλένιο φουσκώνει περισσότερο από ό,τι υπό την επιρροή του οξικού οξέως μέχρι του σημείου όπου η μάζα του πολυαιθυλένιου θα αυξηθεί το πολύ 4%, ο επαρκής χημικός συμβιβασμός θα μπορεί να αποδεικνύεται μετά από προ-αποθήκευση 3 εβδομάδων με 40°C σύμφωνα με το περιθώριο 3551 (6) αλλά με τα αυθεντικά εμπορεύματα γεμίσματος.

γ) Οξικό του βουτυλίου (κανονικό) /διαβρεκτικό διάλυμα κορεσμένο από οξικό του βουτυλίου κανονικό για τα υλικά και παρασκευάσματα που φουσκώνουν το πολυαιθυλένιο σε τέτοιο σημείο που η μάζα από πολυαιθυλένιο αυξάνεται με το πολύ 4% και που παρουσιάζουν ταυτόχρονα ένα αποτέλεσμα σχισμού υπό την πίεση και ειδικά για τα φυτο-υγιεινά προϊόντα, τα ρευστά χρώματα και τα εστέρα.

Θα χρησιμοποιήσουμε οξικό βουτίλιο -το κανονικό- σε συγκέντρωση 98 με 100% για την προ-αποθήκευση σύμφωνα με το περιθώριο 3551 (6).

Για τη δοκιμασία δεματισμού θα χρησιμοποιήσουμε σύμφωνα με το περιθώριο 3555 ένα δοκιμαστικό υγρό που αποτελείται από διαβρεκτικό υδατικό διάλυμα από 1 έως 10% αναμεμιγμένο με 2% κανονικό οξικό του βουτυλίου, σύμφωνα με το α ανωτέρω.

Η δοκιμασία δεματισμού θα πραγματοποιηθεί παίρνοντας σαν βάση μια σχετική πυκνότητα τουλάχιστον 1,0.
Στις περιπτώσεις των υλικών γεμίσματος υπό την επιρροή των οποίων το πολυαιθυλένιο φουσκώνει περισσότερο από ό,τι υπό εκείνη του κανονικού οξικού του βουτυλίου και σε τέτοιο σημείο που η μάζα του πολυαιθυλενίου μέχρι το πολύ 7,5% και ο επαρκής χημικός συμβιβασμός θα μπορεί να αποδεικνύεται μετά από μία προ-αποθήκευση 3 εβδομάδων με 40°C, σύμφωνα με το περιθώριο 3551 (6) αλλά με αυθεντικό εμπόρευμα γέμισης.

δ. Μίγμα από υδρογονάνθρακες (WHITE SPIRIT) για τα υλικά και τα παρασκευάσματα που έχουν αποτέλεσμα το φούσκωμα στο πολυαιθυλένιο, ειδικά για τους υδρογονάνθρακες τους εστέρες και κετόνες.

Θα χρησιμοποιήσουμε ένα μίγμα υδρογονανθράκων με τομέα βρασμού 180°C - 200°C, σχετική πυκνότητα 0,79 ένα σημείο φωτισμού άνω των 61°C με μια περιεκτικότητα με αρωματικά 16 με 18% (μόνον έτοιμα αρωματικά σε c9 και άνω).

Η δοκιμασία δεματισμού θα γίνει παίρνοντας ως βάση μια σχετική πυκνότητα τουλάχιστον 1,0.

Στις περιπτώσεις των υλικών γεμίσματος που φουσκώνουν το πολυαιθυλένιο σε τέτοιο βαθμό που η μάζα πολυαιθυλενίου αυξάνεται περισσότερο από 7,5%, η επαρκής χημική συμβατικότητα θα μπορέσει να αποδειχθεί μετά από προ αποθήκευση 3 εβδομάδων με 40°C, σύμφωνα με το περιθώριο 3551(6), αλλά με την αυθεντική ουσία γεμίσματος.

ε) Νιτρικό οξύ για όλα τα υλικά και τα παρασκευάσματα που έχουν στο πολυαιθυλένιο αποτέλεσμα οξειδώσεως που προκαλούν μοριακές υποβαθμίσεις ίδιες ή πιο ελάχιστες από αυτές που προκαλούνται από νιτρικό οξύ με 55%.

Η δοκιμασία δεματισμού θα γίνει λαμβάνοντας ως βάση μία σχετική πυκνότητα τουλάχιστον 1,4.

Στις περιπτώσεις των ουσιών γεμίσματος που οξειδώνουν πιο πολύ από το νιτρικό οξύ σε 55% ή που προκαλούν μοριακές υποβαθμίσεις θα προβούμε σύμφωνα με το περιθώριο 3551(5).

ζ) Για τα υλικά που δεν προσβάλλουν το πολυαιθυλένιο όπως στις περιπτώσεις που αναφέρονται στα α) μέχρι ε) ειδικά για τα οξέα και τις ανόργανες πλύσεις τα υδατικά αλάτινα διαλύματα την πολυαλκοόλη και τις οργανικές ουσίες σε υδατικά διαλύματα.

Η δοκιμασία δεματισμού θα γίνει παίρνοντας σαν βάση μία σχετική πυκνότητα τουλάχιστον 1, 2.

Τμήμα ΙΙ

Κατάλογος των υλικών που μπορούν να εξομοιούνται στα τυποποιημένα υγρά σύμφωνα με το περιθώριο 3551 (6)

Κλάση 3.

Αριθμός	Περιγραφή υλικού	Τυποπ. υγρό
Α. Μη τοξικά και μη διαβρωτικά υλικά που έχουν σημείο φωτισμού κατώτερο από 21°C.		
3ο Β. Τα υλικά των οποίων η πίεση ατμού με 50°C δεν υπερβαίνουν 110ΚΠα (1,1 BAR)		
– Τα ακαθάριστα πετρέλαια και	Μίγμα υδρογονανθράκων	
άλλα ακαθάριστα έλαια		
υδρογονάνθρακες	»	
Τα αλατογόνα υλικά	»	
Το αλκοόλ	Οξικό οξύ	
Οι αιθέρες	Μίγμα υδρογονανθράκων	
Τα αλδευδή	» »	
Οι κετόνες	» »	
οι εστέρες	Κανονικά νουτυρικά οξικά σε περίπτωση φουσκώματος το πολύ 4% (μάζα) άλλως μίγμα υδρογονανθράκων.	
5ο) Τα ιξώδη υλικά		
Μερικά χρώματα για γκραβούρες και για δέρματα	Μίγμα υδρογονανθράκων	
Β Τοξικά υλικά που έχουν σημείο φωτισμού σε 21°C		
17Β Μεθανόλη (μαθανολικό οξύ)	Οξικό οξύ	
D Μη τοξικά και μη διαβρωτικά υλικά π ου έχουν σημείο φωτισμού 21°C με 100°C (συμπεριλαμβανομένων και των τιμών των ορίων).		
31ο) C) Τα υλικά που έχουν σημείο φωτισμού από 21°C έως 55°C (συμπεριλαμβανομένων και των τιμών των ορίων)		
το πετρέλαιο, διαλύτης νάφθα	μίγμα υδρογονάνθρακα	
– Το WHITE SPIRIT (λευκοδιαλύτης)	» »	
– οι υδρογονάνθρακες	» »	
– τα αλατογονομένα υλικά	» »	
– αλκοόλες	οξικό οξύ	
αιθέρες	μίγμα υδρογονανθράκων	
Αλδευδή	» »	
κετόνες	» »	
εστέρες	κανονικό οξύ του βουτυλίου σε περίπτωση φουσκώματος το πολύ 4% (μάζα άλλως μίγμα υδρογονανθράκων.	
– τα αζωτόδη υλικά	Μίγμα υδρογονανθράκων	
32°C Τα υλικά που έχουν σημείο φωτισμού άνω του 55°C χωρίς να υπερβαίνει τους 100°C		
– τα βάρεια υλικά από απόσταξη πετρελαίου	Μίγμα υδρογονανθράκων	
– τα έλαια θέρμανσης τα		
έλαια για μηχανές Ντίζελ	μίγμα υδρογονανθράκων	
Οι υδρογονάνθρακες	» »	
τα οξυγονούχα υλικά	» »	
τα αλογονομένα υλικά	» »	
Τα αζωτόδη υλικά	» »	
Κλάση 6.1		
Β. Οργανικά υλικά που έχουν σημείο φωτισμού ίσο ή ανώτερο από 21°C και μη εύφλεκτα.		
11ο) Τα αζωτόδη υλικά που έχουν σημείο βρασμού κάτω από 200°C		
Β. Η ανιλίνη	Οξικό οξύ	
13ο. Τα οξυγονομένα υλικά που έχουν σημείο βρασμού κάτω από 200°C		
Β. Φαινόλη	Οξικό οξύ	
C. Το μονοβουτυλικό αιθέριο του αιθυλένιου - γλυκόζ	» »	
– Φουρφουρολική αλκοόλη	» »	
14ο) Τα οξυγονοποιημένα υλικά που έχουν σημείο βρασμού ίσο ή ανω των 200°C		
Β Κρεσόλη		
C Τα αλκυλφαινόλια		
Κλάση 8.		
Α Υλικά όξινου χαρακτήρα ανόργανα οξέα.		
10Β) Θεικό οξύ	νερό	
υποσταθμικό θεικό οξύ	νερό	
2ο Β Νιτρικό. οξύ με τίτλο 55% το πολύ του απόλυτου οξέως HNO3	νιτρικό οξύ	
4ο Β Τα υδατικά διαλύματα υπερχλωρικό οξύ με τίτλο 50% το πολύ του απολύτου οξέως (HCLO4)	» »	
5ο Β) Τα διαλύματα υδροχλωρικού οξέως με τίτλο 36% το πολύ του απολύτου οξέως. τα διαλύματα υδροβρωμικού οξέως, τα διαλύματα υδροιωδικού οξ.	νερό	
7ο,Β) Τα υδατικά διαλύματα υδροφθορικού οξέως με τίτλο 60% το πολύ άνυδρο υδροφθορικό οξύ (το πολύ 60 λίτρα επιτρεπομένη διάρκεια χρήσης 2 ετών.	»	
8. Β Φθοριοβορικό οξύ με τίτλο 50% το πολύ απολύτου οξέως (HBF4	»	
9ο Β) Φθοριοπυριτικό οξύ (υδροφθοριοπυριτικό οξύ)	»	
11ο Β) Τα διαλύματα χρωμικού οξέως με τίτλο 30%, το πολύ απολύτου οξέως	νιτρικό οξύ	
C Φωσφορικό οξύ	νερό	
Οργανικές ουσίες		
32ο Τα ρευστά καρβοξυλίου οξέως και τα ρευστά αλατογονομένα καρβοξυλικά οξέα και τα ρευστά ανυδριτά τους».		
Β Το ακρυλικό οξύ (Μυρμηκικό) οξύ οξικό οξύ, θειογλυκολικό οξύ	Οξικό οξύ	
C Μεθακρυλικό οξύ, προπιονικό οξύ		
Β Υλικά ουσίες με βασικό χαρακτήρα ανόργανες ουσίες		
42ο Τα διαλύματα αλκαλικών ουσιών		
Β Οι πλύσεις από σόδα		
Οι πλύσεις από ποτάσσα, οι καυστικές πλύσεις	νερό	
43) C) Τα διαλύματα από αμμωνία		
44ο) Υδραζίνη και υδατικά διαλύματα της		
Β. Τα υδατικά διαλύματα από υδραζίνη με τίτλο 64% το πολύ υδραζίνης (N2H4).		
C. Άλλες διαβρωτικές ουσίες		
61ο) Υποχλωριώδη διαλύματα (Δοκιμασία που πρέπει να πραγματοποιηθεί μόναν με αερισμό).	νιτρικό οξύ	
Στην περίπτωση δοκιμασίας με νιτρικό οξύ ως τροποποιημένο ρευστό πρέπει να χρησιμοποιηθεί αερισμός που να αντέχει στα οξέα.		
Για τα ίδια τα υποχλωριώδη διαλύματα επιτρέπονται αερισμοί του ιδίου τύπου κατασκευής, που αντέχουν στα υποχλωριώδη (πχ πυριτιούχο καουτσούκ αλλά που δεν αντέχουν στο νιτρικό οξύ.		
63ο Τα διαλύματα από φορμαλδεΰδη με τίτλο τουλάχιστον 5% φορμαλδεΰδη που έχει τίτλο επίσης 35% το πολύ μεθανόλη	Νερό	
62ο) Τα διαλύματα υπεροξειδίου του υδρογόνου (δοκιμασία που πρέπει να πραγματοποιηθεί μονον με αερισμό)		
Β. C Τα υδατικά διαλύματα υπεροξειδίου του υδρογόνου με τίτλο τουλάχιστον 8% και το πολύ 60% του υπεροξειδίου του υδρογόνου.	Νερό	

Συνημμένο Α.6

Οδηγίες σχετικές με τα ραδιοενεργά υλικά της κλάσης 7.

Τμήμα 1 Οδηγίες που αφορούν τους τύπους συσκευασίας και τα δέματα.

Α. Γενικές οδηγίες που εφαρμόζονται στις συσκευασίες και στα δέματα.

(1) Η συσκευασία πρέπει να έχει κατασκευαστεί έτσι ώστε το 3600
δέμα να μπορέσει να χειριστεί εύκολα και να δεθεί σωστά κατά την μεταφορά.

(2) Τα δέματα των οποίων η μικτή μάζα περιλαμβάνεται μεταξύ 10 και 50 χγ πρέπει να έχουν εφοδιασθεί με χειρολαβές που επιτρέπουν τον χειρισμό διά χειρός.

3. Τα δέματα των οποίων η μικτή μάζα είναι ανώτερη από 50 χγ πρέπει να έχουν κατασκευαστεί με τέτοιο τρόπο ώστε να επιτρέπουν τον χειρισμό με μηχανικό μέσο, υπό ασφαλείς όρους.

4. Το μοντέλο πρέπει να έχει κατασκευαστεί έτσι ώστε κανένας μηχανισμός ανύψωσης με τον οποίο έχει εφοδιαστεί το δέμα, όταν χρησιμοποιείται όπως πρέπει να μην μπορεί να επιβάλλει επικίνδυνη ενέργεια στη δομή του δέματος.

Πρέπει να προβλέπονται επαρκή περιθώρια ασφαλείας για να υπολογισθεί και η «κατ' εκρίζωση» ανύψωση.

5. Οι ανυψωτικές χειρολαβές και κάθε άλλο στοιχείο επί της εξωτερικής επιφανείας της συσκευασίας που θα μπορούσε να χρησιμοποιηθεί για την ανύψωση του δέματος πρέπει να μπορέσουν να βγουν για τη μεταφορά ή να είναι έτσι ώστε να μη παίζουν κανένα ρόλο, ή να έχουν κατασκευασθεί έτσι ώστε να αντέχουν το βάρος του δέματος σύμφωνα με τις προβλέψεις της παρ. 4.

6. Τα εξωτερικά φύλλα της συσκευασίας πρέπει κατά το μέτρο του δυνατού να έχουν κατασκευαστεί και να έχουν τελειοποιηθεί έτσι ώστε να μη συλλέγουν και να μην παρακρατούν νερό βροχής.

7. Οι εξωτερικές επιφάνειες της συσκευασίας πρέπει κατά το μέτρο του δυνατού να έχουν κατασκευαστεί και να έχουν τελειοποιηθεί έτσι ώστε να μπορέσουν να απολυμανθούν εύκολα.

8. Κάθε στοιχείο που προστίθεται στο δέμα κατά την μεταφορά που δεν αποτελεί μέρος του δέματος δεν πρέπει να ελαττώνει την ασφάλεια αυτού.

9. Η πιο μικρή και εξωτερική διάσταση έξω από τη συσκευασία δεν πρέπει να είναι μικρότερη από 10 εκ.

10. Οι ουσίες που έχουν κριτική θερμοκρασία κάτω από 50° C ή σ' αυτή τη θερμοκρασία τάση ατμού μεγαλύτερη από 300 KPa (3BAR) πρέπει να περιέχονται μέσα σε δοχεία που ανταποκρίνονται επίσης στις προβλέψεις των περιθωρίων 2202 και 2211 έως 2218.

Β. Συμπληρωματικές οδηγίες για τα δέματα του τύπου Α.

1. Κάθε δέμα πρέπει να έχει εφοδιαστεί εξωτερικά από ένα 3601
μηχανισμό όπως μία σφραγίδα που δεν είναι εύθραυστη και που εντοπίζει κάθε άνοιγμα του δέματος.

2. Κατά το μέτρο του δυνατού, το εξωτερικό μέρος της συσκευασίας δεν πρέπει να παρουσιάζει καμία εξοχή.

3. Το μοντέλο της συσκευασίας πρέπει να λαμβάνει υπόψη του τις μεταβολές της θερμοκρασίας που θα μπορούσε να υποστεί η συσκευασία κατά την μεταφορά και την αποθήκευση.

Ως προς αυτό οι θερμοκρασίες από - 40° C και + 70° C είναι τα παραδεκτέα όρια για την επιλογή των υλικών πρέπει όμως να δοθεί ειδική προσοχή στο σπάσιμο, για ευαισθησία στις θερμοκρασίες αυτές.

4. Οι συγκολλημένες ενώσεις ή άλλες ενώσεις επιτηδευμένες για τη σύντηξη πρέπει να έχουν κατασκευαστεί ή να έχουν εκτελεστεί σύμφωνα με τις εθνικές ή διεθνείς οδηγίες ή με παραδεκτέες για τις αρμόδιες αρχές οδηγίες.

5. Το δέμα πρέπει να είναι έτσι ώστε υπό κανονικές συνθήκες μεταφοράς, καμία αύξηση ταχύτητας, δόνηση ή αντήχηση να μη βλάπτει στην αποτελεσματικότητα των συστημάτων των κλειδωνιών των διάφορων δοχείων, ούτε να αλλοιώνουν το δέμα στο σύνολό του.

Ειδικά οι υποδοχές βιδών, τα μπουλόνια και άλλα συστήματα που αποτελούν τη κλειδωνιά δεν πρέπει να μπορέσουν να χαλαρώσουν ούτε να ανοίγουν κατά λάθος, ακόμη και μετά από επανειλημμένη χρήση.

6. Τα ραδιο-ενεργά υλικά υπό ειδική μορφή μπορούν να θεωρηθούν σαν στοιχείο του περιτυλίγματος των συνόρων.

7. Το μοντέλο πρέπει να συμπεριλαμβάνει ένα περιτύλιγμα συνόρου που να διατηρείται κλειστό με ασφαλές σύστημα, δηλαδή ένα σύστημα που να μη μπορεί να ανοίξει από μόνο του, που να ανοίγει μόνον ηθελημένα και που να αντέχει στη συνέχεια τυχόν αύξησης της πιέσεως εντός του περιτυλίγματος.

8. Αν το περιτύλιγμα συνόρου δεν αποτελεί ένα ενιαίο σύνολο με το υπόλοιπο της συσκευασίας πρέπει να έχει εφοδιαστεί με ασφαλές σύστημα κλειδωνιάς εντελώς ανεξάρτητο από τη συσκευασία.

9. Τα υλικά της συσκευασίας και όλα τα στοιχεία του και οι δομές πρέπει να είναι από φυσική και χημική άποψη συμβιβάσιμα μεταξύ τους και με το περιεχόμενο του δέματος. Πρέπει να ληφθεί υπόψη και η συμπεριφορά τους κάτω από ακτινοβολία.

10. Στη μελέτη κάθε στοιχείου του περιτυλίγματος συνόρων πρέπει να ληφθεί υπόψη η ραδιολυτική αποσύνθεση των ρευστών και των άλλων ευαίσθητων ουσιών, και της παραγωγής αερίου διά χημικής αντίδρασης και ραδιολύσεως.

11. Το περιτύλιγμα πρέπει να παρακρατά το ραδιο-ενεργό περιεχόμενό του, υπό την ελάττωση της επικρατούσας πίεσης με 25 KPa (0,25 BAR).

12. Οι δικλείδες της αντλίας οι διαφορετικές από τις δικλείδες αποπιέσεως μέσω των οποίων το ραδιοενεργό περιεχόμενο θα μπορούσε να διαφεύγει, πρέπει να προστατεύονται από κάθε ανεπίτρεπτη μεταχείριση και να είναι εφοδιασμένες από ένα σύστημα δυνάμενο να παρακρατήσει κάθε διαφυγή από τις δικλείδες αντλίας.

13. Αν ένα στοιχείο της συσκευασίας αποτελεί επίτηδες μέρος του περιτυλίγματος, έχει τυλιχθεί με ένα κάλυμμα προστασίας κατά την ακτινοβολία πρέπει να έχει κατασκευαστεί έτσι ώστε το στοιχείο να μη μπορεί να διαφεύγει κατά λάθος.

Αν το κάλυμμα και το στοιχείο αποτελούν ένα σύνολο μη ενιαίο α πό το υπόλοιπο της συσκευασίας, το κάλυμμα πρέπει να είναι εφοδιασμένο από ασφαλές σύστημα κλειδωνιάς, τελείως ανεξάρτητο από τη συσκευασία.

14. Κάθε σύστημα στοίβαξης ενιαίο με το δέμα πρέπει να έχει κατασκευαστεί έτσι ώστε οι δυνάμεις που αναπτύσσονται σ' αυτό τόσο υπό κανονικές συνθήκες, όσο και σε περιπτώσεις ατυχήματος να μην εμποδίζουν το δέμα να ικανοποιεί τις οδηγίες του παρόντος κεφαλαίου.

15. Μία συσκευασία του τύπου Α πρέπει υπό προϋποθέσεις που θα προέκυπταν από τις δοκιμασίες που προβλέπονται στο περιθώριο 3635 να μπορέσει να εμποδίσει.

3601 α. Κάθε απώλεια ή διασπορά του ραδιο-ενεργού περιεχομένου.

β. Κάθε αύξηση της μεγίστης έντασης της καταγραφόμενης ή υπολογιζόμενης ακτινοβολίας στην εξωτερική επιφάνεια, κάτω από συνθήκες που επικρατούν πριν τη δοκιμασία.

16. Μία συσκευασία του τύπου Α που προορίζεται για τη μεταφορά των ρευστών πρέπει επίσης να ανταποκρίνεται στις διατάξεις της παρ. 15 υπό τις προϋποθέσεις που θα προκύπτουν από τις δοκιμασίες που προβλέπονται στο περιθώριο 3636.

Όμως οι δοκιμασίες αυτές δεν απαιτούνται όταν το περιτύλιγμα περιέχει εσωτερικά μια επαρκή ποσότητα απορροφητικού υλικού για να απορροφά δύο φορές τον όγκο του ρευστού που περιέχει, και να έχει πληρωθεί μια εκ των εξής προϋποθέσεων.

α. Το απορροφητικό υλικό βρίσκεται μέσα στο κάλυμμα προστασίας ή

β. Το απορροφητικό υλικό βρίσκεται έξω από αυτό το κάλυμμα και μπορεί να αποδειχθεί ότι αν το ρευστό περιεχόμενο απορροφάται από αυτό, η ένταση της ακτινοβολίας δεν θα υπερβαίνει 2 μΕ/ώρα (200 MREM/ώρα) στην επιφάνεια του δέματος.

17. Μία συσκευασία του τύπου Α προοριζομένη για τη μεταφορά συμπεπιεσμένου ή όχι αέρα, πρέπει επίσης να είναι

έτσι ώστε να εμποδίζει κάθε απώλεια ή διασπορά του περιεχομένου, υπό συνθήκες που θα προέκυπταν από τις προβλεπόμενες στο περιθώριο 3636 δοκιμασίες. Οι συσκευασίες που προορίζονται για τη μεταφορά του τρίτιου ή του αργού -37 υπό αεριούχο μορφή και ενέργεια μέχρι 7,4 TBQ (200Ci) δεν υπόκεινται στην οδηγία αυτή.

C. Συμπληρωματικές ουσιαστικές οδηγίες για τα δέματα του τύπου B(U) και του τύπου B(M).

(1) Πέρα από τις περιπτώσεις που προβλέπονται στα περιθώρια 3603 (1) α) και 3604 (2) αντίστοιχα, τα δέματα του τύπου β(U) και του τύπου B (M) πρέπει να πληρούν όλες τις συμπληρωματικές οδηγίες, που επιβάλλονται για τα δέματα του τύπου (A) στο περιθώριο 3601 (1) έως (15) συμπεριλαμβανομένου.

(2) Η συσκευασία πρέπει να είναι τοιαύτη ώστε κάτω από συνθήκες που θα προέκυπταν από τις δοκιμασίες που προβλέπονται στο περιθώριο 3637, να διατηρεί αρκετά την λειτουργία του καλύμματος προστασίας για να μην υπερβαίνει η ένταση ακτινοβολίας τους 10 MSV/ώρα (IREM/ώρα σε 1 μ. από την επιφάνεια του δέματος στην περίπτωση όπου το δέμα θα περιείχε επαρκή ποσότητα ιριδίου -192 για να εκπέμπει, πριν τις δοκιμασίες, μία ακτινοβολία έντασης 100 μSv/ώρα (IOMREM)/ώρα σε 1 μ. από την επιφάνεια.

Αν η συσκευασία προορίζεται για ένα δεδομένο ράδιονουκλειδιο, αυτό μπορεί να θεωρηθεί σαν στοιχείο αναφοράς αντί του ιριδίου -192. Εκτός τούτου αν η συσκευασία προορίζεται για πομπούς νετρονίου θα πρέπει επίσης να χρησιμοποιηθεί κατάλληλη πηγή νετρονίου σα στοιχείο αναφοράς. Δεν είναι οπωσδήποτε απαραίτητο να προβούμε σε μέτρηση από μία πηγή δοκιμαστικής ακτινοβολίας.

Αρκεί να γίνονται οι υπολογισμοί ανάλογα με την πηγή ειδικής ακτινοβολίας που χρησιμεύει σα στοιχείο αναφοράς.

(3) Τα δέματα του τύπου B(U) και του τύπου B(M) πρέπει να έχουν κατασκευαστεί και πραγματοποιηθεί και προετοιμαστεί για το σκοπό της μεταφοράς, έτσι ώστε, υπό τις επικρατούσες συνθήκες που αναλύονται στην παράγραφο (4) να πληρούν τις προϋποθέσεις των εδαφίων α και β ως εξής:

α. Η παραγομένη θερμότης, μέσα στο δέμα από το ραδιοενεργό περιεχόμενο, δεν πρέπει υπό κανονικές συνθήκες μεταφοράς (πραγματοποιημένες από τις δοκιμασίες που προβλέπονται στο περιθώριο 3635) να βλάπτει το δέμα, ώστε να μην μπορέσει πια να πληρεί τις προϋποθέσεις, οι οποίες εφαρμόζονται για την οριοθέτηση και προστασία αν παραμείνει χωρίς επίβλεψη για 1 εβδομάδα, θα δώσουμε ειδική προσοχή στις συνέπειες της θερμότητας που υπάρχει κίνδυνος να

1. να τροποποιούν τη διευθέτηση, την γεωμετρική μορφή ή την φυσική κατάσταση του ραδιο-ενεργού περιεχομένου ή αν το υλικό περιέχεται σε μεταλλικό περιτύλιγμα ή δοχείο (π.χ. ενθηκευμένα εύφλεκτα υλικά) να προκαλούν τη σύντηξη του μεταλλικού περιτυλίγματος του δοχείου ή της ουσίας.

ιι. Ελαττώνουν την αποτελεσματικότητα της συσκευασίας μετά από διάφορες προκύπτουσες, από θερμική διαστολή, συντήξεις ή σχισμές του καλύμματος προστασίας των ακτινοβολιών.

ιιι. Αυξάνουν τη διάβρωση παρουσία υγρασίας.

Β. Η θερμοκρασία των ευπρόσιτων επιφανειών ενός δέματος του τύπου B(U) ή του τύπου B(M) δεν πρέπει να υπερβαίνει τους 50° C υπό σκιάν, εκτός αν το δέμα μεταφέρεται διά πλήρους φορτίου.

(4) Για την εφαρμογή του εδαφίου (3) α θα θεωρήσουμε ότι οι επικρατούσες συνθήκες είναι οι εξής:

α. Θερμοκρασία 38° C (100%).

Ε. Ηλίαση προϋποθέσεις σύμφωνα με τον πίνακα 1.

Για την εφαρμογή του εδαφίου (3) Β θα θεωρήσουμε ότι οι επικρατούσες συνθήκες είναι:

Θερμοκρασία 38° C (100° F).

Στην περίπτωση του δέματος τύπου B(M) που πρέπει να μεταφερθεί αποκλειστικά μέσω ορισμένων χωρών, θα μπορούμε να αποδεχθούμε άλλες προϋποθέσεις με την έγκριση των αρμοδίων αρχών αυτών των χωρών.

Πίνακας 1 Μορφή και τοποθεσία της επιφανείας	Προϋποθέσεις ηλίασης Ηλίαση W/m² (CAL/τετ. εκ επί 12 ώρες/ημέρα)
Οι λείες επιφάνειες των δεμάτων είναι οριζόντιες κατά την μεταφορά.	
Βάση	Μηδέν
άλλες επιφάνειες	800
Οι λείες επιφάνειες των δεμάτων δεν είναι οριζόντιες κατά την μεταφορά.	
εκάστη επιφάνεια	200 αλ
Κυρτές επιφάνειες των δεμάτων	400 αλ

α. Μπορούμε επίσης να χρησιμοποιήσουμε ημιτονοειδείς συναρτήσεις να εφαρμόσουμε συντελεστή απορρόφησης και να παραλείπουμε τις συνέπειες της τυχόν αντανάκλασης από γειτονικά αντικείμενα.

5. Μια συσκευασία συμπεριλαμβάνοντας θερμική προστασία προοριζομένη να επιτραπεί σ' αυτήν να πληρεί τις οδηγίες της θερμικής δοκιμασίας προβλεπομένη στο περιθώριο 3637 (3) πρέπει να κατασκευαστεί έτσι ώστε η προστασία αυτή να παραμείνει αποτελεσματική υπό συνθήκες που θα προέκυπταν από τις δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637 (2).

Η θερμική προστασία έξω από το δέμα δεν πρέπει να γίνει μη αποτελεσματική λόγω των συνθηκών που παρουσιάζονται συνήθως κατά την κανονική μεταχείριση ή σε περίπτωση ατυχήματος, και που δεν προσποιούνται στις ανωτέρω δοκιμασίες, όπως π.χ. σχίσιμο, κόψιμο, σαλπάρισμα, απόξυση ή βίαια μεταχείριση.

Δ. Συμπληρωματικές πρόσθετες προϋποθέσεις για τα δέματα τύπου B(U).

(1) Η συσκευασία πρέπει να έχει κατασκευαστεί έτσι ώστε: 3603

α. Αν υποβαλλόταν στις δοκιμασίες που προβλέπονται στο περιθώριο 3635 η απώλεια του ραδιο-ενεργού περιεχομένου να μην είναι ανώτερη από A2 × 10-6 την ώρα.

Αν υποβαλλόταν στις δοκιμασίες που προβλέπονται στο περιθώριο 3637 η συσσωρευμένη απώλεια του ραδιοενεργού περιεχομένου δεν θα ήταν ανώτερη από A2 × 10-3 σε μία εβδομάδα.

Παρουσία των μειγμάτων των διαφόρων ραδιο-νυκλεΐδων θα εφαρμόσουμε τις οδηγίες του περιθωρίου 3691.

Για α. Την εκτίμηση θα ληφθούν υπόψη τα όρια της εξωτερικής μόλυνσης που αναγράφονται στο περιθώριο 3651.

Για α. και β. οι τιμές A2 για τα ευγενή αέρια είναι αυτές της μη συμπεπιεσμένης κατάστασης.

2. Το μοντέλο πρέπει να πληρεί τα παραδεκτέα όρια ελευθεροποίησης δράσης, χωρίς να προσφεύγουμε σε φίλτρα ούτε σε σύστημα μηχανικής ψύξης.

3. Το δέμα δεν πρέπει να περιλαμβάνει σύστημα που να επιτρέπει συνεχή αποσυμπίεση κατά την μεταφορά.

4. Το δέμα δεν πρέπει να συμπεριλαμβάνει σύστημα αποσυμπίεσης του περιτυλίγματος, που ελευθέρωνε ραδιοενεργές ουσίες στην ατμόσφαιρα υπό συνθήκες που θα προέκυπταν από τις δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637.

5. Όταν η πίεση της μέγιστης κανονικής χρήσης (βλ. περιθ. 2700(2) του περιτυλίγματος, προσθετομένη σε κάθε διαφορά πίεσης κάτω από την ατμοσφαιρική πίεση στο μέσο επίπεδο της θάλασσας, στην οποία θα μπορούσε να υποβληθεί κάθε στοιχείο του περιτυλίγματος που αποτελεί θελητικά, μέρος του οριακού περιτυλίγματος, υπερβαίνει τα 35KPA (0,35 BAR), αυτό το στοιχείο πρέπει να μπορέσει να αντέξει σε πίεση τουλάχιστον ίση σε μιάμιση φορά του συνόλου των πιέσεων. Η αντοχή στην πίεση αυτή δεν πρέπει να υπερβαίνει το 75% του ελαχίστου ορίου ελαστικότητος ούτε το 40% του ορίου ρήξης του υλικού που αποτελεί αυτό το στοιχείο στη θερμοκρασία της μεγίστης προβλεπομένης χρήσης.

3602

6. Αν το δέμα, στην πίεση της μέγιστης κανονικής χρήσης (βλέπε περιθ. 27002), υποβάλλεται στη θερμική δοκιμασία που προβλέπεται στο περιθώριο 3637 (3).

Η πίεση σε κάθε στοιχείο του περιτυλίγματος που αποτελεί θεληματικά μέρος του περιτυλίγματος οριοθέτησης, δεν πρέπει να υπερβαίνει αυτή την ανταποκρινόμενη στο ελάχιστο όριο ελαστικότητας του υλικού του εν λόγω στοιχείου στη μέγιστη θερμοκρασία που το στοιχείο αυτό θα μπορούσε να φθάσει κατά τη δοκιμασία.

7. Η πίεση της μέγιστης κανονικής χρήσης (βλ. περιθώριο 27002) του δέματος δεν πρέπει να υπερβαίνει τα 0,7 MPa-7BAR Μανομετρικής πίεσης.

8. Η μεγίστη θερμοκρασία οποιασδήποτε εκ των ευπρόσιτων επιφανειών του δέματος, δεν πρέπει κατά την μεταφορά να υπερβαίνει τους 82° C (υπό σκιάν), και υπό κανονικές συνθήκες μεταφοράς (βλ. επίσης περιθώριο 3602 (3) β).

9. Το οριακό περιτύλιγμα ενός δέματος που περιέχει ραδιο-ενεργή ουσία σε ρευστή μορφή, δεν πρέπει να φθείρεται αν το δέμα υποβάλλεται σε θερμοκρασία -40° C υπό κανονικές συνθήκες μεταφοράς.

Ε. Πρόσθετες οδηγίες για τα δέματα του τύπου B (M).

1. Πέρα από τις προϋποθέσεις του περιθωρίου 3602, τα δέματα του τύπου B(M) πρέπει να πληρούν το περισσότερο δυνατό τις ειδικές πρόσθετες προϋποθέσεις για τα δέματα του τύπου B(U) που προβλέπονται στο περιθώριο 3603.

2. Ένα δέμα του τύπου B(M) πρέπει να έχει κατασκευαστεί έτσι ώστε υπό τις συνθήκες που θα προκύψουν από τις αναφερόμενες δοκιμασίες στον πίνακα II η απώλεια του ραδιο-ενεργού περιεχομένου να μην είναι ανώτερη οριακά της δράσης που καθορίζεται στον εν λόγω πίνακα.

Σχετικά με τις δοκιμασίες που προβλέπονται στο περιθώριο 3635, η εκτίμηση θα λαμβάνει υπόψη τα όρια της εξωτερικής μόλυνσης που αναφέρονται στο περιθώριο 3651.

Πίνακας II

Όρια δράσης για την απώλεια του ραδιο-ενεργού περιεχομένου των δεμάτων του τύπου B(M).

Συνθήκες	Δέμα τύπου B(M) άνευ συνεχούς αποσυμπίεσης	Δέμα τύπου B(M) με συνεχή αποσυμπίεση
Μετά τις δοκιμασίες που προβλέπονται στο περιθώριο 3635.	A2×10-6 την ώρα	A2×5×10-5 την ώρα
Μετά τις δοκιμασίες που προβλέπονται στο περιθώριο 3637	Κρυπτό-85 370TBQ(10.000Ci) σε 1 εβδομάδα. Άλλα ραδιο-νουκλειδή A2 σε 1 εβδομάδα.	Κρυπτό-85 370TBQ(10.000Ci) σε μία εβδομάδα. Άλλα ραδιο-νουκλειδή A2 σε μία εβδομάδα.

Για τα ευγενή αέρια οι τιμές του A2 είναι αυτές της μη συμπεπιεσμένης κατάστασης.

Παρουσία των μειγμάτων των ραδιο-νουκλειδών θα εφαρμόσουμε τις προϋποθέσεις του περιθωρίου 3691.

3. Αν η πίεση στο οριακό περιτύλιγμα ενός δέματος του τύπου B(M) μπορούσε να επιφέρει, στις συνθήκες που θα προκύπταν από τις προβλεπόμενες στα περιθώρια 3635 και 3637 δοκιμασίες, μία πίεση ανώτερη από το ελάχιστο όριο ελαστικότητας ενός εκ των υλικών του οριακού περιτυλίγματος στη θερμοκρασία που θα έφτανε πιθανόν κατά τις δοκιμασίες, το περιτύλιγμα θα πρέπει να έχει εφοδιαστεί με ένα σύστημα αποσυμπίεσης ώστε αυτό το ελάχιστο όριο ελαστικότητας να μην υπερβεί.

Τμήμα II Εύσχιστα υλικά.

Α. Αποκλεισμός των εύσχιστων υλικών από τις σχετικές προϋποθέσεις στα δέματα των εύσχιστων κλάσεων.

Τα δέματα που περιέχουν ραδιο-ενεργά υλικά που είναι πίσης εύσχιστα, εκτός των περιπτώσεων υπα έως 1) πρέπει έχουν κατασκευαστεί έτσι ώστε να πληρούν τις προϋποθέσεις του παρόντος τμήματος. 3610

α) Δέματα περιέχοντα το καθένα όχι περισσότερα από 15 γρ. ουρανίου-233, ουρανίου-235, πλουτωνίου-238, πλουτωνίου-239, πλουτωνίου-241 ή 15 γραμ. οιουδήποτε συνδυασμού αυτών των ραδιο-νουκλειδών, εφόσον η μικρότερη εξωτερική διάσταση του δέματος δεν είναι μικρότερη από 10 εκ., όταν τα υλικά αυτά μεταφέρονται χύμα, τα όρια της ποσότητας πρέπει να εφαρμόζονται στο όχημα.

Β. Δέματα περιέχοντα μόνο φυσικό ουράνιο ή εξασθενημένο ουράνιο που υποβλήθηκε σε ακτινοβολία μόνον σε θερμικούς αντιδραστήρες.

γ) Δέματα περιέχοντα ομογενή υδρογονωμένα διαλύματα ή μείγματα που πληρούν τις προϋποθέσεις που αναφέρονται στον πίνακα III.

Όταν τα υλικά αυτά μεταφέρονται χύμα, τα όρια της ποσότητας πρέπει να αναφέρονται στο όχημα.

Πίνακας III

Όρια που αφορούν τα ομογενή υδρογονωμένα διαλύματα ή μείγματα.

Παράμετρα	Κάθε άλλο εύσχιστο υλικό (συμπεριλαμβ. και των μειγμάτων)	$235_{U\ μονος}$
Ελάχιστο H/X[α]	5 200	5 200
Μεγίστη συγκέντρωση εύσχιστου νουκλειδ. σε γ/λ	5	5
Μεγίστη μάζα εύσχιστου νουκλειδίου σε γ/δέμα	500	800[β]

[α] H/X είναι η σχέση του αριθμού των ατόμων υδρογονίου με τον αριθμό των ατόμων ευσχίστου νουκλειδίου.

[β] Με για P_U και 233 U μια ανθεκτικότητας που δεν υπερβαίνει το 1% της μάζας του 235 U.

δ) Δέματα περιέχοντα εμπλουτισμένο ουράνιο σε ουράνιο-235 με μέγιστο του 1% σε μάζα και του οποίου η περιεκτικότης σε πλουτώνιο – σύνολο και ουράνιο-233 δεν υπερβαίνει το 1% της μάζας ουρανίου-235, εφόσον τα εύσχιστα υλικά διανέμονται με ομοιογενή τρόπο στο σύνολο του υλικού.

Εκτός τούτου αν το ουράνιο-235 παρουσιάζεται υπό μορφή μετάλλου ή οξειδίου, δεν πρέπει να τοποθετείται σε δίκτυο εντός του δέματος.

ε) Δέματα που περιέχουν εύσχιστα υλικά οποιαδήποτε και αν είναι εφόσον δεν περιέχουν περισσότερο από 5 γρ. ευσχίστου υλικού για ολικό όγκο 10 λίτρων.

Τα υλικά πρέπει τουλάχιστον να συσκευάζονται σε δέματα που επιτρέπουν το σεβασμό των σχετικών ορίων, στη διανομή των εύσχιστων υλικών κατά τη μεταφορά που πραγματοποιείται υπό κανονικές συνθήκες.

ζ) Δέματα που δεν περιέχουν έκαστο πλέον του 1χγ πλουτωνίου – σύνολο – του οποίου το μέγιστο 20% σε μάζα μπορεί να αποτελείται από πλουτώνιο-239, πλουτώνιο-241 ή συνδυασμό οποιουδήποτε εκ των ραδιο-νουκλειδών αυτών.

η) Δέματα περιέχοντα ρευστά διαλύματα εμπλουτισμένου νιτρικού ουρανυλίου σε ουράνιο-235 με μέγιστο του 2% σε μάζα, για το πλουτώνιο και το ουράνιο-233 μια ανθεκτικότητα που δεν υπερβαίνει το 0,1% της μάζας ουρανίου-235. Τα δέματα πρέπει επίσης να πληρούν τις διατάξεις των άλλων εφαρμοστέων μερών του παρόντος.

Β. Γενικές διατάξεις σχετικές με την πυρηνική ασφάλεια. 3611

1. Όλα τα εύσχιστα υλικά πρέπει να συσκευάζονται και να αποστέλλονται έτσι ώστε η κριτική κατάσταση 1)[Γ] να μην επιτηδευθεί σε καμμία περίπτωση προβλεπομένη συνθήκη μεταφοράς. Πρέπει ενδεχομένως να λάβωμε υπόψη τις εξής πιθανότητες.

1[Γ]. Εφαρμόζοντας τις σχετικές τιμές στην κριτικότητα – που έχουν αποκτηθεί με τον υπολογισμό ή με πειράματα – για να καθορισθεί αν το δέμα παρουσιάζει κινδύνους κριτικότητας πρέπει να ληφθεί υπόψη ξεχωριστά κάθε λάθος στις τι-

μές αυτές ή τις αβεβαιότητες σχετικά με την ισχύ τους.

α) Διαστάλαξη νερού στο δέμα ή εκροή νερού εκτός του δέματος.

β) Απώλεια αποτελεσματικότητας των απορροφητικών μέσων ή των συστημάτων βραδυπορείας των ενσωματωμένων νετρονίων.

γ) Τροποποίηση της διευθέτησης των περιεχομένων επιφέροντας μεγαλύτερη αντιδραστικότητα, ήτοι εντός του δέματος ή μετά απώλεια του περιεχομένου εκτός του δέματος.

δ) Ελάττωση των αποστάσεων μεταξύ των δεμάτων ή μεταξύ των περιεχομένων.

ε) Καταβύθιση των δεμάτων στο νερό ή κατάχωση κάτω απ' το χιόνι.

ζ) Τυχόν αύξηση της αντιδραστικότητας μετά από μεταβολή της θερμοκρασίας.

2. Επίσης όταν πρόκειται για ακτινοβολημένο πυρηνικό καύσιμο ή για ελάχιστα υλικά μη καθοριζόμενα οι εξής προϋποθέσεις πρέπει να τηρούνται:

α) Το ακτινοβολημένο πυρηνικό καύσιμο του οποίου ο βαθμός ακτινοβολίας δεν είναι γνωστός και του οποίου η αντιδραστικότητα μειώνεται μαζί με το ποσοστό καύσης, πρέπει να θεωρείται σαν μη ακτινοβολημένο για τον σκοπό του ελέγχου των κινδύνων κτητικότητας.

Αν η αντιδραστικότης αυξάνεται με το ποσοστό της καύσης, πρέπει να θεωρείται σαν ακτινοβολημένο καύσιμο που βρίσκεται στις συνθήκες της μεγίστης αντιδραστικότητας.

Αν ο βαθμός ακτινοβολίας είναι γνωστός, η αντιδραστικότης του καυσίμου θα μπορέσει συνεπώς να εκτιμηθεί.

β) Στην περίπτωση των εύσχιστων υλικών που δεν διευκρινίζονται όπως υπολείμματα ή συντρίμματα των οποίων ο εμπλουτισμός, η μάζα, η συγκέντρωση, η δύναμη επιβράδυνσης ή η πυκνότης δεν είναι γνωστές ή δεν μπορούν να καθοριστούν, πρέπει να αποδίδουμε σε κάθε άγνωστη παράμετρο την τιμή που επιφέρει η μεγίστη αντιδραστικότης στις προβλεπόμενες συνθήκες.

3. Τα δέματα των εύσχιστων υλικών άλλα από αυτά που προβλέπονται στο περιθώριο 3610 πρέπει να εντάσσονται σε μία εκ των εξής κλάσεων:

α) Εύσχιστη κλάση Ι. Δέματα που δεν παρουσιάζουν κανένα πυρηνικό κίνδυνο όποιος και αν είναι ο αριθμός και η διευθέτηση, σ' όλες τις προβλεπόμενες συνθήκες μεταφοράς.

β) Εύσχιστη κλάση ΙΙ. Δέματα που δεν παρουσιάζουν κανένα πυρηνικό κίνδυνο αν βρίσκονται σε ορισμένο αριθμό, όποια και αν είναι η διευθέτησή του και σ' όλες τις προβλεπόμενες συνθήκες μεταφοράς.

γ) Εύσχιστη κλάση ΙΙΙ. Δέματα που δεν παρουσιάζουν κανένα πυρηνικό κίνδυνο σ' όλες τις προβλεπόμενες συνθήκες μεταφοράς λόγω των προφυλάξεων ή των ειδικών μέτρων ή των ειδικών διακριτικών ελέγχων που επιβάλλονται κατά τη μεταφορά της αποστολής.

C. Ειδικές διατάξεις που αφορούν το δέμα της εύσχιστης κλάσης Ι.

1. Κάθε δέμα της εύσχιστης κλάσης Ι πρέπει να έχει κατα- 3612
σκευαστεί έτσι ώστε υπό συνθήκες που θα προέκυπταν από τις προβλεπόμενες δοκιμασίες που αναφέρονται στο περιθώριο 3635.

α) Να μην μπορέσει να εισέλθει νερό σε κανένα μέρος του δέματος ούτε να εκρέει εκτός αν η εισαγωγή του νερού σ' αυτό το μέρος ή την εκροή του έγινε επιτρεπτή για τους σκοπούς του περιθωρίου 3614(1) στο μέγιστο προβλεπόμενο μέτρο.

β) Η διαμόρφωση του περιεχομένου και η γεωμετρία του οριακού περιτυλίγματος να μην τροποποιούνται στο σημείο και αυξήσουν το αίσθημα της αντιδραστικότητας.

2. Τα δέματα της εύσχισμης κλάσης Ι πρέπει να πληρούν τα κριτήρια της πυρηνικής ασφάλειας που αναγράφονται στα περιθώρια 3613 και 3614.

Ι. Για το απομονωμένο δέμα.

1. Θα πάρουμε σαν υποθέσεις τις εξής συνθήκες. 3613

α) Το δέμα είναι «επιβλαβές».

Η λέξη «επιβλαβές» σημαίνει εδώ την συνθήκη που έχει εκτιμηθεί ή αποδειχθεί προκύπτοντας για το δέμα ότι οι προβλεπόμενες δοκιμασίες των περιθωρίων 3635 και 3637(1) έως (3), που ακολουθείται από εκείνη του περιθωρίου 3638 ήτοι των δοκιμασιών προβλεπομένων στα περιθώρια 3635 και 3637 (4) σύμφωνα με τον πιο περιοριστικό συνδυασμό.

β) Το νερό μπορεί να εισέλθει ή να εκρέει από όλα τα κενά διαστήματα των δεμάτων συμπεριλαμβανομένων και αυτών που βρίσκονται μέσα στο οριακό περιτύλιγμα. Όμως αν το μοντέλο του δέματος συμπεριλαμβάνει ειδικά χαρακτηριστικά προοριζόμενα να εμποδίσουν αυτή την εισαγωγή ή εκροή μέσα ή εκτός μερικών κενών διαστημάτων, ακόμη συνεπεία ανθρωπίνου λάθους, θα παραδεχθούμε ότι δεν υπάρχει ούτε εισαγωγή ούτε εκροή νερού. Αυτά τα ειδικά χαρακτηριστικά μπορούν να είναι:

ι. Πολλαπλά στεγανά διαφράγματα υψηλής ποιότητας, των οποίων κάθε ένα θα διατηρούσε την αποτελεσματικότητα. Αν το δέμα θα υποβαλλόταν στους συνδυασμούς των δοκιμασιών που προβλέπονται στο εδάφιο 1)α) ή

ιι. Ένας αυστηρός έλεγχος της ποιότητας κατά την κατασκευή και τη διατήρηση της συσκευασίας, συνδυασμένος με τις ειδικές δοκιμασίες για να αποδειχθεί το κλείσιμο εκάστου δέματος προ της αποστολής.

2. Το δέμα πρέπει να βρίσκεται υπό κριτική με επαρκές περιθώριο (2) υπό των συνθηκών που προβλέπονται στην παράγραφο (1) λαμβάνοντας υπόψη τα χημικά και φυσικά χαρακτηριστικά συμπεριλαμβανομένης κάθε τροποποίησης στα χαρακτηριστικά που θα μπορούσαν να παραχθούν υπό των συνθηκών της παραγράφου (1) και υπό των συνθηκών του μετριασμού και της αντανάκλασης ως εξής»:
(2) π.χ. θα θεωρήσουμε ότι η μάζα του εύσχιστου υλικού αποτελείται από μία έγκυρη παράμετρο ελέγχου, θα έχομε επαρκές περιθώριο αν περιορίσομε τη μάζα σε 80% από εκείνη που θα ήταν κριτική σε συγκριτέο σύστημα.

α) Με το υλικό μέσα στο οριακό περιτύλιγμα.

ι. Διαμόρφωση και μετρίαση, εκ των πιο αντιδραστικών που μπορούν να θεωρηθούν στις συνθήκες της παραγράφου (1).

ιι. Τελεία αντανάκλαση από το νερό γύρω από το οριακό περιτύλιγμα ή τέτοια μεγαλύτερη αντανάκλαση γύρω από αυτό το περιτύλιγμα που μπορούσε να επιφαρθεί από τα υλικά του ιδίου του περιτυλίγματος και

Β. Αν διαφεύγει κάποιο τμήμα του υλικού (της ουσίας) του οριακού περιτυλίγματος υπό τις συνθήκες της παραγράφου (1):

ι. Διαμόρφωση και μετρίαση εκ των πιο αντιδραστικών που θεωρούνται ως πιθανά.

ιι. Τελεία αντανάκλαση από το νερό γύρω από αυτά τα υλικά.

2. Για την αποστολή ενός ή περισσοτέρων δεμάτων.

1. Ένας οποιοσδήποτε αριθμός δεμάτων μη επιβλαβών 3614
του ιδίου μοντέλου, διευθετημένα σε οποιαδήποτε θέση πρέπει να παραμένει υπο-κριτική.

Για τον σκοπό αυτό «μη επιβλαβές» σημαίνει την συνθήκη κάτω από την οποία τα δέματα κατασκευάζονται για να παρουσιασθούν στη μεταφορά.

2. 250 από αυτά δέματα, όταν είναι «επιβλαβή» πρέπει να παραμένουν υπο-κριτική αν στοιβάζονται σ' οποιαδήποτε θέση, με, στην άμεση γειτνίαση, ένα ανταναικλαστήρα από ισότιμο στο νερό υλικό, σε όλες τις πλευρές του συνόλου αυτού.

Ως προς τον σκοπό τούτο «επιβλαβές» σημαίνει την συνθήκη που έχει εκτιμηθεί ή αποδειχθεί προκύπτουσα για κάθε δέμα ήτοι οι προβλεπόμενες δοκιμασίες στα περιθώρια 3635 και 3637 (1) έως 3) που ακολουθούνται απ' αυτή που προβλέπεται στο περιθώριο 3638, ήτοι των δοκιμασιών που προβλέπονται στα περιθώρια 3635 και 3637 (4) σύμφωνα με τον πιο περιοριστικό συνδυασμό. Θα θεωρήσουμε επίσης υδρογονωμένο μετριασμό (3) μεταξύ των δεμάτων και μια εισαγωγή νερού στο δέμα ή εκροή εκτός αυτού, συμβιβάσιμη με τα αποτελέσματα των δοκιμασιών και ανταποκρινόμενο στην πιο ισχυρή αντιδραστικότητα.

(3) Ο υδρογονωμένος μετριασμός μπορεί να θεωρηθεί σαν να ήταν ομοιόμορφο στρώμα ρευστού νερού που περικλύει κάθε δέμα ήτοι νερό (πάγο ή ατμό) μιας κατάλληλης πυκνότητας που διανέμεται με ομογενή τρόπο μεταξύ των δεμάτων.

3. Μοντέλα των δεμάτων για τα οποία μια πολύπλευρη έγκριση χρειάζεται:

Παράδειγμα 1

3615 Ο υπολογισμός πρέπει να γίνεται επί των εξής βάσεων.

α) Κάθε δέμα πρέπει να συμφωνεί με τα κριτήρια τα οποία αναγράφονται στα περιθώρια 3612 και 3613 (1).

β) Κάθε δέμα επιβλαβές ή όχι πρέπει να έχει κατασκευαστεί έτσι ώστε τα εύσχιστα υλικά που περιέχει να προστατεύονται από τα θερμικά νετρόνια.

γ) Όταν παράλληλη δέσμη νετρονίων που έχει φάσμα ενέργειας καθορισμένο στον πίνακα IV, προφθάνει ένα μη επιβλαβές δέμα υπό οποιαδήποτε γωνία προσπτώσεως ο παράγων πολλαπλασιασμού των επιθερμικών νετρονίων στην επιφάνεια, δηλαδή η σχέση μεταξύ του αριθμού των επιθερμικών νετρονίων που εκπέμπονται από το δέμα και ο αριθμός των επιθερμικών νετρονίων που εισέρχεται στο δέμα πρέπει να είναι έλασσον του 1 και το φάσμα των νετρονίων που εκπέμπεται από το εν λόγω δέμα, που θεωρούμε ότι αποτελεί μέρος ενός απεριορίστου συνόλου τέτοιων δεμάτων, δεν πρέπει να είναι πιο σκληρό από εκείνο των προσπιπτώντων νετρονίων.

δ) Το μοντέλο του δέματος πρέπει να είναι σύμφωνο με τα κριτήρια που αναγράφονται στο περιθώριο 3614(2).

Πίνακας IV

Ενεργητικό φάσμα των νετρονίων α

Ενέργεια νετρονίων Ε		Ποσοστό των νετρονίων που έχουν ενέργεια μικρότερη από Ε.
11.0	MeV	1.000
2,4	MeV	0,802
1,1	MeV	0,590
0,55	MeV	0,460
0,26	MeV	0,373
0,13	MeV	0,319
43	KeV	0,263
10	KeV	0,210
1,6	KeV	0,156
0,26	KeV	0,111
42	eV	0,072
5,5	eV	0,036
0,4	eV	0

α) Αυτό το φάσμα ανταποκρίνεται στο επιθερμικό μέρος του φάσματος στην κατάσταση ισορροπίας που εκπέμπει ένα δέμα περιέχοντας ένα ξύλινο κάλυμμα 5 εκ. πάχους και που αποτελεί μέρος ενός κριτικού συνόλου τέτοιων δεμάτων.

4. Μοντέλα των δεμάτων για τα οποία χρειάζεται μονομερής έγκριση.

Παράδειγμα 1

3616 1. Η συσκευασία κατασκευάζεται έτσι ώστε το εύσχιστο υλικό να περιτυλίγεται με ένα στρώμα ενός υλικού που μπορεί να απορροφά όλα τα θερμικά προσπίπτοντα νετρόνια, (αυτό το στρώμα μπορεί να είναι περιτύλιγμα κάδμιου τουλάχιστον 0,38 μμ πάχους ίσον με 0,325 γρ κάδμιο ανά τετρ. εκ.) και να περιτυλίγει τον ίδιο τον απορροφητήρα των νετρονίων με ένα πάχος τουλάχιστον 10,2 από ξύλο που να έχει περιεκτικότητα σε υδρογόνο τουλάχιστον 6,5% σε μάζα και η μικρότερη εξωτερική διάσταση του ξύλινου περιτυλίγματος αυτού δεν πρέπει να είναι μικρότερη από 30,5 εκ.

2. Η συσκευασία κατασκευάζεται με τέτοιο τρόπο ώστε αν είναι «επιβλαβής» («επιβλαβής» έχει εδώ την έννοια του περιθωρίου 3613(1)), το εύσχιστο υλικό παραμένει περιτυλιγμένο από το απορροφητικό στρώμα των νετρονίων, να παραμένει περιτυλιγμένος αυτός ο απορροφητής των νετρονίων, να μη ζημιωθεί το ξύλο σε σημείο τέτοιο που το υπόλοιπο πάχος να είναι μικρότερο από 9,2 εκ. ή η μικρότερη εξωτερική διάσταση του απομείναντος ξύλου να είναι μικρότερη από 28,5 εκ.

3. Το περιεχόμενο δεν πρέπει να υπερβαίνει τις παραδεκτέες μάζες ευσχίστου υλικού που αναφέρονται στους πίνακες V έως XIII συμβιβασμένο με:

α) Την φύση του υλικού.

β) Το μέγιστο μετριασμό και

γ) Τη μέγιστη διάμετρο (ή όγκο) που θα προέκυπτε αν η συσκευασία ήταν «επιβλαβής» (η λέξη «επιβλαβής» έχει εδώ την έννοια του περιθωρίου 3613(1)).

Σημείωση.

Ένας αναλυτικός υπολογισμός για ένα δεδομένο μοντέλο δέματος σύμφωνα με τη μέθοδο που εκτίθεται στο περιθώριο 3615 μπορεί να παραχωρήσει τιμές λιγότερο περιοριστικές από αυτές που αναφέρονται στους πίνακες V έως XIII.

Κεφάλαιο Α.6

Πίνακας V

Υδατικά Διαλύμματα φθοριούχο ουρανυλίο*) ή νιτρικό ουρανυλίο*)

Επιτρεπτέα μάζα ουρανίο ανά δέμα ανάλογα με την πυκνότητα του ξύλου της συσκευασίας

1. Περιορισμένη από τη μέγιστη επιτρεπτέα διάμετρο του εσωτερικού δοχείου														
Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (cm)	Πυκνότητα του ξύλου μην υπερβαίνοντα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	χγ ουράνιο ανά δέμα													
10,16 Απεριόριστο	Απεριόριστο													
	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,335	0,370	0,400	0,429	0,456	0,478	0,498
2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου														
Όγκο του εσωτερικού δοχείου μην υπερβαίνουν (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερο από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	χγ ουράνιο ανά δέμα													
2	0,152	0,380	0,66	1,01	1,47	2,00	2,60	3,50	4,64	6,04	7,62	9,39	11,3	13,3
3	0,084	0,223	0,416	0,65	0,93	1,25	1,58	1,96	2,34	2,74	3,16	3,57	3,99	4,42
4	0,084	0,120	0,157	0,193	0,231	0,274	0,356	0,498	0,73	1,05	1,47	2,02	2,70	3,55
5	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,495	0,57	0,66	0,74	0,84	0,92	1,02
7	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,347	0,406	0,467	0,53	0,60	0,66	0,73
Απεριόριστο	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,335	0,370	0,400	0,429	0,456	0,478	0,498

*) Ουράνιο μη περιέχοντα τον ισότοπο 233 και του οποίου η περιεκτικότητα σε ουράνιο 235 δεν υπερβαίνει 93,5% σε μάζα.

Κεφάλαιο Α6

Πίνακας VI

Μη υδρογονομένα συνθετά ή μείγματα ουράνιο *) του οποίου η συγκέντρωση σε ουράνιο-235 δεν υπερβαίνει 4,8γρ/κυβ. εκ **) (συμπεριλαμβανόμενο και μέταλλο ουράνιο του οποίου το ποσοστό εμπλουτισμού σε ουράνιο δεν υπερβαίνει 25% σε μάζα, χωρίς επιτρεπτέα μάζα ουράνιο ανά δέμα ανάλογα με την πυκνότητα του ξύλου της συσκευασίας

1. Περιορισμένη από τον μέγιστο εσωτερικό διάμετρο του εσωτερικού δοχείου						
Διάμετρος εσωτερικού διαμέτρου μην υπερβαίνουσα	Πυκνότητα του ξύλου μην υπερβαίνοντος 1,25γρ/κυβ. εκ όχι κατώτερα από 0,6					
(CM)	Kg ουράνιο ανά δέμα					
10,16				απεριόριστο		
απεριόριστη				0,69		
2. Περιορισμένη από τον μέγιστο όγκο του εσωτερικού δοχείου						
Όγκος του εσωτερικού δοχείου μην υπερβαίνουσα (1)	Πυκνότητα του ξύλου μην υπερβαίνοντος 1,25γρ/κυβ. εκ όχι κατώτερα από 0,65	0,7	0,75	0,8	0,25	0,9
	Kg ουράνιο ανά δέμα					
3	7,0	10,0	12,2	14,5	14,5	14,5
4	4,8	7,8	7,8	7,8	7,8	7,8
5	3,63	3,63	3,63	3,63	3,63	3,63
7	1,41	1,41	1,41	1,41	1,41	1,41
απεριόριστο	0,69	0,69	0,69	0,69	0,69	0,69

*) Ουράνιο μη περιέχον τον ισότοπο 233 και του οποίου η περιεκτικότητα σε ουράνιο δεν υπερβαίνει 93,5% σε μάζα.

**) Τα μείγματα περιέχοντας βηρύλλιο ή δευτέριο αποκλείονται και η μάζα άνθρακα δεν πρέπει να είναι πλέον από 5 φορές ανώτερο στην μάζα ουρανίου.

Κεφάλαιο Α.6

Πίνακας VII

Μη υδρογονομένα σύνθετα ή μείγματα ουρανίου*) του οποίου η συγκέντρωση σε ουράνιο-235 δεν υπερβαίνει 9,6 γρ/κυβ. εκ (συμπεριλαμβανομένου το μέταλο ουράνιο του οποίου το ποσοστό εμπλουτισμού σε ουράνιο-235 δεν υπερβαίνι 50% σε μάζα χωρίς επιβαδυνής) Επιτρεπτέα μάζα ουράνιο ανά δέμα ανάλογο με την πυκνώτητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου

Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (Ex)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερο από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	Kg ουράνιο ανά δέμα													
7,5	Απεριόριστο													
8	6	Απεριόριστο												
8,5	6	7	8	Απεριόριστο										
9	6	7	8	9,2	10	11	Απεριόριστο							
9,5	6	7	8	9,2	10	11	12	14	15	Απεριόριστο				
10	6	7	8	9,2	10	11	12	14	15	16	17	17	17	19
Απεριόριστη	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου

Όγκο του εσωτερικού δοχείου μην υπερβαίνον (1)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερο από							
	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0
	χγ ουράνιο ανά δέμα							
3	7	8	9,2	10	11	12	14	14,5
4	4,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8
5	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63
7	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41
απεριόριστο	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69

*) Ουράνιο μη περιέχον τον ισότοπο 233 και του οποίου η περιεκτικότητα σε ουράνιο-235 δεν υπερβαίνει 93,5% σε μάζα.

**) Τα μείγματα περιέχοντας βηρύλλιο ή δευτέριο αποκλείονται και η μάζα άνθρακα δεν πρέπει να είναι πλέον από 5 φορές ανώτερη από την επιτρεπτέα μάζα ουρανίου.

Κεφάλαιο Α.6

Πίνακας VIII

Ουράνιο*) μέταλλο χωρίς επιβραδυντές

Επιτρεπτέα μάζα ουρανίου ανά δέμα ανάλογα με την πυκνότητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο της εσωτερικής διαμέτρου

Διάμετρο του εσωτερικού δοχείου μην υπερβαίνοντας (cm) (εκ)	Πυκνότητα του ξύλου μην υπερβαίνοντας 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	kg ουράνιο ανά δέμα													
6									Απεριόριστη					
6,5	6	7							Απεριόριστη					
7	6	7	8	9,2	10					Απεριόριστη				
7,5	6	7	8	9,2	10	11	12	14	15	16	17	17	17	19
10	6	7	8	9,2	10	11	12	14	15	16	17	17	17	19
Απεριόριστη	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69
Απεριόριστη**)	6	7	8	9,2	10	11	12	14	15	16	17	17	17	19

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου

Όγκο της εσωτερικής διαμέτρου μην υπερβαίνουσα (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. , όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	kg ουράνιο ανά δέμα													
2	6	7	8	9,02	10	11	12	14	15	16	17	17	17	19
3	6	7	8	9,02	10	11	12	14	14,5	14,5	14,5	14,5	14,5	14,5
4	6	7	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8
5	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63	3,63
7	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41
Απεριόριστη	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69
Απεριόριστη**)	6	7	8	9,2	10	11	12	14	15	16	17	17	17	19

*) Ουράνιο μη περιέχον το ισότοπο 233 και του οποίου η περιεκτικότητα σε ουράνιο–235 δεν υπερβαίνει 93,5% σε μάζα.

**) Αυτές οι πιο σημαντικές μάζες επιτρέπονται όταν το εύσχιστο προϊόν παρουσιάζεται υπό την μορφή κομματιών γεμάτα (μασίφ) μέταλλα μην ζυγίζοντας λιγότερο από 2 χγ. έκαστον και των οποίων οι επιφάνειες είναι απηλλαγμένες από εισαγωγικά τμήματα.

Κεφάλαιο Α.6

Πίνακας IX

Σύνθετα ή μείγματα ουράνιου*) των οποίων η συγκέντρωση σε ουράνιο δεν υπερβαίνει $\frac{26,44}{H/U+1,41}$ γρ./κυβ. εκ.

Επιτρεπτέα μάζα ουρανίου ανά δέμα ανάλογη με την πυκνότητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου

Διάμετρο του εσωτερικού δοχείου μην υπερβαίνοντα (εκ)	Πυκνότητα του ξύλου μην υπερβαίνοντας 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	kg ουράνιο ανά δέμα													
6							Απεριόριστο							
6,5	2,80	6,0						Απεριόριστο						
7	2,80	6,0	6,0	6,0	6,0					Απεριόριστο				
7,5	2,80	6,0	6,0	6,0	6,0	6,0	6,0	14	15	15,2	15,2	15,2	15,2	15,2
10	0,330	0,87	1,10	1,80	2,50	3,50	4,6	7,1	7,7	9,6	11,6	13,8	16,1	18,3
Απεριόριστο	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,335	0,370	0,400	0,429	0,456	0,478	0,498

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου

Όγκο του εσωτερικού δοχείου μην υπερβαίνοντας (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	kg ουράνιο ανά δέμα													
2	0,152	0,380	0,66	1,01	1,47	2,00	2,66	3,50	4,64	6,04	7,62	9,39	11,3	13,3
3	0,084	0,223	0,416	0,65	0,93	1,25	1,58	1,96	2,34	2,74	3,16	3,57	3,99	4,42
4	0,084	0,120	0,157	0,193	0,231	0,274	0,356	0,498	0,73	1,05	1,47	2,02	2,70	3,55
5	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,495	0,57	0,60	0,74	0,84	0,92	1,02
7	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,347	0,406	0,467	0,53	0,60	0,66	0,73
Απεριόριστο	0,084	0,120	0,157	0,193	0,231	0,267	0,301	0,335	0,370	0,400	0,429	0,456	0,478	0,498

*) Ουράνιο μη περιέχον το ισότοπο 233 και του οποίου η περιεκτικότητα σε ουράνιο-235 δεν υπερβαίνει 93,5% σε μάζα.

Κεφάλαιο Α.6

Πίνακας Χ

Μη υδρογονομένα σύνθετα ή μείγματα πλουτωνίου του οποίου η συγκέντρωση σε πλουτώνιο-239 δεν υπερβαίνει 10γρ/κυβ. εκ.* επιτρεπτέα μάζα πλουτωνίου ανά δέμα ανάλογα με την πυκνότητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου										
Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (cm)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από									
	0,6	0,65	0,7	0,75	0,8	0,95	1,05	1,1	1,15	1,25
	Χγ πλουτώνιο ανά δέμα									
6					απεριόριστο					
6,5	3,60	4,2				απεριόριστο				
7	3,60	4,2	4,7	5,3			Απεριόριστο			
7,5	3,60	4,2	4,7	5,3	5,9	7,1		Απεριόριστο		
10	3,60	4,2	4,7	5,3	5,9	7,1	8,1	8,3	8,6	8,9
Απεριόριστο	0,405	0,405	0,405	0,405	0,405	0,405	0,405	0,405	0,405	0,405

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου					
Όγκο του εσωτερικού δοχείου μην υπερβαίνον (1)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από				
	0,6	0,65	0,7	0,75	0,8
	kg πλουτώνιο ανά δέμα				
3	3,60	4,2	4,7	5,3	5,9
4	3,60	3,84	3,84	3,84	3,84
5	2,44	2,44	2,44	2,44	2,44
7	1,20	1,20	1,20	1,20	1,20
απεριόριστο	0,405	0,405	0,405	0,406	0,405

*) Τα μείγματα περιέχοντας βηρύλλιο ή δευτέριο αποκλείονται και η μάζα άνθρακα δεν πρέπει να είναι ανώτερη από 1/10 της μάζας επιτρεπτού πλουτωνίου.

Κεφάλαιο Α.6

Πίνακας XI

Μέταλλο πλουτωνίου χωρίς επιβραδυντές

Επιτρεπτέα μάζα πλουτωνίου ανά δέμα ανάλογα με την πυκνότητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου						
Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (cm)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από 0,6	0,65	0,7	0,75	0,8	0,25
	Kg πλουτώνιο ανά δέμα					
4	3,20			απεριόριστη		
10	3,20	3,60	3,90	4,2	4,4	4,5
απεριόριστο	0,405	0,405	0,405	0,405	0,405	0,405
απεριόριστο*	3,20	3,60	3,90	4,2	4,4	4,5
2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου						
Όγκο του εσωτερικού δοχείου μην υπερβαίνον (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. 0,6	0,65	0,7	0,75	0,8	0,85
	kg πλουτώνιο ανά δέμα					
3	3,20	3,60	3,90	4,2	4,4	4,5
4	3,20	3,60	3,84	4,84	3,84	3,84
5	2,44	2,44	2,44	2,44	2,44	2,44
7	1,20	1,20	1,20	1,20	1,20	1,20
απεριόριστο	0,405	0,405	0,405	0,406	0,405	0,405
απεριόριστο	3,20	3,60	3,90	4,2	4,4	4,5

*) Αυτές οι πιο σημαντικές μάζες επιτρέπονται όταν το εύσχιστο προϊόν παρουσιάζεται υπό μορφή κομματίων γεμάτα (μασίφ) μέταλλα που δεν ζυγίζουν λιγότερο από 2 χγ. έκαστον, και των οποίων οι επιφάνειες είναι απηλλαγμένες από εισαγωγικά τμήματα.

Κεφάλαιο Α.6

Πίνακας XII

Σύνθετα ή μείγματα πλουτώνιου των οποίων η συγκέντρωση σε πλουτώνιο δεν υπερβαίνει $\frac{26,55}{H/Fu+1,35}$ g/cm³

Επιτρεπτέα μάζα πλουτωνίου ανά δέμα ανάλογα με την πυκνότητα του ξύλου της συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου

Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (cm)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	χγ πλουτώνιο ανά δέμα													
4									Απεριόριστη					
5	3,2	3,60	3,90	4,2	4,4					Απεριόριστη				
6	2,80	3,60	3,90	4,2	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
6,5	2,50	3,40	3,80	4,2	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
7	2,20	3,10	3,70	4,2	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
7,5	1,90	2,70	3,40	4,1	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
8	1,60	2,30	3,0	3,80	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
8,5	1,30	1,80	2,40	3,20	3,80	4,3	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
9	0,97	1,30	1,80	2,40	3,0	3,40	3,60	3,80	4,0	4,2	4,4	4,4	4,4	4,4
9,5	0,65	0,88	1,20	1,50	1,90	2,20	2,40	2,60	2,80	3,10	3,60	4,4	4,4	4,4
10	0,330	0,42	0,50	0,58	0,70	0,83	0,99	1,20	1,50	1,90	2,70	3,90	4,5	4,5
Απεριόριστη	0,022	0,053	0,084	0,114	0,143	0,171	0,199	0,226	0,250	0,274	0,294	0,311	0,327	0,339

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου

Όγκος του εσωτερικού δοχείου μην υπερβαίνων (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ.													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	kg πλουτώνιο ανά δέμα													
2	0,152	0,309	0,52	0,80	1,16	1,59	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
3	0,047	0,133	0,247	0,380	0,700	0,76	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
4	0,022	0,076	0,095	0,133	0,700	0,700	0,700	0,700	0,700	0,89	1,19	1,55	1,98	2,47
5	0,022	0,053	0,085	0,118	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700
7	0,022	0,053	0,084	0,114	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700	0,700
Απεριόριστο	0,022	0,053	0,084	0,114	0,143	0,171	0,199	0,226	0,250	0,274	0,294	0,311	0,327	0,339

Κεφάλαιο Α.6

Πίνακας XIII

Υδατικά διαλύματα νιτρικού ουράνιου-233 ή φθοριούχου ουρανίου-233
Επιτρεπτέα μάζα ουράνιου ανά δέμα ανάλογα με την πυκνότητα του ξύλου συσκευασίας

1. Περιορισμένη από τη μέγιστη εσωτερική διάμετρο του εσωτερικού δοχείου

Διάμετρο του εσωτερικού δοχείου μην υπερβαίνουσα (cm)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ. και όχι κατώτερη από													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	χγ ουράνιο ανά δέμα													
9									Απεριόριστο					
9,5	0,035	0,067							Απεριόριστο					
10	0,035	0,067	0,100							Απεριόριστο				
	0,035	0,067	0,100	0,134	0,169	0,200	0,231	0,261	0,289	0,316	0,340	0,361	0,371	0,391

2. Περιορισμένη από το μέγιστο εσωτερικό όγκο του εσωτερικού δοχείου

Όγκο του εσωτερικού δοχείου μην υπερβαίνων (l)	Πυκνότητα του ξύλου μην υπερβαίνουσα 1,25 γρ./κυβ. εκ.													
	0,6	0,65	0,7	0,75	0,8	0,85	0,9	0,95	1,0	1,05	1,1	1,15	1,2	1,25
	χγ ουράνιο ανά δέμα													
2	0,152	0,309	0,475	0,71	0,99	1,53	1,71	2,11	2,54	2,99	3,44	3,94	4,41	4,8
3	0,085	0,133	0,180	0,228	0,285	0,332	0,389	0,446	0,50	0,56	0,60	0,67	0,73	0,78
4	0,085	0,109	0,133	0,175	0,213	0,256	0,304	0,356	0,408	0,460	0,51	0,57	0,63	0,69
5	0,035	0,076	0,114	0,152	0,190	0,223	0,256	0,292	0,323	0,356	0,389	0,422	0,451	0,484
7	0,035	0,073	0,109	0,142	0,175	0,204	0,235	0,263	0,289	0,318	0,342	0,368	0,394	0,420
Απεριόριστο	0,035	0,067	0,100	0,134	0,169	0,200	0,231	0,261	0,289	0,316	0,340	0,361	0,377	0,391

Δ. Ειδικές διατάξεις σχετικά με τα δέματα της εύσχιστης κλάσης ΙΙ.

(1) Κάθε δέμα της εύσχιστης κλάσης ΙΙ πρέπει να κατασκευάζεται με τέτοιο τρόπο ώστε υπό των συνθηκών που θα προέκυπταν από τις δοκιμασίες που προβλέπονται στο περιθώριο 3635. 3617

α. Τον όγκο και κάθε διάσταση, βάσει των οποίων, η πυρηνική ασφάλεια έχει υπολογιστεί για τους σκοπούς του περιθωρίου 3619α) να μην μειώνεται πλέον του 5% και η κατασκευή του δέματος να μην επιτραπεί να εισέλθει κύβος με 10 εκ πλευρό.

β. Το νερό να μην μπορέσει να εισέλθει σε κανένα μέρος του δέματος ούτε να εκρέει, εκτός αν η εισαγωγή του νερού στο μέρος αυτό ή η εκροή υπό των μέγιστων προβλεπομένων συνθηκών, επετράπη όταν ο παραδεκτός αριθμός καθορίστηκε για τους σκοπούς του περιθωρίου 3619 α)

γ. Η διαμόρφωση του περιεχομένου και η γεωμετρία του οριακού περιτυλίγματος να μη τροποποιούνται στο σημείο που να αυξηθεί αισθητά η αντιδραστικότητα.

(2) Τα δέματα της εύσχιστης κλάσης ΙΙ πρέπει να πληρούν τα κριτήρια πυρηνικής ασφάλειας που αναγράφονται στα περιθώρια 3618 και 3619.

Ι. Για το μεμονωμένο δέμα.

(1) Θα πάρουμε σαν υποθέσεις τις εξής προϋποθέσεις. 3618

α. Το δέμα είναι «επιβλαβές». Η λέξη «επιβλαβές» σημαίνει εδώ την συνθήκη, που εκτιμάται ή αποδεικνύεται και η οποία προκύπτει για το δέμα εκ των δοκιμασιών που αναφέρονται στα περιθώρια 3635 και 3637 (1) έως (3), που ακολουθούνται από εκείνες που προβλέπονται στο περιθώριο 3638 ήτοι τις δοκιμασίες που προβλέπονται στα περιθώρια 3635 (4) σύμφωνα με τον πιό περιοριστικό συνδιασμό και

β. Το νερό μπορεί να εισέλθει ή να εκρέει από όλα τα κενά διαστήματα των δεμάτων, συμπεριλαμβανομένων και αυτών που βρίσκονται μέσα στο οριακό περιτύλιγμα. Όμως αν το μοντέλο του δέματος συμπεριλαμβάνει ειδικά χαρακτηριστικά προοριζόμενα να εμποδίζουν αυτήν την εισαγωγη ή την εκροή νερού μέσα ή εκτός μερικών κενών διαστημάτων, ακόμη και μετά από ανθρώπινο λάθος, θα παραδεχθούμε ότι δεν υπάρχει εισαγωγή ούτε εκροή νερού.

Αυτά τα ειδικά χαρακτηριατικά μπορούν να είναι

ι. Πολλαπλά στεγανά φράγματα υψηλής ποιότητας, των οποίων η κάθε μία θα διατηρούσε την αποτελεσματικότητα της αν το δέμα θα υποβαλόταν στους συνδυασμούς δοκιμασίας που προβλέπονται στο εδάφιο (Ι) α) ή

ιι. Ένας αυστηρός έλεγχος της ποιότητας στην κατασκευή και διατήρηση της συσκευασίας συνδυασμένος με ειδικές δοκιμασίες για να αποδεικνύεται το κλείσιμο κάθε δέματος πριν από την αποστολή.

(2) Το δέμα πρέπει να είναι υπο-κριτική με επαρκές περιθώριο (βλέπε σημ. στη σελ 2) υπό των συνθηκών που προβλέπονται στην παράγραφο (1) λαμβάνοντας υπ' όψη και τα φυσικά και χημικά χαρακτηριστικά, συμπεριλαμβανομένης και κάθε τροποποίησης των χαρακτηριστικών αυτών που θα μπορούσε να παραχθεί υπό συνθήκες της παραγρ (1) και υπό τις εξής συνθήκες του μετριασμού και της αντανάκλασης

α. με το υλικό εντός του ορισμού περιτυλίγματος

ι. Διαμόρφωση και ελάττωση των πιό αντιδραστικών που μπορούν να θεωρηθούν υπό τις συνθήκες της παραγράφου (1).

ιι. Πλήρης αντανάκλαση από το νερό γύρω από το οριακό περιτύλιγμα ή τέτοια μεγαλύτερη αντανάκλαση γύρω από το περιτύλιγμα αυτό, που θα μπορούσε να επιφερθεί από τα ίδια τα υλικά συσκευασίας και

β. Αν οποιοδήποτε τμήμα του υλικού διαφεύγει από το οριακό περιτύλιγμα κατά τις συνθήκες της παραγράφου (1).

ι. Διαμόρφωση και μετρίαση των πιό αντιδραστικών που θεωρούνται πιθανά

ιι. Πλήρης αντανάκλαση από το νερό γύρω από το υλικό αυτό.

2. Για την αποστολή ενός ή περισσοτέρων δεμάτων.

Ένας «παραδεκτός αριθμός» πρέπει να υπολογισθεί για κάθε μοντέλο δέματος της εύσχιστης κλάσης ΙΙ όπως» 3619

α. Ένα σύνολο δεμάτων μη επιβλαβές ίσον με πέντε φορές τον παραδεκτέο αριθμό, πρέπει να παραμείνει υποκριτική.

Τα δέματα έχοντας στοιβαχθεί μαζί με οποιαδήποτε διευθέτηση, χωρίς ξένη ουσία μεταξύ τους και θεωρούμενα με ένα αντανακλαστήρα από υλικό ισότιμο του νερού σ' όλες τις πλευρές του συνόλου αυτού.

Για τον σκοπό αυτό μή «επιβλαβές» σημαίνει την κάτασταση κάτω από την οποία τα δέματα κατασκευάζονται για να παρουσιάζονται για μεταφορά.

β. Ένα σύνολο επιβλαβών δεμάτων ίσον με δύο φορές τον παραδεκτέο αριθμό, πρέπει να παραμείνει υπο-κριτική, τα δέματα έχοντας στοιβαχτεί μαζί με οποιαδήποτε διευθέτηση, με αντανακλαστήρα από υλικό ισότιμο στο νερό, σε όλες τις πλευρές του συνόλου αυτού. Για τον σκοπό αυτό «επιβλαβές» σημαίνει την συνθήκη που εκτιμήθηκε ή που αποδείχηκε προκύπτουσα για κάθε δέμα ήτοι τις δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637 (1) έως (3), παρακολουθεί αυτή που προβλέπεται στο περιθώριο 3638, ήτοι τις δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637(4) σύμφωνα με τον πιό περιοριστικό συνδυασμό. Θα θεωρήσουμε επίσης ένα υδρογονομένο μετριασμό 3) μεταξύ των δεμάτων και μία εισαγωγή νερού στα δέματα ή εκροή απ' αυτά συμβιβάσιμη με τα αποτελέσματα των δοκιμασιών και ανταποκρινόμενες στην ισχυρότερη αντιδραστικότητα.

3. Μοντέλα δεμάτων για τα οποία η έγκριση μιας αρμόδιας αρχής δεν απαιτείται.

Παράδειγμα 1 (χρήζον την πολύπλευρη έγκριση της αποστολής)

Για τα δέματα της εύσχιστης κλάσης ΙΙ, δεν απαιτείται να εκγριθεί το μοντέλο του δέματος από αρμόδια αρχή, αν οι εξής προϋποθέσεις έχουν πληρωθεί. 3620

α. Συσκευασία. Η ασφάλεια των αποστολών αυτών από άποψη κριτικότητας, δεν εξαρτάται από την ολοκλήρωση της συσκευασίας.

Μπορούμε λοιπόν να χρησιμοποιήσουμε κάθε συσκευασία που πληρεί τις άλλες κατάλληλες προϋποθέσεις της κλάσης 7, όσον αφορά τα χαρακτηριστικά των μη εύσχιστων ραδιοενεργών ουσιών.

Β. Περιεχόμενο εκάστης αποστολής που περιέχει τον «παραδεκτέο αριθμό» των δεμάτων δεν πρέπει να είναι ανώτερο από την παραδεκτέα μάζα ουρανιο-235 ανά αποστολή, η οποία αναφέρεται στον πίνακα XIV ανάλογα με τν εμπλουτισμό για τις ουσίες που πληρούν τις εξής προϋποθέσεις

ι. Το ουράνιο 233 δεν πρέπει να είναι παρόν

ιι. Το βηρύλλιο ούτε καμία υδρογονωμένη ουσία εμπλουτισμένη με δευτέριο δεν πρέπει να είναι παρόντα.

ιιι. Η συνολική παρούσα μάζα γραφίτη δεν πρέπει να είναι πλέον από 150 φορές ανώτερη στη συνολική μάζα ουρανίου-235.

ιν. Κανένα μείγμα εύσχιστου υλικού με πιό πυκνά υλικά σε υδρογόνο από νερό πχ μερικοί υδρογονάνθρακες δεν πρέπει να είναι παρόντα.

Η χρήση πολυαιθυλενίου για την συσκευασία επιτρέπεται.

Πίνακας XIV

Επιτρεπτέα μάζα ουρανίου - 235 ανά αποστολή

Εμπλουτισμός του ουρανίου σε μάζα, εκφραζόμενο σε ποσοστό ουρανίου 235, μη υπερβαίνον	Επιτρεπτέα μάζα ανά αποστολή γραμμάρια ουρανίου - 235
93	160
75	168
60	176
40	184
30	192
20	208
15	224
11	240
10	256
9,5	262
9	270
8,5	276
8	284
7,5	294
7	300
6,5	312
6	324
5,5	340
5	360
4,5	380
4	400
3,5	440
3	500
2,5	600
2	820
1,5	1360
1,35	1600
1	3400
0,92	6000

γ. Περιεχόμενο-ουράνιο μέταλλο, σύνθετα ή μείγματα που δεν παρουσιάζονται υπό μορφή δικτύων.

Το περιεχόμενο εκάστης αποστολής που αποτελείται από τον «παραδεκτέο αριθμό» δεμάτων, δεν πρέπει να είναι ανώτερο από την παραδεκτέα μάζα ουράνιο-235 ανα αποστολή η οποία αναγράφεται στον πίνακα XV ανάλογα με τον εμπλουτισμό για τα υλικά που πληρούν τις εξής προϋποθέσεις.

ι. Το ουράνιο-235 δεν πρέπει να είναι παρόν

ιι. Το βηρύλλιο ούτε καμία εμπλουτισμένη υδρογονωμένου ουσία με δευτέριο δεν πρέπει να είναι παρόντα.

ιιι. Η συνολική παρούσα μάζα γραφίτη δεν πρέπει να είναι 150 φορές ανώτερη στη συνολική μάζα ουρανίου-235.

ιν Κανένα μείγμα εύσχιστων υλικών με πιο πυκνά υλικά σε υδρογόνο, από νερό πχ μερικοί υδρογονάνθρακες, δεν πρέπει να είναι παρόντες.

V Τα εύσχιστα υλικά πρέπει να διανέμονται με ομογενή τρόπο στο περιεχόμενο. Επιπλέον τα υλικά δεν πρέπει να διαθέτονται σε δίκτυο στο δέμα.

Πίνακας XV

Επιτρεπτέα μάζα ουρανίου - 235 ανά αποστολή

Εμπλουτισμός του ουρανίου σε μάζα, εκφραζόμενο σε ποσοστό ουρανίου 235, μη υπερβαίνον	Παραδεκτέα μάζα ανά αποστολή γραμμάρια ουρανίου-235
4	420
3,5	460
3	560
2,5	740
2	1200
1,5	2800
1,35	4000

δ. Περιεχόμενο «Ουράνιο μέταλλο ή πλουτώνιο μέταλλο, συνθέσεις ή μείγματα «Τα υλικά πρέπει να ανταποκρίνονται στις εξής προϋποθέσεις.

ι. Το βηρύλλιο ούτε κανένα άλλο αμπλουτισμένο σε δευτέριο υδρογωνομένο υλικό δεν πρέπει να είναι παρόντα.

ιι. Η συνολική μάζα του παρόντος γραφίτη δεν πρέπει να είναι πλέον των 150 φορών ανώτερη στη συνολική μάζα ουρανίου ή πλουτωνίου.

ιιι. Κανένα μείγμα εύσχιστων υλικών με πιο πυκτά σε υδρογόνο από νερό υλικά πχ μεικοί υδρογονάνθρακες, δεν πρέπει να είναι παρόν.

Η χρήση πολυαιθυλενίου για την συσκευασία επιτρέπεται.

Η συνολική μάζα εύσχιστων υλικών ανα αποστολή πρέπει να είναι τοιαύτη ώστε:

$$\frac{235U_{\text{γρ}}}{160} \;\&\; \frac{PU\ (\text{γρ})}{90} \;\&\; \frac{233U(\text{γρ.})}{100} \quad \text{να μην είναι μεγαλύτερα από 1.}$$

ε) Παραδεκτέος αριθμός «Ο παραδεκτέος αριθμός για ένα ορισμένο δέμα ανταποκρίνεται στην ιδιαιτερότητα αυτή, εξαρτάται από το πραγματικό περιεχόμενο και είναι ίσος με το όριο της εύσχιστης μάζας ανα αποστολή διαιρούμενος από την εύσχιστη μάζα την πραγματικά παρούσα στο δέμα.

Στην περίπτωση των μειγμάτων νουκλειδών που στοχεύονται στο

δ) ως άνω ο παραδεκτός αριθμός είναι ίσος:

$$\frac{160}{235U + 1.6 \times 233U + 1.778 \times PU}$$

235U, 233U και Pu είναι ο αριθμός γραμμαρίων.
235U, 233U, και Pu παρόντα στο δέμα.

Αν το δέμα αποτελεί μέρος μιας αποστολής δεμάτων διαφόρων μοντέλων, οι προϋποθέσεις του σημείου 1) του περιθωρίου 2700(2) πρέπει να τηρούνται.

ζ) Η αποστολή υπόκειται σε πολύπλευρη έγκριση.

Ε. Ειδικές διατάξεις που αφορούν το δέμα της εύσχιστης κλάσσης III.

Τα δέματα της εύσχιστης κλάσης III πρέπει να πληρούν τις γενικές διατάξεις του περιθωρίου 3611 και να εγκρίνονται σύμφωνα με τα περιθώρια 3674 και 3675. 3621

Ι. Μοντέλα δεμάτων για τα οποία απαιτείται μονόπλευρη έγκριση.

Παράδειγμα 1 (χρήζον την πολύπλευρη έγκριση αποστολής)

Για τα δέματα που ανταποκρίνονται στις κατωτέρω ιδιαιτερότητες, μόνον μία μονόπλευρη έγκριση του μοντέλου δέματος απαιτείται αν οι εξής προϋποθέσεις έχουν πληρωθεί». 3622

α. Ο αριθμός δεμάτων σε μια και ίδια αποστολή πρέπει να περιορίζεται έτσι ώστε

ι. Ένα σύνολο δεμάτων μη επιβλαβές ίσον με δύο φορές αυτό τον αριθμό παραμένουν υπο-κριτική αν τα δέματα στοιβάζονται με οποιαδήποτε διευθέτηση, χωρίς ξένη ύλη μεταξύ τους με άμεση γειτνίαση ένα ανταλακλαστήρα από υλικό ισότιμο στο νερό σε όλες τις πλευρές του συνόλου αυτού. Για το σκοπό αυτό «μη επιβλαβές» σημαίνει τη συνθήκη κάτω από την οποία τα δέματα κατασκευάζονται για να παρουσιαστούν για τη μεταφορά.

ιι. Ένα σύνολο δεμάτων «επιβλαβή» ίσο με τον αριθμό αυτό παραμένουν υπο-κριτική, τα δέματα στοιβάζονται σε οποιαδήποτε θέση και στην άμεση γειτονιά ενός ανταναακλαστήρα από ισότιμο υλικό στο νερό, σ' όλες τις πλευρές του συνόλου αυτού. Για το σκοπό αυτό «επιβλαβές» σημαίνει τη συνθήκη που έχει εκτιμηθεί ή αποδειχθεί προκύπτουσα για κάθε δέμα ήτοι για δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637 (1) έως (3) που ακολουθεί αυτή την προβλεπόμενη στο περιθώριο 3638 ήτοι, δοκιμασίες που προβλέπονται στα περιθώρια 3635 και 3637 (4) σύμφωνα με το πιο περιοριστικό συνδυασμό. Θα θεωρήσουμε επίσης ένα υδρογονωμένο μετριασμό 3) μεταξύ των δεμάτων και μία εισαγωγή νερού στο δέμα ή μια εκροή εκτός αυτού, συμβιβάσιμο με τα αποτελέσματα των δοκιμασιών και ανταποκρινόμενα στην πιο ισχυρή αντιδραστικότητα.

Β. Η αποστολή αυτών των δεμάτων γίνεται μόνον στη βάση εγκεκριμμένων συμφωνιών από τις αρμόδιες αρχές σύμφωνα με το περιθώριο 3675 για να αποφευχθεί η φόρτωση η μεταφορά και η αποθήκευση αυτών των δεμάτων με άλλα δέματα ραδιο-ενεργών υλών με επικέττα.

2. Μοντέλα δεμάτων εύσχιστων υλικών για τα οποία η έγκριση από αρμόδια αρχή δεν απαιτείται.

Παράδειγμα 1 (χρήζον πολύπλευρης έγκρισης της μεταφοράς).

Για τα δέματα της εύσχιστης κλάσης ΙΙΙ καμμία έγκριση του μοντέλου του δέματος δεν χρειάζεται αν οι εξής προϋποθέσεις πληρούνται. 3626

α. Το δέμα εγκρίνεται σαν δέμα της εύσχιστης κλάσης ΙΙ και ο αριθμός αυτών των δεμάτων σε μία ίδια αποστολή δεν υπερβαίνει το διπλό του παραδεκτέου αριθμού με τον οποίο συνδέεται η έγκριση για την εύσχιστη κλάση ΙΙ.

β. Η αποστολή των δεμάτων αυτών γίνεται μόνον βάσει εγκεκριμμένων συμφωνιών από τις αρμόδιες αρχές σύμφωνα με το περιθώριο 3675 για να αποφευχθεί το φόρτωμα η μεταφορά και η αποθήκευση αυτών των δεμάτων με άλλα δέματα των εύσχιστων κλάσεων ΙΙ και ΙΙΙ.

Αυτές οι συμφωνίες μπορούν να προβλέψουν π.χ.

ι. να μη μεταφερθεί κανένα άλλο δέμα των ραδιο-ενεργών υλών με ετικέττα με αποστολή στο ίδιο όχημα και

ιι. να μεταφερθεί η αποστολή αμέσως στον προορισμό χωρίς καμμία αποθήκευση κατά τη μεταφορά ή να επιβληθούν έλεγχοι και γι αυτό το σκοπό να υπάρχει συνοδηγός για να αποφευχθεί η στοίβαξη ή η τοποθέτηση αυτών των θεμάτων της αποστολής δίπλα σε άλλα δέματα με ραδιο-ενεργές ύλες μετά από ατύχημα ή οιαδήποτε άλλη στιγμή.

Ο συνοδηγός πρέπει να ταξειδεύει σε άλλο όχημα.

Παράδειγμα ΙΙ (χρήζον πολλαπλής έγκρισης αποστολής)

Για τα δέματα της εύσχιστης κλάσης ΙΙΙ καμμία έγκριση του μοντέλου του δέματος δεν χρειάζεται αν οι εξής προϋποθέσεις πρέπει να πληρούνται. 3624

α. Συσκευασία. Η ασφάλεια αυτών των αποστολών από άποψη κτητικότητας δεν εξαρτάται από την ολότητα της συσκευασίας.

Μπορούμε λοιπόν να χρησιμοποιήσουμε κάθε συσκευασία που ικανοποιεί τις άλλες κατάλληλες προϋποθέσεις του παρόντος, εφόσον δεν έχει μολύβδινο κάλυμμα πάχους ανώτερο από 5 εκ. από τουγκεστένιο ή ουράνιο.

β. Περιεχόμενο - ουράνιο μέταλλο σύνθετα ή μείγματα. Το περιεχόμενο κάθε αποστολής δεν πρέπει να είναι ανώτερο από την παραδεκτέα μάζα ουρανίου – 235 ανά αποστολή αναγραφόμενη στον πίνακα XVI για τα υλικά που πληρούν τις εξής προϋποθέσεις.

ι. το ουράνιο – 233 δεν πρέπει να είναι παρόν.

ιι. το βηρύλλιο ούτε κανένα εμπλουτισμένο σε δευτέριο υδρογονωμένο υλικό δεν πρέπει να είναι παρόντα.

ιιι. Η συνολική μάζα του παρόντος γραφίτη δεν πρέπει να είναι πλέον από 150 φορές ανωτέρα από τη συνολική μάζα ουρανίου – 235.

IV Κανένα μείγμα εύσχιστων υλών με υλικά πιο πυκνά σε υδρογόνο από το νερό π.χ. μερικοί υδρογονάνθρακες δεν πρέπει να είναι παρόντες. Η χρήση πολυαιθυλενίου για τη συσκευασία επιτρέπεται.

ΠΙΝΑΚΑΣ XVI

Επιτρεπτέα μάζα ουρανίου – 235 ανά αποστολή

Εμπλουτισμός του ουρανίου σε μάζα εκφραζόμενο σε ποσοστό ουρανίου - 235 που δεν υπερβαίνει	Επιτρεπτέα μάζα ανά αποστολή γραμμάρια ουρανίου - 235
93	400
75	420
60	440
40	460
30	480
20	520
15	560
11	600
10	640
9,5	655
9	675
8,5	690
8	710
7,5	730
7	750
6,5	780
6	810
5,5	850
5	900
4,5	950
4	1000
3,5	1100
3	1250
2,5	1500
2	2050
1,5	3400
1,35	4000
1	8500
0,9	15000

γ. Περιεχόμενο - ουράνιο μέταλλο, σύνθετα ή μείγματα που δεν παρουσιάζονται υπό τη μορφή δικτύου.

Ο πίνακας – XVII αναγράφει την επιτρεπτέα μάζα ουρανίου - 235 ανά αποστολή ανάλογα με τον εμπλουτισμό για τα υλικά που πληρούν τις εξής προϋποθέσεις:

I. Το ουράνιο - 233 δεν πρέπει να είναι παρόν.

ιι. Το βηρύλλιο ούτε καμμία υδρογονωμένη ουσία εμπλουτισμένη από δευτέριο δεν πρέπει να είναι παρόν.

ιιι. Η συνολική μάζα του παρόντος γραφίτη δεν πρέπει να είναι πλέον από 150 φορές ανώτερη στη συνολική μάζα ουρανίου - 235.

IV. Κανένα μείγμα εύσχιστων υλικών μαζί με υλικά πιο πυκτά σε υδρογόνο από το νερό π.χ. μερικών υδατανθράκων δεν πρέπει να είναι παρόντα. Η χρήση πολυαιθυλενίου για τη συσκευασία επιτρέπεται.

V. Τα εύσχιστα δεν πρέπει να τοποθετούνται σε δίκτυο μέσα στο δέμα.

Πίνακας XVII
Επιτρεπτέα μάζα ουρανίου - 235 ανά αποστολή

Εμπλουτισμός του ουρανίου σε μάζα, εκφραζόμενο σε ποσοστό ουρανίου - 235 που δεν υπερβαίνει	Επιτρεπτέα μάζα ανά αποστολή χιλιόγραμμα ουρανίου - 235
4	1,05
3,5	1,15
3	1,4
2,5	1,8
2	3
1	7
1,35	10

δ. Περιεχόμενο - ουράνιο - μέταλλο ή πλουτώνιο μέταλλο σύνθετα ή μείγματα. Τα υλικά πρέπει να πληρούν τις εξής προϋποθέσεις.

ι. Το βηρύλλιο ούτε κανένα υδρογονωμένο υλικό εμπλουτισμένο με δευτέριο δεν πρέπει να είναι παρόντα.

ιι. Η συνολική παρούσα μάζα γραφίτη δεν πρέπει να είναι πλέον από 150 φορές ανώτερη στη συνολική μάζα ουρανίου και πλουτωνίου.

ιιι. Κανένα μείγμα εύσχιστο υλικό μαζί με υλικά πιο πυκνά σε υδρογόνο από νερό π.χ. μερικοί υδρογονάνθρακες, δεν πρέπει να είναι παρόντες. Η χρήση πολυαιθυλενίου για τη συσκευασία επιτρέπεται.

Η συνολική μάζα εύσχιστων υλικών ανά αποστολή πρέπει να είναι έτσι ώστε:

$$\frac{235U\ (γρ)}{400} + \frac{Pu(γρ)}{225} + \frac{223U\ (γρ)}{250}$$

να μην είναι μεγαλύτερη από 1.

ε) Συνθήκες μεταφοράς «Οι εξής διοικητικοί έλεγχοι πρέπει να εξασκούνται καθ' όλη τη διάρκεια της μεταφοράς της αποστολής.

ι. Η ποσότης των υλικών που συμπεριλαμβάνεται σε μία αποστολή δεν πρέπει να υπερβαίνει τις ποσότητες οι οποίες καθορίζονται υπό β) γ) και δ) ανωτέρω.

ιι. Η αποστολή πρέπει να οδηγηθεί αμέσως μέχρις του προορισμού χωρίς καμία αποθήκευση κατά τη μεταφορά.

ζ) Η αποστολή υπόκειται σε πολύπλευρη έγκριση.

Τμήμα III Μέθοδοι δοκιμασίας και ελέγχου.

Α. Απόδειξη υποταγής στις προϋποθέσεις 3630 (1) απόδειξη της τήρησης των οδηγιών των σχετικών με τις δοκιμασίες που προβλέπονται στο παρόν τμήμα, μπορεί να δοθεί με ένα ή περισσότερα μέσα που αναγράφονται κατωτέρω.

α. Εκτελώντας τις δοκιμασίες στα δείγματα ή σε πρωτότυπα της συσκευασίας όπως παραδίδεται συνήθως προς μεταφοράν και στην περίπτωση αυτή το περιεχόμενο της συσκευασίας πρέπει να προσποιείται το καλύτερο δυνατό, το ραδιο-ενεργό περιεχόμενο που προβλέπεται κανονικά.

β. Συσχετίζοντας σε προηγούμενες ικανοποιητικές δοκιμασίες, έχουσα φύση αρκετά συγκριτικές.

γ. Εκτελώντας δοκιμασίες σε μοντέλα με κατάλληλη κλίμακα συμπεριλαμβάνοντας τα χαρακτηριστικά στοιχεία του θεωρουμένου δείγματος, όταν προκύπτει από το τεχνολογικό πείραμα ότι τα αποτελέσματα τέτοιων δοκιμασιών είναι χρήσιμα για το σκοπό της μελέτης της συσκευασίας.

Αν χρησιμοποιηθεί ένα μοντέλο του είδους αυτού πρέπει να λάβουμε υπόψη μας την αναγκαιότητα να εφαρμόσουμε μερικούς παραμέτρους των δοκιμασιών όπως η διάμετρος της ράβδου εισαγωγής ή την ισχύ συμπίεσης.

δ. Προσφεύγοντας στους υπολογισμούς και στο λογικό συλλογισμό όταν οι παράμετροι και οι μέθοδοι υπολογισμού αποδεικνύονται με γενικό τρόπο ως άξιοι εμπιστοσύνης ή φρονήματος.

(2) Όσον αφορά τις πρώτες προϋποθέσεις των δοκιμασιών που προβλέπονται στο παρόν τμήμα με εξαίρεση αυτές που προβλέπονται στα περιθώρια 3637(4) έως 3639, η απόδειξη και η υπαγωγή θα βασίζονται στην υπόθεση το δέμα βρίσκεται σε ισορροπία με επικρατούσα θερμοκρασία 38° C.

Μπορούμε να παραλείψουμε τις συνέπειες της ηλιακής ακτινοβολίας πριν και κατά τη θερμική δοκιμασία αλλά πρέπει να ληφθεί υπόψη στην εκτίμηση των αποτελεσμάτων της δοκιμασίας αυτής.

Β. Δοκιμασίες σχετικές με τη συσκευασία.

1. Αριθμός δειγμάτων υποβληθέντων στις δοκιμασίες.

Ο αριθμός των δειγμάτων που πραγματικά υποβάλλονται στις δοκιμασίες θα εξαρτηθεί συγχρόνως από τον αριθμό των συσκευασιών του θωρημένου τύπου που θα παραχθούν με τη συχνότητα της χρήσης των και την τιμή κόστους. 3631

Τα αποτελέσματα των δοκιμασιών μπορούν να απαιτήσουν μεγαλύτερο αριθμό για να πληρούν τις προϋποθέσεις των δοκιμασιών όσον αφορά την μεγίστη ζημία.

2) Προετοιμασία ενός δείγματος για τις δοκιμασίες.

(1) Κάθε δείγμα πρέπει να εξετάζεται πριν υποβληθεί στις δοκιμασίες για την αναγνώρισή του και για να σημειωθούν τα ελαττώματα και ειδικά τα εξής: 3632

α. Μη υπαγωγή στα καθοριζόμενα ή στα σχέδια.

β. Ελαττώματα κατασκευής.

γ. Διάβρωση ή άλλες αλλοιώσεις.

δ. Παραμόρφωση των στοιχείων.

(2) Το περιτύλιγμα οριοθέτησης της συσκευασίας πρέπει να έχει αναγνωριστεί σαφέστατα.

3. Τα εξωτερικά μέρη της συσκευασίας πρέπει να έχουν αναγνωρισθεί με σαφή τρόπο ώστε να μπορούμε να αναφερθούμε εύκολα χωρίς παρεξήγηση σε κάθε μέρος του δείγματος αυτού.

3. Έλεγχος της ολότητος του περιτυλίγματος οριοθέτησης και του καλύμματος.

Αφού υποβάλαμε το δείγμα σε οποιαδήποτε εκ των δοκιμασιών που προβλέπονται στα περιθώρια 3635 έως 3637 πρέπει να αποδείξουμε επίσης ότι η οριοθέτηση και η λειτουργία - καλύμματος προφυλάσσονται στο απαιτούμενο μέτρο στα περιθώρια 3601 (15) έως (17) και 3602 (2), 3603 (1) και 3604 (2) για τη θεωρούμενη συσκευασία. 3633

4. Σημάδι που πρέπει να χρησιμοποιηθεί σε οριζόντια λεία επιφάνεια ώστε κάθε αύξηση της αντοχής της σε μετακίνηση ή παραμόρφωση υπό τη σύγκρουση δεν επιδεινώνει αισθητά τη ζημία που υπέστη το υπόδειγμα.

5. Δοκιμασίες προοριζόμενες για απόδειξη αντοχής υπό κανονικές συνθήκες μεταφοράς.

(1) Αυτές οι δοκιμασίες είναι: 3635

Η δοκιμασία ψεκασμού νερού, η δοκιμασία ελεύθερης πτώσης, η δοκιμασία συμπίεσης και η δοκιμασία εισαγωγής.

Τα πρωτότυπα του δέματος πρέπει να υποβάλλονται στη δοκιμασία της ελεύθερης πτώσης, στη δοκιμασία συμπίεσης και στη δοκιμασία της εισαγωγής αφού υποβληθεί σε κάθε περίπτωση στη δοκιμασία ψεκασμού νερού.

Ένα μόνον πρωτότυπο μπορεί να χρησιμοποιηθεί για όλες τις δοκιμασίες εφ' όσον οι προϋποθέσεις της παραγράφου 2 τηρούνται.

(2) Το περιθώριο μεταξύ της περάτωσης της δοκιμασίας ψεκασμού νερού και της επόμενης δοκιμασίας πρέπει να είναι τέτοιο ώστε το νερό να μπορέσει να εισέλθει στο μάξιμουμ χωρίς να υπάρχει επαρκής στέγνωση του εξωτερικού του δείγματος.

Αν αποδειχθεί άλλως θα παραδεχθούμε ότι αυτό το περιθώριο είναι περίπου 2 ώρες, αν το νερό έρχεται συγχρόνως από 4 κατευθύνσεις.

Δεν πρέπει όμως να προβλεφθεί κανένα περιθώριο αν το νερό έρχεται διαδοχικά από 4 κατευθύνσεις.

(3) Δοκιμασία ψεκασμού νερού. Θα θεωρήσουμε σαν ικανοποιητική κάθε δοκιμασία ψεκασμού νερού που πληροί τις εξής προϋποθέσεις.

α. Την ποσότητα νερού ανά μονάδα επιφανείας του εδάφους ισοδύναμη περίπου σε παροχή ταχύτητος των 5 εκ. την ώρα.

β. Το νερό αγγίζει το δείγμα υπό γωνία 45° σχετικά με την οριζόντια γραμμή.

γ. Το νερό διανέμεται περίπου ομοιόμορφα όπως θα ήταν η βροχή σ' όλη την επιφάνεια του δείγματος στην κατεύθυνση του νερού.

δ. Η διάρκεια του ψεκασμού είναι περίπου 1 ώρα.

ε) Η συσκευασία προσανατολίζεται έτσι ώστε να είναι μελετημένα τα στοιχεία που κινδυνεύουν να προσβληθούν περισσότερο και το δείγμα βρίσκεται σε στήριγμα ώστε να μη μένει μέσα στο νερό.

4. Δοκιμασία της ελεύθερης πτώσης. Αφήνουμε το δείγμα να πέσει στο στόχο ώστε να υποστεί τη μέγιστη ζημία από άποψη των στοιχείων ασφαλείας που θα ελεχθούν.

α. Το ύψος της πτώσης που μετράται από το χαμηλότερο σημείο του δέματος και η ανώτερη επιφάνεια του στόχου πρέπει να είναι σύμφωνο στις προϋποθέσεις του πίνακα XVIII.

Πίνακας XVIII

Ύψος της ελεύθερης πτώσης

Μάζα του δέματος (χγ)	Ύψος της ελεύθερης πτώσης (μ)
Ελλάσον του 5.000	1,2
5.000 έως < 10.000	0,9
10.000 έως < 15.000	0,6
15.000 και πλέον	0,3

Β. Για τα δέματα της εύσχιστης κλάσης ΙΙ η ελεύθερη πτώση που καθορίζεται πιο πάνω, πρέπει να προηγηθεί από την ελεύθερη πτώση ύψους 0,3 μ. σε κάθε μία από τις γωνίες ή αν το δέμα έχει κυλινδρική μορφή, σε κάθε τέταρτο εκάστης των κυλινδρικών όψεων.

γ. Για τα παραλληλόγραμμα δέματα από τάβλες ή ίνες ή ξύλου των οποίων η μάζα δεν υπερβαίνει το 50χγ ένα διακεκριμμένο δείγμα πρέπει να υποστεί μια δοκιμασία ελεύθερης πτώσης από ύψος 0,3 σε κάθε μία από τις γωνίες του.

δ. Για τα κυλινδρικά δέματα σε τάβλες από ίνες των οποίων η μάζα δεν υπερβαίνει τα 100 χγ ένα διακεκριμμένο δείγμα πρέπει να υποστεί μια δοκιμασία ελεύθερης πτώσης από ύψος 0,3 μ. σε κάθε τέταρτο εκάστης των κυλινδρικών όψεων.

(5) Δοκιμασία συμπίεσης.

Το δείγμα πρέπει να υποβληθεί τουλάχιστον επί 24 ώρες σε μία δύναμη συμπίεσης εξασκουμένη από μία μάζα ίση με την πιο ισχυρή δύναμη των δύο τιμών.

α) Το ισότιμο σε 5 φορές τη μάζα του πραγματικού δέματος.

β) Το ισότιμο του αποτελέσματος του πολλαπλασιασμού 1300χγ/μ2 με την επιφάνεια της κάθετης προβολής του δέματος.

Αυτή η δύναμη θα εφαρμόζεται ομοιόμορφα στις δύο αντίθετες φάτσες του δείγματος η μία εκ των οποίων τυγχάνοντας τη βάση στην οποία στηρίζεται κανονικά.

6. Δοκιμασία εισαγωγής.

Το δείγμα θα τοποθετείται σε σκληρή επιφάνεια λεία και οριζόντια της οποίας η μετακίνηση θα πρέπει να παραμείνει άνευ σημασίας κατά την εκτέλεση της δοκιμασίας.

α) Μία ράβδος με ημισφαιρικό άκρο 3,2 εκατοστών διαμέτρου, βάρους 6χγ του οποίου ο επιμήκης άξων προσανατολίζεται καθέτως, απελευθερώνεται επάνω από το δείγμα και οδηγείται έτσι ώστε το άκρο του να επιπέσει στο κέντρο του πιο ευαίσθητου μέρους του δείγματος και να ακουμπίσει το οριακό περιτύλιγμα αν εισέλθει αρκετά βαθειά. Οι παραμορφώσεις της ράβδου πρέπει να παραμείνουν αμελητέες κατά την εκτέλεση της δοκιμασίας.

β) Το ύψος πτώσης της ράβδου που μετράται μεταξύ του κάτω άκρου αυτής και της άνω επιφανείας του δείγματος πρέπει να είναι 1 μ.

6. Πρόσθετες δοκιμασίες για τις συσκευασίες τύπου Λ προοριζόμενες για ρευστά και αέρια.

1. Διακεκριμένα δείγματα πρέπει να υποβάλλονται σε 3636
κάθε μία εκ των κατωτέρω αναφερομένων δοκιμασιών εκτός αν μπορούμε να αποδείξουμε ότι μία εκ των δοκιμασιών είναι πιο αυστηρή από την άλλη για το εν λόγω δείγμα και στην περίπτωση αυτή ένα δείγμα θα πρέπει να υποστεί την πιο αυστηρή.

2. Δοκιμασία ελεύθερης πτώσης.

Βάζομε το δείγμα να πέσει στο στόχο έτσι ώστε να υποστεί τη μέγιστη ζημία από άποψη οριοθέτησης.

Το ύψος της πτώσης μετρημένο μεταξύ του κάτω μέρους του δείγματος και η ανώτερη επιφάνεια του στόχου, πρέπει να είναι 9 μ.

3. Δοκιμασία της εισαγωγής.

Το δείγμα πρέπει να υποστεί τη δοκιμασία που διευκρινίζεται στο περιθώριο 3635 (6), εκτός αν το ύψος της πτώσης πρέπει να επιφέρεται από το 1 μ., όπως προβλέπεται στο περιθώριο 3635 (6) Β σε 1,7 μ.

7. Δοκιμασίες που προορίζονται για την απόδειξη της ικανότητας αντοχής στα ατυχήματα κατά τη μεταφορά.

1. Το δείγμα πρέπει να υποβάλλεται στα συσσωρευτικά 3637
αποτελέσματα της μηχανικής δοκιμασίας που στοχεύει η παράγραφος (2) και της θερμικής δοκιμασίας που στοχεύει η παρ. (3) και στη σειρά αυτή. Ένα διακεκριμένο δείγμα πρέπει να υποβάλλεται στη δοκιμασία εμβάπτισης στο νερό που προβλέπεται στην παράγραφο (4).

2. Μηχανική δοκιμασία.

Η δοκιμασία αποτελείται από δύο πτώσεις σ' ένα στόχο.

Η σειρά με την οποία το δείγμα υποβάλλεται στις δύο πτώσεις πρέπει να επιλεγεί έτσι ώστε μετά περάτωση της μηχανικής δοκιμασίας οι ζημίες που προκλήθηκαν να είναι τέτοιες, ώστε να παράγουν τη θερμική δοκιμασία στην οποία το δείγμα πρέπει να υποβληθεί μετά τη μέγιστη ζημία.

α. Πτώση Ι. Αφήνουμε το δείγμα να πέσει στο στόχο, ώστε να υποστεί τη μέγιστη ζημία.

Το ύψος της πτώσης μετρημένο μεταξύ του χαμηλότερου σημείου του δείγματος και της ανωτέρας επιφανείας του στόχου, πρέπει να είναι 9 μ.

β. Πτώση ΙΙ. Αφήνουμε το δείγμα να πέσει στο στόχο έτσι ώστε να υποστεί τη μέγιστη ζημία. Το ύψος της πτώσης, μετρημένο μεταξύ του προβλεπομένου σημείου σύγκρουσης του υποδείγματος και της ανωτέρω επιφανείας του στόχου πρέπει να είναι 1 μ.

Σ' αυτή την περίπτωση ο στόχος αποτελείται από το άνω άκρο μιας πλήρους ράβδου από απαλό ατσάλι έχουσα κυκλική τομή 15 εκ. ± 0,5 εκ. διαμέτρου.

Η επιφάνεια του στόχου πρέπει να είναι λεία και οριζόντια και η κόψη να έχει μια στρογγυλοποίηση 6 μμ το πολύ.

Η ράβδος πρέπει να έχει εφαρμοστεί καθέτως με συμπαγή τρόπο στο στήριγμα του στόχου που περιγράφεται στο περιθώριο 3634. Πρέπει να έχει μήκος 20 εκ. εκτός αν η πιο μακρά ράβδος μπορεί να προκαλέσει πιο σοβαρές ζημίες και σ' αυτή την περίπτωση θα χρησιμοποιήσουμε αρκετά μακριά ράβδο για να προκαλέσουμε τη μέγιστη ζημία.

3. Θερμική δοκιμασία.

Μια θερμική δοκιμασία θα θεωρείται ικανοποιητική αν η θερμική ροή που δέχεται το δείγμα δεν είναι κατώτερη από εκείνη που προέκυψε από την έκθεση ολόκληρου του δείγματος επί 30 λεπτά σε ακτινοβόλο περιβάλλον 800°C που έχει συντελεστή ακτινοβολίας τουλάχιστον 0,9. Για τους υπολογισμούς η απορροφητική δύναμη της επιφάνειας θα είναι η τιμή που αναμένεται αν το δέμα θα είναι εκτεθειμένο σε πυρκαϊά ήτοι 0,8, θα κρατήσουμε την πιο υψηλή εκ των τιμών.

Επίσης θα λάβουμε υπόψη τις εισφορές της αγωγής της θερμότητας, αν είναι σημειωτέο, θεωρώντας ότι ο επικρατών αέρας είναι ακίνητος στη θερμοκρασία των 800°C επί 30 λεπτά. Όταν αποπερατωθεί η εξωτερική θέρμανση του δείγματος:

α) Το δείγμα θα πρέπει να κρυώσει με τεχνητό τρόπο πριν περάσει το διάστημα των 3 ωρών ή πριν αποδειχθεί ότι η εσωτερική θερμοκρασία άρχισε να μειώνεται. Θα συγκρατήσουμε το πιο σύντομο διάστημα.

β) Αν υπάρχει καύση των υλικών του δείγματος, θα την αφήσουμε να προχωρήσει επί 3 ώρες μετά την περάτωση της θέρμανσης εκτός αν παύσει από μόνη της.

4. Δοκιμασία εμβάπτισης στο νερό.

Το δείγμα πρέπει να εμβαπτισθεί από ύψος νερού 15 μ. τουλάχιστον επί 8 ώρες το λιγότερο. Για το σκοπό της δοκιμασίας θα θεωρήσουμε σαν ικανοποιητική μια εξωτερική πίεση νερού ίση με 0,15 MPa (1,5 BAR) – μανομετρική πίεση.

8. Δοκιμασία εισαγωγής νερού για τα δέματα από εύσχιστα υλικά.

1. Τα δέματα άλλα από εκείνα των εύσχιστων κλάσεων Ι ή 3638
ΙΙ και όλα τα άλλα δέματα για τα οποία θεωρήσαμε, για το σκοπό της προβλεπόμενης εκτίμησης στα περιθώρια 3614 (2) και 3619 (Β) για εισαγωγή ή μία εκροή νερού ανταποκρινόμενη στην πιο ισχυρή αντιδραστικότητα, απαλλάσσονται απ' αυτή τη δοκιμασία.

2. Πριν να υποβληθεί στη δοκιμασία εισαγωγής νερού την καθοριζόμενη πιο πέρα το δείγμα πρέπει να υποβληθεί στις δοκιμασίες που προβλέπονται στο περιθώριο 3637 (2) και (3).

3. Το δείγμα πρέπει να εμβαπτισθεί κάτω από ύφος νερού 0,9 μ. τουλάχιστον επί 8 ώρες το λιγότερο και σε θέση δυνάμενη να επιτρέπει τη μέγιστη εισαγωγή. Για τη δοκιμασία αυτή δεν χρειάζεται να υπάρχει επικρατούσα θερμοκρασία 38°C.

9. Δοκιμασίες που αποδεικνύουν την ολοκλήρωση του οριακού περιτυλίγματος και του καλύμματος.

Οποιαδήποτε μέθοδος δοκιμασίας ή ελέγχου μπορεί να 3639
χρησιμοποιηθεί, για να καθορισθεί ότι οι προϋποθέσεις του παρόντος τμήματος τηρούνται αφού το δείγμα υποβλήθηκε στις δοκιμασίες που προβλέπονται στα περιθώρια 3635 έως 3637 εφόσον μπορεί να αποδειχθεί ότι αυτή η μέθοδος ικανοποιεί τις προϋποθέσεις τις εφαρμόσιμες στα περιθώρια 3601 έως 3604.

Γ. Δοκιμασίες που προορίζονται για τις ραδιο-ενεργές ουσίες υπό ειδική μορφή.

1. Γενικά

1. Οι δοκιμασίες είναι: η δοκιμασία ανθεκτικότητας στη 3640
σύγκρουση, η δοκιμασία κρούσης, η δοκιμασία λυγίσματος και η θερμική δοκιμασία.

2. Τα δείγματα κάψουλες ή τα στερεά ραδιο-ενεργά υλικά, πρέπει να παρουσιάζονται στην κατάσταση στην οποία θα παραδίδονταν κανονικά για τη μεταφορά.

Πρέπει να είναι το περισσότερο δυνατό ομοιόμορφα με το ραδιο-ενεργό υλικό.

3. Ένα διαφορετικό δείγμα μπορεί να χρησιμοποιηθεί για κάθε δοκιμασία.

4. Το δείγμα δεν πρέπει να διασπασθεί όταν υποβληθεί στις δοκιμασίες σύγκρουσης, κρούσης και λυγίσματος.

5. Το δείγμα δεν πρέπει ούτε να λειώσει ούτε να διαταράσσεται όταν υποβάλλεται στη θερμική δοκιμασία.

6. Μετά από κάθε δοκιμασία θα καθορισθούν τα αποτελέσματα της εκχύλισης στο δείγμα με μία μέθοδο που δεν θα πρέπει να είναι λιγότερο αισθητή από τις μεθόδους του περιθωρίου 3642.

2. Μέθοδοι δοκιμασίας.

1. Δοκιμασία ανθεκτικότητας στη σύγκρουση: Αφήνουμε 3641
το δείγμα να πέσει σ' ένα στόχο από ύφος 9 μ. Ο στόχος πρέπει να είναι όπως περιγράφεται στο περιθώριο 3634.

2. Δοκιμασία κρούσης: Το δείγμα τοποθετείται σε φύλλο από μόλυβδο που στηρίζεται σε σκληρή και λεία επιφάνεια. Το κτυπάμε με το επίπεδο μέρος από ατσάλινη ράβδο, ώστε να προκαλέσουμε σύγκρουση ισότιμη με τη σύγκρουση που θα προκαλούσε μάζα 1,4 χγ που πέφτει σε ελεύθερη πτώση από ύψος 1 μ.

Η επίπεδη πλευρά της ράβδου πρέπει να έχει 25 μμ διάμετρο η κόψη της ένα κυκλικό 3 μμ ± 0,3 μμ. Ο μόλυβδος του οποίου ο συντελεστής σκληρότητος θα είναι 3,5 έως 4,5 σύμφωνα με την κλίμακα του VICKERS θα έχει μέγιστο πάχος 25 μμ και θα καλύπτει μεγαλύτερη επιφάνεια από εκείνη που καλύπτει το δείγμα. Για κάθε δοκιμασία, πρέπει να τοποθετήσουμε το δείγμα σ' ένα άθικτο μέρος του μόλυβδου.

Η ράβδος πρέπει να κτυπά το δείγμα ώστε να υποστεί το τελευταίο τη μέγιστη ζημία.

3. Δοκιμασία λυγίσματος.

Αυτή η δοκιμασία εφαρμόζεται μόνον στις αδύνατες και μακρές πηγές των οποίων το ελάχιστο μήκος είναι 10 εκ. και των οποίων η σχέση μεταξύ του ελάχιστου μήκους και φάρδους δεν είναι μικρότερη από 10. Το δείγμα πρέπει να σφίγγεται σκληρά σε μία θήκη σε οριζόντια θέση ώστε το μισό του μήκους της να υπερβαίνει το χαλινάρι της θήκης. Πρέπει να προσανατολίζεται έτσι ώστε να υποστεί τη μεγίστη ζημία όταν θα κτυπηθεί το ελεύθερο άκρο της με το επίπεδο μέρος της ατσάλινης ράβδου. Η ράβδος πρέπει να κτυπά το δείγμα ώστε να παραχθεί κρούση ισότιμη με εκείνη που θα προκαλούσε μία μάζα 1,4 χγ που πέφτει σε ελεύθερη πτώση από ύψος 1 μ.

Η επίπεδη πλευρά της ράβδου πρέπει να έχει 25 μμ διάμετρο και η κόψη του μία στρογγυλοποίηση 3 μμ ± 0,3 μμ.

4. Θερμική δοκιμασία: Το δείγμα θερμαίνεται στον αέρα που επιφέρεται σε θερμοκρασία 800°C. Διατηρείται σ' αυτή τη θερμοκρασία επί 10 λεπτά και μετά το αφήνουμε να κρυώσει.

3. Εκχύλιση, Μέθοδοι καθορισμού.

1. Για τα ρευστά υλικά μη επιδεκτικά διασποράς. 3642

α) Το δείγμα πρέπει να εμβαπτίζεται επί 7 ημέρες στο νερό στην επικρατούσα θερμοκρασία. Το νερό πρέπει να έχει PH συμπεριλαμβανόμενο μεταξύ 6 και 8, και μία μεγίστη αγωγιμότητα 10μS/εκ σε 20°C.

β) Το νερό και το δείγμα πρέπει να επιφέρονται μετά σε 3639
θερμοκρασία 50° ± 5°C και διατηρούνται στη θερμοκρασία αυτή επί 4 ώρες.

γ) Η δραστικότης του νερού πρέπει τότε να καθοριστεί.

δ) Το δείγμα πρέπει μετά να διατηρείται επί 7 μέρες τουλάχιστον ακίνητο στον αέρα του οποίου η υγρομετρική κατάσταση δεν είναι κατώτερη από 0,90 με 30°C.

ε) Το δείγμα πρέπει να εμβαπτίζεται στο νερό που έχει τα ίδια χαρακτηριστικά με το α) ανώτερο. Μετά το νερό και το δείγμα πρέπει να επιφέρονται σε θερμοκαρασία 50° ± 5°C και να διατηρούνται σ' αυτή τη θερμοκρασία επί 4 ώρες.

ζ) Η δραστικότητα του νερού πρέπει τότε να καθοριστεί. 3640

Οι δραστηριότητες που καθορίζονται στα στάδια που αναφέρονται στο γ) και ζ) ανωτέρω δεν πρέπει να υπερβαίνουν το 1,85 KBQ(0,05 μCi).

(2) Για τα υλικά που τοποθετούνται σε κάψουλες.

α. Το δείγμα πρέπει να εμβαπτίζετι στο νερό στην επικρατούσα θερμοκρασία.

Το νερό πρέπει να έχει PH συμπεριλαμβανόμενο μεταξύ 6 και 8 και μέγιστη αγωγιμότητα 10μS/εκ. Το νερό και το δείγμα πρέπει να επιφέρονται σε θερμοκρασία 50° ± 5°C και να διατηρούνται σ'αυτή τη θερμοκρασία επί 4 ώρες.

β. Η δραστικότητα του νερού πρέπει τότε να καθοριστεί.

γ. Το δείγμα πρέπει να διατηρείται μετά επί 7 μέρες τουλάχιστον στον ακίνητο αέρα σε μία θερμοκρασία ίση με 30°C.

δ. Η δοκιμασία που περιγράφεται υπό α) πρέπει να επαναληφθεί.

ε) Η δραστικότητα του νερού πρέπει τότε να καθοριστεί.

Οι δραστηριότητες που καθορίζονται στα στάδια του β 3641
(και ε) ανωτέρω δεν πρέπει να υπερβαίνουν το 1,85 KBQ (0,05 μCi).

Δ. Οδηγίες που πρέπει να τηρούνται για τους ελέγχους πριν από την πρώτη λειτουργία και πριν από κάθε παράδοση για μεταφορά μερικών τύπων δεμάτων.

Ι) Πριν την πρώτη λειτουργία ενός δέματος ο αποστολέας θα πρέπει να συμμορφωθεί στις εξής οδηγίες.

α. Για κάθε δέμα του τύπου B(U) και του τύπου B(M), θα πρέπει να εξασφαλιστεί ότι η αποτελεσματικότητα του καλύμματος και του οριακού περιτυλίγματος και σύμφωνα με την περίπτωση τα χαρακτηριστικά όσον αφορά την μετάδοση της Θερμότητας βρίσκονται στα εφαρμοστέα όρια στο δοκιμασμένο μοντέλο ή στα καθορισμένα όρια για το μοντέλο αυτό.

β. Αν η θεωρητική πίεση στο οριακό περιτύλιγμα είναι ανώτερη από 35KPα (0,35 BAR) - μανομετρική πίεση) θα πρέπει να εξασφαλιστούμε ότι το οριακό περιτύλιγμα κάθε δέματος συμφωνεί με τους ορισμούς του μοντέλου σχετικούς με την δυνατότητα περιτυλίγματος αυτού να διατηρήσει την ολοκληρότητά του υπό πίεση.

γ. Όταν για να ικανοποιούνται τα κριτήρια της πυρηνικής ασφαλείας εσωκλείονται θεληματικά για το λόγο αυτό οι απορροφητήρες νετρονίων, σαν στοιχεία συσκευασίας πρέπει να εκτελούνται δοκιμασίες για να σιγουρευτούμε για την παρουσία και την διανομή αυτών των δηλητηρίων.

2. Πριν κάθε παράδοση για μεταφορά.

Πριν από κάθε παράδοση για την μεταφορά ενός δέματος, ο αποστολέας θα πρέπει να τηρήσει τις εξής οδηγίες.

α. Τα δέματα του τύπου Β(U)και του τύπου Β(Μ) πρέπει να παρακρατούνται μέχρι να είναι αρκετά κοντά στις συνθήκες ισορροπίας για να αποδεικνύεται η συμμόρφωση στις προϋποθέσεις της θερμοκρασίας και της πιέσεως που καθορίζονται για την μεταφορά, εκτός αν αυτή η απαλλαγή από τις προϋποθέσεις έγινε θέμα μονομερούς έγκρισης.

β. Θα πρέπει να εξασφαλιστούμε ότι οι καθοριζόμενες προϋποθέσεις τηρούνται στις εγκριτικές βεβαιώσεις.

γ. Θα πρέπει να εξασφαλιστούμε με μία εξέταση και κατάλληλες δοκιμασίες ότι όλες οι κλειδωνιές δικλείδες αντλιών και τα άλλα ανοίγματα του οριακού περιτυλίγματος, δια των οποίων η ραδιο-ενεργής ουσία θα μπορούσε να διαφεύγει, είναι καλώς κλεισμένες ή διαφορετικά έχουν σφραγισθεί με τρόπο που συμφωνεί με τις προϋποθέσεις των περιθωρίων 3603(1) και 3604(2).

δ. Θα πρέπει να εξασφαλιστούμε ότι οι προϋποθέσεις του 3600(5) έχουν τηρηθεί.

Τμήμα IV σχετικοί έλεγχοι στη μεταφορά και στην αποθήκευση TRANSIT.

Α. Κοινή συσκευασία.

3650 Ένα δέμα ραδιο-ενεργών ουσιών δεν πρέπει να περιέχει τίποτε άλλο πέρα από τα απαραίτητα αντικείμενα και έγγραφα σχετικά με την χρήση των εν λόγω ουσιών. Αυτά τα αντικείμενα θα μπορέσουν να τοποθετηθούν δεν υπάρχει με τη συσκευασία ή το περιεχόμενο αλληλοεπίδραση που θα θέτει σε κίνδυνο την ασφάλεια του δέματος.

Β. Μη καθορισμένη ραδιο-ενεργή μόλυνση.

3651 Επί όλης της εξωτερικής επιφανείας του δέματος η μή καθορισμένη ραδιο-ενεργής μόλυνση πρέπει να διατηρείται σ' ένα επίπεδο τόσο το δυνατόν χαμηλώτερο και δεν πρέπει να υπερβαίνει υπό κανονικές συνθήκες μεταφοράς, τις τιμές που καθορίζονται στον πίνακα XIX.

Μπορούμε να ορίσουμε την μη καθορισμένη ραδιο-ενεργή μόλυνση, σκουπίζοντας με το χέρι μια επιφάνεια 300 τετ. εκ. της θεωρούμενης επιφανείας με ένα ξερό χαρτί φίλτρο ή με υδρόφιλο βαμβάκι ή άλλο ομοειδές υλικό.

Για τα δέματα που προορίζονται για την μεταφορά ραδιο-ενεργών ουσιών, όπως ακτινοβοληµένο καύσιμο, θα προβούμε σε εκτίμηση για να καθορίσουμε αν η δραστηριότητα μπορεί να συρθεί με πλύση στην επιφάνεια π.χ. με τη βροχή.

Η συχνότης μιάς τοιαύτης εκτίμησης θα εξαρτηθεί από την πιθανότητα απορρόφησης της ραδιο-ενεργούς μόλυνσης από το εξωτερικό στρώμα και ειδικά από το στρώμα της βαφής.

Αν η δραστηριότητα έχει την δυνατότητα να συρθεί δια πλύσεως στο επίπεδο του δέματος θα μπορέσουμε να συνεχίσουμε να χρησιμοποιούμε τέτοια δέματα μόνον με την προϋπόθεση να γίνει από εξειδικευμένο άτομο μία εκτίμηση της ασφάλειας της χρήσης από άποψη των ακτινοβολιών.

Πίνακας XIX

Μέγιστες επιτρεπόμενες τιμές της μη καθοριζομένης ραδιο-ενεργούς μόλυνσης.

Μολυντική ουσία	Μέγιστη επιτρεπ. τιμή	α)
Φυσικό και εξασθενημένο ουράνιο και φυσικό θόριο μόνον	BQ/εK2 37	μCι/CM2 10-3
Πομποί Β και Γ και πομποί Α με ελαφρά τοξικότητα που απαριθμούνται στο σημείο Β ανωτέρω	3,7	10-4
Όλοι οι άλλοι πομποί Α	0,37	10-5

α. Τα επίπεδα που αναγράφονται ανωτέρω είναι τα μέσα επιτρεπόμενα επίπεδα για 300 CM^2 επιφανείας.

Β. Πομποί Α με ελαφρά τοξικότητα ουρανίου -235 ή ουράνιο -238, θόριο -232 θόριο -228 και θόριο -230 διαλυμένα ώστε να υπάρχει συγκεκριμένη δραστηριότητα της ιδίας τάξης με αυτή του φυσικού ουρανίου και φυσικού θορίου ραδιο-νουκλειδών που έχουν περίοδο κάτω των 10 ημερών.

Γ. Κατηγορίες. 3652

Τα δέματα και τα Κοντέινερ (μικρά και μεγάλα) πρέπει να ενταχθούν σε μία από τις τρείς εξής κατηγορίες.

Ι. Κατηγορία Ι - Λευκή 3653

(Ι) Δέματα Όταν σε καμία στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες η ένταση της ακτινοβολίας που εκπέμπει το δέμα δεν πρέπει να υπερβαίνει τους 5μSV/ω (0,5 μ ρεμ/ω) σε κανένα σημείο της εξωτερικής επιφανείας του δέματος και στο δέμα να μην είναι ούτε της εύσχιστης κλάσης ΙΙ ούτε εύσχιστης κλάσης ΙΙΙ.

(2) Κοντέινερ Όταν το Κοντέινερ συμπεριλαμβάνει δέματα με ραδιο-ενεργές ουσίες οι οποίες καμμία δεν ανήκει σε κατηγορία ανώτερη από την κατηγορία Ι λευκή.

2. Κατηγορία ΙΙ Κίτρινη. 3654

(Ι) Δέματα Όταν η ένταση της ακτινοβολίας που αναφέρεται στο περιθώριο 3653 (Ι) υπερβαίνει ή ότι το δέμα ανήκει στην εύσχιστη κλάση ΙΙ εφ' όσον.

α. Η ένταση της ακτινοβολίας που εκπέμπει το δέμα δεν υπερβαίνει σε καμία στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες 0,5μSV/ω (50 μ ρεμ/ω) σε κανένα σημείο της εξωτερικής επιφανείας του δέματος.

β. Ο συντελεστής μεταφοράς δεν υπερβαίνει το 1,0 σε καμία στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες.

2. Κοντέινερ Όταν σε καμία στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες ο συντελεστής της μεταφοράς του Κοντέινερ δεν υπερβαίνει το 1,0 και ότι το κοντέινερ δεν περιέχει κανένα δέμα της εύσχιστης κλάσης ΙΙΙ.

3. Κατηγορία ΙΙΙ - Κίτρινη. 3655

(Ι) Δέματα: Όταν η μια ή η άλλη ένταση της ακτινοβολίας που αναφέρεται στο περιθώριο 3654 (Ι) προσπερνάται ή όταν το δέμα ανήκει στην εύσχιστη κλάση ΙΙ ή στην εύσχιστη κλάση ΙΙΙ ή ακόμη όταν το δέμα μεταφέρεται με ειδικό διακανονισμό, εφ' όσον.

α. Η ένταση της ακτινοβολίας που εκπέμπει το δέμα δεν υπερβαίνει σε καμία στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες τα 2μSV/ω (200 μ ρεμ/ω) σε κανένα σημείο της εξωτερικής επιφανείας του δέματος, εκτός αν η μεταφορά πραγματοποιείται δια πλήρους φόρτωσης υπό συνθήκες που καθορίζοντα σο περιθώριο 3659 (7) σ' αυτή την περίπτωση η μέγιστη επιτρεπόμενη ένταση είναι 10μSV/ω (1000 μ ρεμ/ω).

β. Ο συντελεστής της μεταφοράς δεν υπερβαίνει το 10 σε καμία στιγμή, μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες εκτός αν το δέμα μεταφέρεται δια πλήρους φόρτωσης.

(2) Κοντέινερ: Όταν σε οποιαδήποτε στιγμή μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες, ο συντελεστής της μεταφοράς του Κοντέινερ υπερβαίνει το 1,0 ή τα Κοντέινερ περιέχει δέματα που ανήκουν στην εύσχιστη κλάση ΙΙΙ ή ακόμη όταν το Κοντέινερ μεταφέρεται με ειδικό κανονισμό.

Δ Επιγραφοκόλληση και σημάδεμα (Βλ συν. Α9) 3656

(Ι) Κάθε δέμα ή Κοντέινερ - μεγάλο ή μικρό - πρέπει να προβλέπεται τουλάχιστον από 2 επιγραφές του τύπου 7Α 7Β ή 7Γ σύμφωνα με την κατηγορία (βλ. περιθ. 3652 έως 3655) στην οποία ανήκει το δέμα ή το Κοντέινερ.

(2) Οι επιγραφές θα τοποθετούνται σε δύο αντίθετες εξωτερικές του δέματος ή στις 4 εξωτερικές πλευρές του Κοντέινερ.

(3) Οι επιγραφές θα πρέπει να συμπληρώνονται ως εξής, με τρόπο ευανάγνωστο και αμετάβλητο - ανεξίτηλο).

α. Υπό την λέξη «περιεχόμενο» θα αναγράφεται το ραδιονουκλείδιο ή το υλικό του οποίου η παρουσία αποτελεί τον κύριο κίνδυνο σε περίπτωση ζημίας του δέματο (πχ στρόντιο - 90 ακτινοβολημένο ουράνιο LSA ραδιο-ενεργό).

β. Υπό την λέξη «δραστηριότητα» θα αναγραφεί η δραστηριότης σε Κιουρί.

Σημ: Η δραστηριότητα αυτή θα μπορέσει επίσης να αναγραφεί σε μικρό, μίλι, ή χιλιοκιουρί ή χιλιο - αναγράφονται ολογράφως.

γ. Στην επιγραφή του τύπου 7Β και 7γ θα αναγράφεται και σε αριθμούς, τους πιό μεγάλους δυνατούς.

Ο Συντελεστής της μεταφοράς στο πλαίσιο που φυλάσσεται για το σκοπό αυτό.

(4) Κάθε δέμα έχοντας μικτή μάζα ανώτερη από 50 Χγ θα πρέπει να φέρει στην εξωτερική του επιφάνεια την ένδειξη της μάζας του με εμφανή και διαρκή τρόπο.

(5) Κάθε δέμα που αποτελείται από μία συσκευασία του τύπου Α θα πρέπει να φέρει στην εξωτερική του επιφάνεια τις λέξεις «τύπου Α» γραμμένες με εμφανή και διαρκή τρόπο.

(6) Κάθε δέμα εγκεκριμένου μοντέλου σύμφωνα με τα περιθώρια 3672 έως 3674 θα πρέπει να φέρει εγγεγραμμένο στην εξωτερική του επιφάνεια με εμφανή και διαρκή τρόπο το αναγνωριστικό στοιχείο που χορηγήθηκε στο μοντέλο αυτό από την αρμόδια αρχή και σε περίπτωση του δέματος του τύπου Β(U) ή Β (Μ) τις λέξεις «Τύπος Β(U)» ή «τυπος Β(Μ)».

(7) Κάθε δέμα που αποτελείται από συσκευασία του τύπου Β(U) ή τύπου Β(Μ) θα πρέπει να φέρει στην εξωτερική του επιφάνεια του πιό εξωτερικού δοχείου ανθεκτικό στη φωτιά και το νερό με εμφανή τρόπο το σύμβολο του τριφυλιού εμφανίζεται στις επιγραφές του μοντέλου 7Α έως 7Γ χαραγμένο, τυπωμένο ή αναπαραγόμενο με οποιοδήποτε άλλο τρόπο που αντέχει στη φωτιά και το νερό.

Ε. Χωρισμός των Ραδιο-ενεργών ουσιών. 3657

Για την μεταφορά και την αποθήκευση τα δέματα της κατηγορίας ΙΙ - Κίτρινής ή ΙΙΙ κίτρινη, θα χωρίζονται από τα δέματα που φέρουν επιγραφή με την λέξη «FOTO» δια των αποστάσεων ασφαλείας που αναγράφονται στον πίνακα του περιθωρίου 240001 του συνημμένου Β4.

Φ. Προσωρινή Τρανζίτ αποθήκευση 3658

(Ι) Τα δέματα με ραδιο-ενεργείς ουσίες δεν πρέπει να αποθηκεύονται στον ίδιο τόπο με τα επικίνδυνα φορτία με τα οποία απαγορεύεται να φορτώνονται μαζί. (βλ. περιθώριο 2700 3).

(2) Ο αριθμός των δεμάτων και των Κοντέινερ των κατηγοριών ΙΙ κίτρινο ή ΙΙΙ κίτρινο αποθηκευμένα στο ίδιο χωροζώνη προσωρινής αποθήκευσης (Τρανζίτ) διάδρομο φορτίων ή αποθήκης.

Θα οριοθετηθεί έτσι ώστε η άθροιση των συντελεστών μεταφοράς μιας ίδιας ομάδας αυτών των δεμάτων ή των κοντέινερ να μην υπερβαίνει τα 50. Μία απόσταση τουλάχιστον 6 μ. θα πρέπει να διατηρηθεί μεταξύ των ομάδων των δεμάτων ή των Κοντέινερ αυτών των κατηγοριών και των άλλων ομάδων δεμάτων ή κοντέινερ των ιδίων κατηγοριών.

3. Όταν ο έλεγχος της συσσώρευσης των δεμάτων γίνεται με αναφορά στις κόκκινες γραμμές των επιγραφών, μια ίδια ομάδα δεμάτων δεν θα πρέπει να περιλαμβάνει πλέον από 50 δέματα της κατηγορίας ΙΙ - κίτρινο ή πλέον από 5 δέματα της κατηγορίας ΙΙΙ - κίτρινο.

Όταν τα δέματα των 2 κατηγοριών είναι παρόντα θα παραδεχθούμε ότι ένα δέμα της κατηγορίας ΙΙΙ κίτρινο είναι ισότιμο με 10 δέματα της κατηγορίας ΙΙ κίτρινο.

4. Εκτός απ' ό,τι αφορά τα δέματα των εύσχιστων κλάσεων ΙΙ και ΙΙΙ οι περιοριστικές διατάξεις του περιθωρίου 3658 (2) δεν εφαρμόζονται στα δέματα που φέρουν τις λέξεις «LSA ραδιο-ενεργό» τα οποία περιέχουν υλικά μικρής συγκεκριμένης δραστηριότητας, ούτε σ' αυτά που φέρουν τις λέξεις LLS ραδιοενεργό» και που περιέχουν στερεά υλικά μικρής δραστηριότητας, αν αποτελούν στοιβαγμένα ένα συμπαγές σύνολο ή αν εσωκλείονται σε κοντέινερ.

(5) Επιτρέπεται να αναμειγνύονται δέματα διαφόρων τύπων μεταξύ άλλων, δέματα της εύσχιστης κλάσης Ι και δέματα της εύσχιστης κλάσης ΙΙ.

Μεταφορά. Ι Δέματα 3659

(Ι) Τα δέματα φορτώνονται στα οχήματα έτσι ώστε να μην μπορέσουν ούτε να μεταφέρονται επικίνδυνα ούτε να αναποδογυρίζονται ή να πέφτουν.

(2) Εφ' όσον η μέση θερμική ροή στην επιφάνεια δεν υπερβαίνει το $15 W/m^2$ και τα φορτία που την περικλείουν δεν εσωκλείονται σε σάκκους ένα δέμα θα μπορεί να μεταφέρεται στη μέση διαφόρων συσκευασμένων φορτίων χωρίς ειδικές οδηγίες στοίβαξης, διαφορετικές από αυτές που η αρμόδια αρχή θα μπορούσε να απαιτήσει με κατάλληλη βεβαίωση. Αν η θερμική ροή υπερβαίνει το $15 W/m^2$, το δέμα θα πρέπει να μεταφερθεί με πλήρη φόρτωση.

(3) Τα δέματα των κατηγοριών Ι λευκή, ΙΙ κίτρινη ή ΙΙΙ κίτρινη δεν πρέπει να μεταφέρονται σε χώρους που μεταφέρουν ταξειδιώτες εκτός στην περίπτωση των χωρών που επιφυλάσσονται αποκλειστικά για τα άτομα που είναι εφοδιασμένα με ειδική άδεια να συνοδεύουν τα δέματα αυτά.

(4) Επιτρέπεται η ανάμειξη των δεμάτων διαφόρων τύπων και δή δεμάτων της εύσχιστης κλάσης Ι και δεμάτων της εύσχιστης κλάσης ΙΙ.

(5) Η συσσώρευση δεμάτων και Κοντέινερ πρέπει να ελέγχεται ως εξής.

α. Ο αριθμός των δεμάτων και των Κοντέινερ που φορτώνονται σ' ένα ίδιο όχημα θα περιορισθεί με τρόπο ώστε το άθροισμα των συντελεστών μεταφοράς να μην υπερβαίνει το 50. Όταν ο έλεγχος της συσσώρευσης των δεμάτων γίνεται με αναφορά στις κόκκινες γραμμές των επιγραφών, βλ. περιθ. 3658(3).

β. Για τα πλήρη φορτία το ανώτερο όριο μπορεί να ξεπερνάται εφ' όσον η ένταση ακτινοβολίας υπό κανονικές συνθήκες μεταφοράς δεν υπερβαίνει το $2 \mu SV/\omega$ (200μ ρεμ%/ω) σε κανένα σημείο της εξωτερικής επιφανείας του Κοντέινερ ή του οχήματος και $0,1 \mu SV/\omega$ (10μ ρεμ/ω) σε 2μ απ' αυτή την επιφάνεια.

Όμως στην περίπτωση δεμάτων των εύσχιτων κλάσεων ΙΙ και ΙΙΙ ή μειγμάτων τέτοιων δεμάτων ο αριθμός των δεμάτων ενός ίδιου φορτίου δεν πρέπει να υπερβαίνει τον παραδεκτέο αριθμό (βλ. σημ. του περ. 2700).

6. Τα οχήματα και τα μεγάλα Κοντέινερ που μεταφέρουν δέματα ή κοντέινερ που φέρουν επιγραφές των τύπων 7Α, 7Β ή 7Γ ή πλήρη φορτία ραδιο-ενεργών ουσιών, θα φέρουν στις δύο πλευρές όπως και στην πίσω πλευρά για τα οχήματα μια επιγραφή του τύπου 7D που προβλέπεται στο περιθώριο 240 010 του συνημμένου Β 4.

(7) Στις περιπτώσεις με πλήρη φορτία η ένταση της ακτινοβολίας δεν πρέπει να υπερβαίνει

α. $10 \mu SV/\omega$ (1000μρεμ/ω) σε κανένα σημείο της εξωτερικής επιφανείας οποιουδήποτε δέματος εφ όσον

ι. Το όχημα έχει προβλεφθεί από περίβολο που εμποδίζει κάθε ανεπίτρεπτο άτομο να μπαίνει μέσα κατά μία μεταφορά που πραγματοποιείται υπό κανονικές συνθήκες.

ιι. Λαμβάνονται μέτρα για να στοιβάζονται τα δέματα στο όχημα έτσι ώστε να μην μπορούν να μετακινούνται κατά τη διάρκεια μιας μεταφοράς που πραγματοποιείται υπό κανονικές συνθήκες.

ιιι. Δεν υπάρχει διαδικασία φόρτωσης ή ξεφόρτωσης μεταξύ της αρχής και του τέλους της μεταφοράς.

Αν οι προϋποθέσεις αυτές δεν πληρούνται η ένταση της ακτινοβολίας δεν πρέπει να υπερβαίνει το $2 \mu SV/\omega$ (200 μρεμ/ω), σε κανένα σημείο της εξωτερικής επιφανείας του δέματος.

Β. $2 \mu SV/\omega$ (200 μρεμ/ω) σε κανένα σημείο της εξωτερικής επιφανείας του οχήματος ή μεγάλου κοντέινερ συμπεριλαμβανομένης και των άνω και κάτω επιφανειών ή αν πρόκειται για ανοικτό όχημα σε κανένα σημείο των κάθετων πλάνων που περνούν από τις εξωτερικές πλευρές του οχήματος της άνω και κάτω επιφάνειας του φορτίου και της κάτω εξωτερικής επιφανείας του οχήματος.

γ. $0,1 \mu SV/\omega$ (10 μρεμ/ω) σε κανένα σημείο απέχοντας 2μ από τα κάθετα πλάνα που αντιπροσωπεύονται από τις εξωτερικές πλευρικές επιφάνειες του οχήματος ή αν πρόκειται για φορτίο με ανοικτό όχημα σε κανένα σημείο απέχον 2μ από τα κάθε πλάνα που περνούν από τις εξωτερικές πλευρές του οχήματος.

8. α. Η ένταση της ακτινοβολίας σε κάθε τοποθεσία του οχήματος που είναι κανονικά κατειλημμένη δεν πρέπει να υπερβαίνει το $20 \mu SV/\omega$ (2μρεμ/ω) κατά την μεταφορά. Υπ αυτές τις συνθήκες ο μεταφορέας πρέπει να εξασφαλιστεί ότι ο οδηγός ή το προσωπικό συνοδείας δεν αποδέχονται πλέον

από 5μSV (0,5ρεμ) κατά μία οποιαδήποτε περίοδο 12 μηνών.

Ο μεταφορέας που σέβεται τις ελάχιστες αποστάσεις που αναγράφονται στον πίνακα του περιθωρίου 240000 του συνημμένου Β.4 ακόμα και με απουσία ενός προστατευτικού καλύμματος θα θεωρηθεί ως σεβόμενος το όριο του 20μSV/ω (2μρεμ/ω).

β. Αντί των οδηγιών του εδαφίου α ανωτέρω ο μεταφορέας μπορεί να τηρεί το βιβλίο του χρόνου, εγκεκριμμένο από την αρμόδια αρχή, που περνούν οι συνοδοί στα οχήματα, και την ένταση της ακτινοβολίας που δέχονται ώστε κανένας να μην εκτίθεται κατά μία οποιαδήποτε περίοδο τριών μηνών σε δόση ανώτερη από 3,75 μSV/ (375μρεμ)

2. Οχήματα δεξαμενή

Τα υλικά μικρής ειδικής δραστηριότητας (LSA) (1) του περιθωρίου 2703 δελτίο 5 με εξαίρεση το εξαφθοριούχο ουράνιο και τα υλικά που υπόκεινται στην αυθόρμητη εύφλεξη μπορούν να μεταφέρονται σε οχήματα-δεξαμενές σύμφωνα με τις προϋποθέσεις του συνημμένου Β.Ι α.

3. Κοντέινερ-δεξαμενών.

Τα υλικά μικρής ειδικής δραστηριότητος (LSA) (1) του περιθωρίου 2703 δελτίο 5, συμπεριλαμβανομένου και του εξαφθοριούχου ουρανίου, φυσικού ή εξασθενημένου μπορούν να μεταφέρονται με κοντέινερ δεξαμενών σύμφωνα με τις προϋποθέσεις του συνημμένου Β Ι β.

Τμήμα V Διοικητικές διατάξεις.

Η έγκριση των αρμοδίων αρχών δεν χρειάζεται για τα μοντέλα δεμάτων που προορίζονται για υλικά που αποστέλλονται σύμφωνα με τα δελτία 1 έως 4 ούτε για τα μοντέλα δεμάτων που προορίζονται για τα υλικά των δελτίων 5 έως 8 εφ όσον το περιεχόμενό τους δεν αποτελείται από εύσχιστα υλικά που απαιτούν έγκριση σύμφωνα με το περιθώριο 3674.

Α Έγκριση των ραδιο-ενεργών υλικών υπό ειδική μορφή

(1) Μία μονομερής έγκριση για κάθε μοντέλο σχετικό με τα υλικά υπό ειδική μορφή εκτός των υλικών των δελτίων 3 και 4.

Η αίτηση για την έγκριση πρέπει να περιέχει

α. Μια λεπτομερή περιγραφή των υλικών ή αν πρόκειται για κάψουλα το περιεχόμενο με πληροφορίες της φυσικής ή χημικής κατάστασης.

β. Μία λεπτομερής περιγραφή του μοντέλου της κάψουλας που θα χρησμοποιηθεί συμπεριλαμβάνοντας τα πλήρη σχέδια της κάψουλας όπως και τα ειδικά στοιχεία των υλικών και των μεθόδων κατασκευής που χρησιμοποιούνται.

γ. Μία έκθεση των πραγματοποιουμένων δοκιμασιών και των αποτελεσμάτων που προέκυψαν ή η απόδειξη με υπολογισμούς ότι τα υλικά μπορούν να ικανοποιούν τις δοκιμασίες ή οποιαδήποτε άλλη απόδειξη ότι τα ραδιο-ενεργά υλικά υπό ειδική μορφή πληρούν τις προϋποθέσεις του παρόντος συνημμένου.

(2) Η αρμόδια αρχή θα χορηγήσει μία βεβαίωση που πιστοποιεί ότι το εγκεκριμμένο μοντέλο ανταποκρίνεται στον ορισμό των ραδιονεργών υλικών υπό ειδική μορφή που δίδεται στο περιθώριο 2700 (2) και θα δώσει στο μοντέλο αυτό αναγνωριστικό στοιχείο. Η βεβαίωση θα αναφέρει την λεπτομέρεια των ραδιο-ενεργών ουσιών.

Β Έγκριση των μοντέλων δεμάτων.

1. Η έγκριση των μοντέλων δεμάτων του τύπου B(U) συμπεριλαμβανομένων και των δεμάτων των εύσχιστων κλάσεων I, II και III που υπόκεινται επίσης στις διατάξεις του περιθωρίου 3674.

(1) Κάθε μοντέλο δέματος του τύπου B(U) που τελειοποιείται σε μία χώρα μέλους της ADR πρέπει να εγκρίνεται από την αρμόδια αρχή της χώρας αυτής. Αν η χώρα όπου κατασκευάζεται το μοντέλο δεν είναι μέλος του ADR, η μεταφορά θα είναι δυνατή εφ όσον

α. Μία βεβαίωση καθορίζοντας ότι το δέμα ανταποκρίνεται στις τεχνικές προδιαγραφές της ADR χορηγείται από τη χώρα αυτή και θεωρηθεί από την αρμόδια αρχή της πρώτης χώρας του ADR που αγγίζεται από την αποστολή.

β. Αν καμία βεβαίωση δεν χορηγήθηκε, το μοντέλο του δέματος θα εγκρίνεται από τη αρμόδια αρχή της πρώτης χώρας ADR που αγγίζεται από την αποστολή.

(2) Η αίτηση για την έγκριση πρέπει να περιέχει

α. Μια λεπτομερή περιγραφή του προβλεπόμενου περιεχομένου που να αναφέρει μεταξύ άλλων την φυσική και χημική κατάσταση, και την φύση της ακτινοβολίας που εκπέμπεται.

β. Μία λεπτομερής περιγραφή του μοντέλου περιέχοντας τα πλήρη σχέδια όπως και τα διακριτικά και αναγνωριστικά στοιχεία των υλικών και των μεθόδων κατασκευής που χρησιμοποιήθηκαν.

γ. Μία έκθεση των δοκιμασιών που πραγματοποιήθηκαν και των αποτελεσμάτων που προέκυψαν ή την απόδειξη για υπολογισμούς ή οποιαδήποτε άλλη απόδειξη ότι το μοντέλο 3660
συσκευασίας πληρεί τις προδιαγραφές των περιθωρίων 3602 και 3603.

δ. Οι οδηγίες χρήσεως και διατήρησης που προτείνονται για το δέμα και ειδικά αν πρόκειται για δέματα που ίσως εμβαπτίζονται σε μολυσμένα νερά, τα μέτρα που λήφθηκαν για να εγγυηθεί ότι η μόλυνση στην επιφάνεια του δέματος δεν εί- 3661
ναι ανώτερη από τα επιτρεπτά όρια.

ε) Αν το δέμα έχει κατασκευαστεί έτσι ώστε να αντέχει σε μια κανονική μέγιστη πίεση χρήσης ανώτερη από 0,1 MPa (IBAR) – μανομετρικής πίεσης, η αίτηση για την έγκριση πρέπει επίσης να αναφέρει, όσον αφορά τα υλικά που χρησι- 3662
μοποιούνται για την κατασκευή του οριακού περιτυλίγματος, 3669
τα διακριτικά στοιχεία, τα δείγματα που πρέπει να ληφθούν 3670
και τις δοκιμασίες που πρέπει να πραγματοποιηθούν.

ζ) Όταν το προβλεπόμενο περιεχόμενο είναι αντινοβολημένο καύσιμο η αίτηση πρέπει να αναφέρει και να δικαιολογήσει κάθε υπόθεση της ανάλυσης της ασφάλειας σχετικά με τα χαρακτηριστικά του καύσιμου αυτού.

η) Κάθε ειδική διάταξη στοίβαξης αναγκαία για να εξασφαλιστεί η εξάτμιση της θερμότητας έξω από το δέμα, θα πρέπει να ληφθεί υπ όψη ο τύπος του οχήματος ή του κοντέι- 3671
νερ (3λ περιθώριο 3681 Ι) α)(.

θ) Μία αναπαραγώγιμη εικονογράφηση 21 εκ. × 30 εκ το πολύ δείχνει πως έχει κατασκευαστεί το δέμα.

(3) Η αρμόδια αρχή θα χορηγήσει μία βεβαίωση που να πιστοποιεί ότι το εγκεκριμένο μοντέλο ανταποκρίνεται στις σχετικές προδιαγραφές με τα δέματα του τύπου B(U). Βλέπε περ. 3677 και 3678).

2. Έγκριση των μοντέλων για δέματα τύπου B(M) συμπεριλαμβανομένων των δεμάτων των εύσχιστων κλάσεων I II και III που υπόκεινται επίσης στις διατάξεις του περιθωρίου 3674.

(1) Μια πολύπλευρη έγκριση χρειάζεται για κάθε μοντέλο 3673
δέματος του τύπου B(M).

(2) Η αίτηση εγκρίσεως ενός μοντέλου δέματος του τύπου B(M) πρέπει να περιλαμβάνει πλέον από τις πληροφορίες που απαιτούνται στο περιθώριο 3672 (2) για τα δέματα του τύπου B(U).

α. Ένας κατάλογος των πρόσθετων συμπληρωματικών προδιαγραφών για τα δέματα του τύπου B(U) στο περιθώριο 3603 στο οποίο το δέμα δεν είναι σύμφωνο.

Β. Η σημείωση των συμπληρωματικών μέτρων που προτίθενται να ληφθούν κατά την μεταφορά 5' για να αντισταθμίζεται το μη σύμφωνο που αναφέρεται στο α) ως άνω.

5 δηλαδή μέτρα κατά την μεταφορά που δεν προβλέπονται κανονικά στο παρόν κεφάλαιο αλλά που κρίνονται απαραίτητα για να εξασφαλισθεί η ασφάλεια του δέματος κατά την μεταφορά π.χ. μια ανθρώπινη μεσολάβηση για να μετρηθεί η θερμοκρασία ή η πίεση ή για να πραγματοποιηθεί περιοδική 3672
αποσυμπίεση. Αυτά τα μέτρα θα πρέπει επίσης να λάβουν υπόψη και τις δυνατότητες απρόβλεπτων καθυστερήσεων.

γ. Μία δήλωση σχετική με τους ειδικούς τρόπους φόρτωσης μεταφοράς ξεφόρτωσης ή μεταχείρισης.

δ. Η σημείωση των μέγιστων και ελάσσονων επικρατουσών συνθηκών (θερμοκρασία ηλιακή ακτινοβολία) που σκεπτόμαστε να αντιμετωπίσουμε κατά την μεταφορά και τα οποία ελήφθησαν υπόψη κατά την κατασκευή του μοντέλου.

(3) Η αρμόδια αρχή θα χορηγήσει μια βεβαίωση που θα πιστοποιεί ότι το εγκεκριμένο μοντέλο ανταποκρίνεται στις

προδιαγραφές τις σχετικές με τα δέματα τύπου B(M) βλέπε περιθώρια 3677 έως 3679.

3. Έγκριση των μοντέλων δεμάτων των εύσχιστων κλάσεων I II III.

(1) Για τα μοντέλα δεμάτων που συμφωνούν στα παραδείγματα του περιθωρίου 3620 και 3623 ή 3624 καμία άλλη έγκριση της αρμόδιας αρχής δε χρειάζεται. 3674

(2) Μία μονομερής έγκριση χρειάζεται για τα μοντέλα των δεμάτων που συμφωνούν στα παραδείγματα των περιθωρίων 3616 και 3622.

(3) Μία πολύπλευρη έγκριση χρειάζεται για όλα τα μοντέλα δεμάτων.

(4) Η αίτηση για έγκριση πρέπει να περιέχει όλες τις απαραίτητες πληροφορίες για να πεισθεί η αρμόδια αρχή ότι το μοντέλο ανταποκρίνεται στις προδιαγραφές των περιθωρίων 3610 έως 3624.

(5) Η αρμόδια αρχή θα χορηγήσει βεβαίωση (βλ. περ. 3766 και 3679) που να πιστοποιεί ότι το εγκεκριμένο μοντέλο ανταποκρίνεται στα περιθώρια 3610 έως 3624.

Γ. Έγκριση των αποστολών

(1) Πολύπλευρες εγκρίσεις απαιτούνται για την αποστολή των εξής δεμάτων. 3675

α. Δέματα του τύπου β(M) με συνεχή αποσυμπίεση.

Β. Δέματα του τύπου B(M) των ραδιο-ενεργών ουσιών των οποίων η δραστηριότητα είναι ανώτερη από 3×10^3 A1 ή 3×10^3 A2 ανάλογα με την περίπτωση ή 1110 TBQ (3×10^4 Ci) ανάλογα με αυτή των τιμών αυτών που είναι η πιο μικρή των ανωτέρων τιμών.

γ. Δέματα της εύσχιστης κλάσης II σύμφωνα με το περιθώριο 3620.

δ. Δέματα της εύσχιστης κλάσης III

Μία αρμόδια αρχή όμως μπορεί με ειδική διάταξη της εγκριτικής της βεβαίωσης να επιτρέπει την μεταφορά στο έδαφός της, χωρίς προηγούμενη έγκριση.

(2) Η αίτηση της έγκρισης της αποστολής πρέπει να αναφέρει:

α. Την περίοδο για την οποία η έγκριση της αποστολής ζητείται.

β. Το πραγματικό περιεχόμενο, τον τύπο του οχήματος και το προταθέν ή πιθανό δρομολόγιο.

γ. Πώς θα πραγματοποιούνται προφυλάξεις, τα μέτρα κατά την μεταφορά και τους ειδικούς διοικητικούς ελέγχους που προβλέπονται στις εγκριτικές βεβαιώσεις που χορηγούνται σύμφωνα με τα περιθώρια 3673 και 3674.

3. Μια και εγκρίνεται η αποστολή η αρμόδια αρχή θα χορηγήσει μια βεβαίωση (βλ. περιθώρια 3677 έως 3679).

(4) Οι βεβαιώσεις σχετικές με τα δέματα και με την αποστολή μπορούν να συνδυάζονται σε μία μόνον βεβαίωση.

Δ. Έγκριση μιας μεταφοράς με ειδικό διακανονισμό.

(1) Μια αποστολή ραδιο-ενεργών ουσιών που δεν ανταποκρίνεται σ' όλες τις εφαρμοστέες διατάξεις του παρόντος κεφαλαίου δεν πρέπει να μεταφέρεται παρά μόνον με ειδικό διακανονισμό για τον οποίο μια πολύπλευρη έγκριση πάντα απαιτείται. 3676

Ο ειδικός διακανονισμός πρέπει να εξασφαλίζει ότι η γενική ασφάλεια κατά την μεταφορά δεν θα είναι μικρότερη απ' ό,τι θα ήταν αν θα είχαν τηρηθεί όλες οι εφαρμοστέες διατάξεις του παρόντος κεφαλαίου.

(2) Η αίτηση της έγκρισης πρέπει να περιέχει τις απαιτούμενες πληροφορίες των περιθωρίων 3672 και 3675 και πρέπει επίσης:

α. να αναφέρει σε ποιο μέτρο και για ποίους λόγους η αποστολή δεν μπορεί να γίνεται με πλήρη ανταπόκριση στις εφαρμοστέες διατάξεις του παρόντος κεφαλαίου.

β. Να αναφερθούν οι προφυλάξεις και τα ειδικά μέτρα που θα πρέπει να ληφθούν ή οι ειδικοί διοικητικοί έλεγχοι που θα πρέπει να γίνουν κατά την μεταφορά για να αντισταθμιστεί η μη τήρηση των εφαρμοστέων διατάξεων του παρόντος κεφαλαίου.

(3) Αφ' ότου εγκριθεί ο ειδικός διακανονισμός, η αρμόδια αρχή θα χορηγήσει μία βεβαίωση (βλ. περιθ. 3677 έως 3679).

Ε. Εγκριτικές βεβαιώσεις της αρμόδιας αρχής.

1. Σημειώματα των αναγνωριστικών στοιχείων που χορηγούνται από την αρμόδια αρχή.

(1) Κάθε εγκριτική βεβαίωση που χορηγείται από αρμόδια αρχή θα πρέπει να αναγνωρίζεται δι' αναγνωριστικού στοιχείου. 3677

Αυτό το αναγνωριστικό στοιχείο παρουσιάζεται υπό την εξής γενική μορφή.

Σύμβολο της υπηκοότητας της χώρας 6) αριθμός / κωδικός.

6. Τα εν λόγω σήματα είναι διακριτικά στοιχεία των οχημάτων στη διεθνή κυκλοφορία.

α. Ο αριθμός θα χορηγηθεί από την αρμόδια αρχή. Πρέπει να είναι μοναδικός και ειδικός για ένα δεδομένο μοντέλο ή για μία δεδομένη αποστολή. Το αναγνωριστικό στοιχείο της έγκρισης της αποστολής πρέπει να ταυτίζεται εύκολα με εκείνη της έγκρισης του μοντέλου του δέματος.

β. Οι εξής κώδικες θα χρησιμοποιούνται με την εξής σειρά για να δείχνουν τους τύπους των εγκριτικών βεβαιώσεων που χορηγούνται.

A. Μοντέλο δέματος του τύπου A (όταν επίσης χρησιμοποιείται σε συνδυασμό ως δέμα της εύσχιστης κλάσης.

B.(U) Μοντέλο του δέματος του τύπου B(U).

B(M) Μοντέλο του δέματος του τύπου B(M).

F Μοντέλο του δέματος της εύσχιστης κλάσης.

S Έγκριση των υλικών υπό ειδική μορφή.

T Αποστολή.

X Ειδικός διακανονισμός.

(2) Οι κωδικοί αυτοί θα εφαρμόζονται ως εξής:

α. Κάθε βεβαίωση και κάθε δέμα θα φέρει το κατάλληλο αναγνωριστικό στοιχείο αποτελούμενο από σύμβολα της παραγράφου (1) εκτός στην περίπτωση των δεμάτων όπου η δεύτερη εγκάρσια γραμμή θα ακολουθεί μόνον τον κωδικό του μοντέλου του δέματος. Με άλλες λέξεις τα γράμματα «S», T» ή «X» δεν θα εμφανισθούν στο αναγνωριστικό στοιχείο του δέματος.

Αν η έγκριση του μοντέλου του δέματος και η έγκριση της αποστολής γίνονται συγχρόνως δεν θα είναι απαραίτητο να επαναληφθούν οι κωδικοί π.χ.

A/132/B(M) F Δέματα της εύσχιστης κλάσης B(M) εγκεκριμένη από την Αυστρία για το μοντέλο του δέματος αρ. 132 (πρέπει επίσης να αναγράφεται ταυτόχρονα στο ίδιο το δέμα και στην εγκριτική βεβαίωση του μοντέλου του δέματος).

A/132/B(M) F T. Αναγνωριστικό στοιχείο της εγκριτικής βεβαίωσης γι' αυτό το μοντέλο δέματος (πρέπει να αναγράφεται μόνο στη βεβαίωση).

A/137/X. Αναγνωριστικό στοιχείο της εγκριτικής βεβαίωσης χορηγουμένης για το μοντέλο 137, εγκεκριμένης από την Αυστρία με σκοπό μια αποστολή υποκείμενη σε ειδικό διακανονισμό (πρέπει να αναγραφεί μόνον στο έγγραφο).

Β. Αν η πολύπλευρη έγκριση παίρνει την μορφή μιας επικύρωσης μόνον τα αναγνωριστικά στοιχεία χορηγούμενα από τη χώρα προέλευσης του μοντέλου ή της αποστολής θα χρησιμοποιηθούν. Αν η πολύπλευρη έγκριση επιφέρει τη χορήγηση βεβαιώσεων από τις διαδοχικές χώρες κάθε βεβαίωση θα φέρει το κατάλληλο στοιχείο και το δέμα του οποίου το μοντέλο εγκρίθηκε με αυτό τον τρόπο, θα φέρει όλα τα κατάλληλα αναγνωριστικά στοιχεία π.χ.

(A/132/B (M) F)

(CH/28/B(M) F)

Θα ήταν τα αναγνωριστικά στοιχεία ενός δέματος που αρχικά εγκρίθηκε από την Αυστρία και αργότερα από την Ελβετία με νέα έγκριση. Τα συμπληρωματικά αναγνωριστικά στοιχεία θα απαριθμίζονταν με τον ίδιο τρόπο στο δέμα.

γ. Η επαναθεώρηση ενός αριθμού βεβαιώσεως θα αναφερθεί με μια έκφραση εντός παρενθέσεων που θα ακολουθήσει το αναγνωριστικό στοιχείο που θα βρίσκεται στη βεβαίωση. Έτσι A/132/B(U)F (REV.2) θα αναφέρει ότι πρόκειται για την αναθεώρηση υπ' αρ. 2 της βεβαίωσης του μοντέλου δέματος εγκεκριμένου από την Αυστρία και A/132/B(U) F (REV.O) θα σημαίνει ότι πρόκειται για τον αρχικό αριθμό

της βεβαίωσης του μοντέλου του εγκεκριμένου από την Αυστρία. Για τον αρχικό αριθμό η έκφραση εντός παρενθέσεων (REV.O) δεν είναι υποχρεωτική. Μπορούμε επίσης να χρησιμοποιήσουμε άλλη έκφραση π.χ. «αρχικό αριθμό» ένα αριθμό βεβαίωσης που έχει αναθεωρηθεί και μπορεί να χορηγηθεί μόνον από τη χώρα που θα έχει εκδόσει τον αρχικό αριθμό.

Αν η αναθεώρηση δεν γίνεται από αυτή τη χώρα θα πρέπει να εκδοθεί νέα βεβαίωση και να χορηγηθεί νέος αναγνωριστικός αριθμός.

δ. Άλλα γράμματα και αριθμοί (που μπορούν να επιβληθούν από τον Εθνικό κανονισμό) μπορούν να προσθέτονται εντός παρενθέσεων, στο τέλος του αναγνωριστικού στοιχείου.

π.χ. A/132/B(U) F(SP503).

ε) Δεν χρειάζεται να αλλαχθεί το αναγνωριστικό στοιχείο στο δέμα μετά από κάθε αναθεώρηση της βεβαίωσης.

Θα γίνει μόνον στις περιπτώσεις όπου η αναθεώρηση της βεβαίωσης υποχρεώνει την αλλαγή μετά από τη δεύτερη γραμμή των κωδικών του μοντέλου του δέματος.

2. Πληροφορίες που πρέπει να αναφερθούν στις βεβαιώσεις.

Κάθε εγκριτική βεβαίωση που εκδίδεται από την αρμόδια 3678
αρχή θα πρέπει να περιέχει τις εξής πληροφορίες.

α. Το αναγνωριστικό στοιχείο που χορηγείται από την αρμόδια αρχή.

β. Μία σύντομη περιγραφή της συσκευασίας που να αναφέρει τα υλικά κατασκευής, την μικτή μάζα, τις γενικές διατάξεις και την εμφάνιση όπως και μία αναπαραγώγιμη εικονογραφία τουλάχιστον 21 εκ. που να δείχνει πως έχει κατασκευαστεί το δέμα.

γ. Μία σύντομη αναφορά στο επιτρεπόμενο περιεχόμενο συμπεριλαμβανομένου κάθε περιορισμού σχετικού με το περιεχόμενο που θα μπορούσε να μην είναι εμφανής σχετικά με την φύση της συσκευασίας. Θα αναφερθούν η φυσική και χημική κατάσταση, οι δραστηριότητες σε κιουρί (συμπεριλαμβανομένων αν συντρέχει περίπτωση εκείνων των διάφορων ισοτόπων), ο αριθμός των γραμμαρίων των εύσχιστων ουσιών και θα διευκρινιστεί αν πρόκειται για υλικά υπό ειδική μορφή.

δ. Επίσης για τα δέματα κάποιας εύσχιστης κλάσης.

ι. Εύσχιστη κλάση Ι. Μία λεπτομερής περιγραφή του επιτρεπομένου περιεχομένου και όλων των ειδικών χαρακτηριστικών βάσει των οποίων, παραδεχθήκαμε για την εκτίμηση της κριτικότητας, την απουσία νερού σε μερικά άδεια διαστήματα (βλέπε περιθώριο 3613β).

ιι. Εύσχιστη κλάση ΙΙ. Μία λεπτομερής περιγραφή του επιτρεπόμενου περιεχομένου, οι επιτρεπόμενοι αριθμοί, ή οι συντελεστές μεταφοράς που αναλογούν και όλα τα ειδικά χαρακτηριστικά βάσει των οποίων παραδεχθήκαμε, για την εκτίμηση της κριτικότητας, την απουσία νερού σε μερικά κενά διαστήματα (βλέπε περιθώριο 3618)β.

ιιι). Εύσχιστη κλάση ΙΙΙ. Μία λεπτομερής περιγραφή εκάστης των αποστολών, με αναφορά στο επιτρεπόμενο περιεχόμενο και των επιτρεπομένων αριθμών (ή συντελεστών μεταφοράς) που αναλογούν όπως και κάθε ειδικό μέτρο που πρέπει να ληφθεί κατά την μεταφορά.

ε) Η αναφορά των επικρατούντων προϋποθέσεων που επιτρέπονται στο στάδιο της μελέτης του μοντέλου (βλ. περιθώριο 3602,4).

ζ) Για τα δέματα του τύπου B(M) η αναφορά των προδιαγραφών του περιθωρίου 3603 των οποίων τα δέματα δεν ανταποκρίνονται σε κάθε λεπτομέρεια που μπορεί να φανεί χρήσιμη σε άλλες αρμόδιες αρχές.

η) Μία παραπομπή στις κατώτερες πληροφορίες που χορηγούνται από τον ενδιαφερόμενο.

ι. Οδηγίες σχετικές με τη χρήση και τη συντήρηση της συσκευασίας.

ιι. Μέτρα που πρέπει να ληφθούν από τον αποστολέα πριν την αποστολή π.χ. ειδικά μέτρα απολύμανσης.

θ) Ένας λεπτομερής κατάλογος όλων των πρόσθετων μέτρων που πρέπει να ληφθούν (βλ. σήμα 5) για την προπαρασκευή του δέματος την φόρτωση, την μεταφορά, τη στοίβαξη, το ξεφόρτωμα και τη μεταχείριση, συμπεριλαμβανομένων και των ειδικών διατάξεων της στοίβαξης που χρειάζονται για να εξασφαλιστεί η φυγή της θερμότητας έξω από το δέμα, ή μία δήλωση σύμφωνα με την οποία κανένα μέτρο αυτού του τύπου δε χρειάζεται.

κ) Μία άδεια αποστολής αν η έγκριση της αποστολής χρειάζεται σύμφωνα με το περιθώριο 3675.

λ) Οι περιορισμοί που πρέπει να ληφθούν που αφορούν τους τύπους οχημάτων, κοντέινερ και οι απαιτούμενες οδηγίες δρομολογίων.

μ) Τα ειδικά μέτρα του εγκεκριμένου μοντέλου που πρέπει να ληφθούν σε περίπτωση ατυχήματος.

ν) Η εξής δήλωση. Η παρούσα βεβαίωση δεν απαλλάσει τον αποστολέα να τηρεί τις καθορισμένες προδιαγραφές που καθορίστηκαν από τις αρχές των χωρών στο έδαφος των οποίων το δέμα θα μεταφερθεί.

ο) Η ημερομηνία εκδόσεως της βεβαίωσης ή άλλως η ημερομηνία λήξεως.

π) Η υπογραφή και η ταυτότητα του ατόμου που εκδίδει τη βεβαίωση.

ρ) Προσθήκες περιέχουσες βεβαιώσεις σχετικές με άλλα περιεχόμενα επικυρώσεις που χορηγήθηκαν από άλλες αρμόδιες αρχές ή συμπληρωματικές τεχνικές πληροφορίες.

3. Επικύρωση των βεβαιώσεων.

Η πολύπλευρη έγκριση μπορεί να πάρει την μορφή μιας 3679
επικύρωσης της βεβαίωσης που χορηγείται από την αρμόδια αρχή της χώρας προέλευσης του μοντέλου ή της αποστολής.

Ζ. Ευθύνες του αποστολέα.

1. Λεπτομέρειες της αποστολής.

Πέρα από τα δεδομένα που εμφανίζονται στο κατάλληλο 3680
δελτίο ο αποστολέας πρέπει να δώσει τις εξής πληροφορίες στο έγγραφο μεταφοράς, για κάθε αποστολή ραδιο-ενεργών ουσιών.

α. Τις λέξεις «Η φύση του φορτίου και η συσκευασία συμφωνούν με τις προδιαγραφές του ADR».

β. Το αναγνωριστικό στοιχείο έκαστης βεβαίωσης που εκδίδεται από αρμόδια αρχή (ειδική μορφή, μοντέλο του δέματος, αποστολή).

γ. Την ονομασία των ραδιο-ενεργών ουσιών ή του νουκλεϊδίου.

δ. Την περιγραφή της φυσικής και χημικής κατάστασης της ουσίας ή σημείωση ότι πρόκειται για υλικό ειδικής μορφής.

ε) Τη δραστηριότητα των ραδιο-ενεργών ουσιών σε κιουρί.

ζ) Την κατηγορία του δέματος 1 Λευκή, 2 κίτρινη, 3 κίτρινη.

η) Το συντελεστή μεταφοράς (για τις κατηγορίες 2 - κίτρινη και 3 κίτρινη μόνο).

θ) Για την αποστολή εύσχιστων υλικών (ουσιών).

ι) Στις περιπτώσεις απαλλαγής που προβλέπονται στο περιθώριο 3610, η σημείωση «Απαλλαγμένο εύσχιστο υλικό».

ιι. Στις άλλες περιπτώσεις, η εύσχιστη κλάση του δέματος ή των δεμάτων.

2) Πληροφορίες και επίδοση για τους μεταφορείς. 3661

1. Ο αποστολέας πρέπει να αναφέρει στο έγγραφο μεταφοράς, τα τυχόν μέτρα που πρέπει να ληφθούν από τον μεταφορέα.

Η σημείωση αυτή πρέπει να συντάσσεται στις γλώσσες που θεωρούνται απαραίτητες από τους μεταφορείς, ή από τις ενδιαφερόμενες αρχές και πρέπει να περιέχει τουλάχιστον.

α. Τα πρόσθετα μέτρα που πρέπει να ληφθούν για το φόρτωμα, την μεταφορά, την αποθήκευση, το ξεφόρτωμα την μεταχείριση και τη στοίβαξη για να εξασφαλιστεί η έξοδος της θερμότητας από το δέμα ή μία δήλωση σύμφωνα με την οποία κανένα πρόσθετο μέτρο δε χρειάζεται. (βλ. περ. 3678Θ).

β. Οι απαραίτητες οδηγίες για το δρομολόγιο (βλ. περ. 3678λ).

γ. Τα ειδικά μέτρα του εγκεκριμένου μοντέλου που πρέπει να ληφθούν σε περίπτωση ατυχήματος (βλ. περ. 3678(1).

2) Σε όλες τις περιπτώσεις που απαιτούν μια έγκριση της αποστολής ή προηγουμένης επίδοσης στην αρμόδια αρχή, όλοι οι μεταφορείς πρέπει να έχουν πληροφορηθεί προηγου-

μένως ώστε να μπορέσουν εγκαίρως να πάρουν τα απαραίτητα μέτρα για την μεταφορά.

3) Επίδοση στις αρμόδιες αρχές.

(1) Πριν απ' την πρώτη αποστολή ενός δέματος του τύπου B(U) περιέχοντος ραδιο-ενεργά υλικά των οποίων η δραστηριότητα υπερβαίνει τα 3×10^3 Ai ή 3×10^3 A2 ανάλογα με την περίπτωση ή A 110 TBQ (3×10^4 2i) ανάλογα με εκείνη των τιμών αυτών που είναι η μικρότερη, ο αποστολέας θα πρέπει να είναι εξασφαλισμένος ότι τα αντίγραφα των απαραίτητων εγκριτικών βεβαιώσεων απευθύνθηκαν στην αρμόδια αρχή εκάστης χώρας, στο έδαφος της οποίας το δέμα πρέπει να μεταφερθεί. 3682

Ο αποστολέας δεν θα είναι υποχρεωμένος να περιμένει την απόδειξη παραλαβής της αρμόδιας αρχής και η αρμόδια αρχή δεν θα είναι υποχρεωμένη να στείλει απόδειξη παραλαβής.

(2) Για κάθε αποστολή που προβλέπεται υπό α έως δ κατωτέρω, ο αποστολέας θα πρέπει να απευθύνει επίδοση στην αρμόδια αρχή εκάστης χώρας από το έδαφος της οποίας το δέμα πρέπει να περάσει. Αυτή η έκδοση θα πρέπει να παραληφθεί από κάθε αρμόδια αρχή πριν την αρχή της αποστολής και κατά προτίμηση τουλάχιστον 15 ημέρες πριν.

α. Δέματα του τύπου B(U) περιέχοντα ραδιο-ενεργείς ουσίες των οποίων η δραστηριότητα υπερβαίνει το 3×10^3 Ai ή 3×10^3 A2 ανάλογα με την περίπτωση ή 111OTBQ (3×10^4 Ci) ανάλογα με αυτή των τιμών που είναι μικρότερη.

β. Δέματα του τύπου B(M)

γ. Δέματα της εύσχιστης κλάσης 111 σύμφωνα με το περιθώριο 3674(3).

δ. Μεταφορά με ειδικό διακανονισμό.

(3) Η επίδοση της αποστολής θα πρέπει να συμπεριλαμβάνει.

α. Επαρκείς πληροφορίες για να επιτραπεί η αναγνώριση του δέματος συμπεριλαμβανομένων των αριθμών των απαραίτητων βεβαιώσεων και των αναγνωριστικών στοιχείων.

β. Πληροφορίες για την ημερομηνία αποστολής, ημερομηνία αποστολής, ημερομηνία παραλαβής που προβλέπεται και το προτεινόμενο δρομολόγιο.

(4) Ο αποστολέας δεν είναι υποχρεωμένος να απευθυνθεί με διακεκριμένη επίδοση όταν οι απαραίτητες πληροφορίες εμφανίζονται στην εγκριτική βεβαίωση της αποστολής (βλ. περιθώριο 3675 (2).

4. Κατοχή βεβαιώσεων. 3683

Ο αποστολέας πρέπει να έχει στην κατοχή του ένα αντίγραφο έκαστης βεβαίωσης που απαιτείται από το παρόν κεφάλαιο και ένα αντίγραφο των οδηγιών σχετικό με το κλείσιμο του δέματος και με κάθε άλλη προπαρασκευή της αποστολής πριν προβεί σε αποστολή σύμφωνα με τις προϋποθέσεις των βεβαιώσεων.

η) Έλεγχος της ποιότητας της κατασκευής και συντήρησης των συσκευασιών.

Ο κατασκευαστής, ο αποστολέας ή οποιοσδήποτε χρησιμοποιεί μία συσκευασία εγκεκριμένου μοντέλου, πρέπει να είναι σε θέση να αποδείξει σε κάθε αρμόδια αρχή, ότι 3684

α. Οι μέθοδοι και τα υλικά που χρησιμοποιούνται για την κατασκευή της συσκευασίας είναι σύμφωνες με τα εγκεκριμένα κριτήρια για το μοντέλο. Η αρμόδια αρχή μπορεί να προβεί σε ελέγχους της συσκευασίας κατά την κατασκευή.

β. Όλες οι συσκευασίες που κατασκευάζονται σύμφωνα με εγκεκριμένο μοντέλο διατηρούνται σε καλή κατάσταση, ώστε να συνεχίσουν να πληρούν όλα τα εφαρμοστέα κριτήρια σύμφωνα με τον κανονισμό ακόμη και μετά από επανειλημμένη χρήση. 3685

-3689

Τμήμα VI - όρια δραστηριότητος - καθορισμός του A1 και A2

1. Καθαρά Ραδιονουκλεΐδια

1) Ο πίνακας χχ δίδει τις τιμές A1 και A2, για τα καθαρά ραδιο-νουκλεΐδια των οποίων αναγνωριστικά στοιχεία (ταυτότης) είναι γνωστά.

Οι τιμές A1 και A2 εφαρμόζονται επίσης στα ραδιο-νουκλεΐδια που περιέχονται στις πηγές νετρονίων (α, η) ή (γ, η).

Πίνακας χχ. Τιμές του A1 και A2 για τα ραδιονουκλεΐδια.

Σύμβολο του Ραδιονουκλεΐδιου		Ατομικός αριθμός και στοιχείο	A_1		A_2		Ειδική δραστηριότητα	
			TB_q	(Ci)	TB_q	(Ci)	$TB_{q/g}$	(Ci/q)
227	Ac	Ακτίνιο (89)	37	1000	$1,11\times10^{-4}$	0,003	$2,7\times10^{-1}$	$7,2\times10$
228	Ac		0,37	10	0,15	4	$8,1\times10^{4}$	$2,2\times10^{6}$
105	Ag	Άργυρος (47)	1,48	40	1,48	40	$1,2\times10^{3}$	$3,1\times10^{4}$
110m	Ag		0,26	7	0,26	7	$1,7\times10^{2}$	$4,7\times10^{3}$
111	Ag		3,7	100	3,7	100	$5,9\times10^{3}$	$1,6\times10^{5}$
241	Am	Αμερίκιο (95)	0,3	8	3×10^{-4}	0,008	$1,2\times10^{-2}$	3,2
243	Am		0,3	8	3×10^{-4}	0,008	$7,0\times10^{-3}$	$1,9\times10,^{-1}$
37	Ar (συμπιεσμένο ή μη συμπιεσμένο	Αργο (18)	37	1000	37	1000	$3,7\times10^{3}$	$1,0\times10^{5}$
41	Ar (μη συμπιεσμένο		0,74	20	0,74	20	$1,6\times10^{6}$	$4,3\times10^{7}$
41	Ar (συμπιεσμένο)		0,74	1	0,04	1	$1,6\times10^{6}$	$4,3\times10^{7}$
73	As	Αρσενικό (33)	37	1000	14,8	400	$8,9\times10^{2}$	$2,4\times10^{4}$
74	As		0,74	20	0,74	20	$3,7\times10^{3}$	$1,0\times10^{5}$
76	As		0,37	10	0,37	10	$5,9\times10^{4}$	$1,6\times10^{6}$
77	As		11,1	300	11,1	300	$4,1\times10^{4}$	$1,1\times10^{6}$
211	At	Αστατο (85)	7,4	200	0,26	7	$7,8\times10^{4}$	$2,1\times10^{6}$
193	Au	Χρυσ. (79)	7,4	200	7,4	200	$3,4\times10^{4}$	$9,3\times10^{5}$
196	Au		1,11	30	1,11	30	$4,4\times10^{3}$	$1,2\times10^{5}$
198	Au		1,48	40	1,48	40	$9,3\times10^{3}$	$2,5\times10^{5}$
199	Au		7,4	200	7,4	200	$7,8\times10^{3}$	$2,1\times10^{5}$
131	Ba	Βάριο (56)	1,48	40	1,48	40	$3,2\times10^{3}$	$8,7\times10^{4}$
133	Ba		1,48	40	0,37	10	$1,5\times10$	$4,0\times10^{2}$
140	Ba		0,74	20	0,74	20	$2,7\times10^{3}$	$7,3\times10^{4}$
7	Be	Βηρύλλιο (4)	11,1	300	11,1	300	$1,3\times10^{4}$	$3,5\times10^{5}$
206	Bi	Βισμούθιο (83)	0,19	5	0,19	5	$3,7\times10^{3}$	$9,9\times10^{4}$
207	Bi		0,37	10	0,37	10	8,1	$2,2\times10^{2}$

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδιου	Ατομικός αριθμός και στοιχείο	A_1		A_2		Ειδική δραστηριότητα	
		TB_q	(Ci)	TB_q	(Ci)	$TB_{q/g}$	(Ci/q)
210 Bi (RaE)	Βισμούθιο (83) (συνέχεια)	3,7	100	0,15	4	$4,4\times10^{3}$	$1,2\times10^{5}$
212 Bi		0,22	6	0,22	6	$5,6\times10^{5}$	$1,5\times10^{7}$
249 Bk	Μπερκέλιο (97)	37	1000	0,04	1	$6,7\times10$	$1,8\times10^{3}$
82 Br	Βρώμιο (35)	0,22	6	0,22	6	$4,1\times10^{4}$	$1,1\times10^{6}$
14 C	άνθρακας (6)	37	1000	3,7	100	$1,7\times10^{-1}$	4,6
45 Ca	Ασβέστιο (20)	37	1000	1,48	40	$7,0\times10^{2}$	$1,9\times10^{4}$
47 Ca		0,74	20	0,74	20	$2,2\times10^{4}$	$5,9\times10^{5}$
109 Cd	Κάδμιο (48)	37	1000	2,59	70	$9,6\times10$	$2,6\times10^{3}$
115m Cd		1,11	30	1,11	30	$9,6\times10^{2}$	$2,6\times10^{4}$
115 Cd		2,96	80	2,96	80	$1,9\times10^{4}$	$5,1\times10^{5}$
139 Ce	Δημήτριο (58)	3,7	100	3,7	100	$2,4\times10^{2}$	$6,5\times10^{3}$
141 Ce		11,1	300	7,4	200	$1,0\times10^{3}$	$2,8\times10^{4}$
143 Ce		2,22	60	2,22	60	$2,4\times10^{4}$	$6,6\times10^{5}$
144 Ce		0,37	10	0,26	7	$1,2\times10^{2}$	$3,2\times10^{3}$
249 Cf	Καλιφόρνιο (98)	0,08	2	$7,4\times10^{-5}$	0,002	$1,2\times10^{-1}$	3,1
250 Cf		0,26	7	$2,59\times10^{-4}$	0,007	4,8	$1,3\times10^{2}$
252 Cf		0,08	2	$7,4\times10^{-5}$	0,002	2,4×10	$6,5\times10^{2}$
36 Cl	Χλώριο (17)	11,1	300	1,11	30	$1,2\times10^{-3}$	$3,2\times10^{-2}$
38 Cl		0,37	10	0,37	10	$4,8\times10^{6}$	$1,3\times10^{8}$
242 Cm	Κιούριο (96)	7,4	200	$7,4\times10^{-3}$	0,2	$1,2\times10_{2}$	$3,3\times10^{3}$
243 Cm		0,33	9	$3,33\times10^{-4}$	0,009	1,6	4,2×10
244 Cm		0,37	10	$3,7\times10^{-4}$	0,01	3,0	8,2×10
245 Cm		0,22	6	$2,22\times10^{-4}$	0,006	$3,7\times10^{-3}$	$1,0\times10^{-1}$
246 Cm		0,22	6	$2,22\times10^{-4}$	0,006	$3,7\times10^{-2}$	$3,6\times10^{-1}$
56 Co	Κοβάλτιο (27)	0,19	5	0,19	5	$1,1\times10^{3}$	$3,0\times10^{4}$
57 Co		3,33	90	3,33	90	$3,1\times10^{2}$	$8,5\times10^{3}$
58m Co		37	1000	37	1000	$2,2\times10^{5}$	$5,9\times10^{6}$
58 Co		0,74	20	0,74	20	$1,2\times10^{3}$	$3,1\times10^{4}$
60 Co		0,27	7	0,26	7	$4,1\times10$	$1,1\times10^{3}$
51 Cr	Χρώμιο (24)	22,2	600	22,2	600	$3,4\times10^{3}$	$9,2\times10^{4}$
131 Cs	Καίσιο (55)	37	1000	37	1000	$3,7\times10^{3}$	$1,0\times10^{5}$
134m Cs		37	1000	37	1000	$2,7\times10^{5}$	$7,4\times10^{6}$
134 Cs		0,37	10	0,26	7	4,4×10	$1,2\times10^{3}$

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1 TB_q	A_1 (Ci)	A_2 TB_q	A_2 (Ci)	Ειδική δραστηριότητα $TB_{q/g}$	Ειδική δραστηριότητα (Ci/q)
135 Cs	Καίσιο (55) (συνέχεια)	37	1000	2,22	60	$3,3\times10^{-5}$	$8,8\times10^{-4}$
136 Cs		0,26	7	0,26	7	$2,7\times10^{3}$	$7,4\times10^{4}$
137 Cs		1,11	30	0,34	9	3,6	9,8×10
64 Cu	Χαλκός (29)	2,96	80	2,96	80	$1,4\times10^{5}$	$3,8\times10^{6}$
165 Dy	Διαπρόσιο (66)	3,7	100	3,7	100	$3,0\times10^{5}$	$8,2\times10^{6}$
166 Dy		37	1000	7,4	200	$8,5\times10^{3}$	$2,3\times10^{5}$
169 Er	Έρβιο (68)	37	1000	11,1	300	$3,0\times10^{3}$	$8,2\times10^{4}$
171 Er		1,85	50	1,85	50	$8,9\times10^{4}$	$2,4\times10^{6}$
152m Eu	Ευρώπιο (63)	1,11	30	1,11	30	$8,1\times10^{4}$	$2,2\times10^{6}$
152 Eu		0,74	20	0,74	20	7,0	$1,9\times10^{2}$
154 Eu		0,37	10	0,19	5	5,6	$1,5\times10^{2}$
155 Eu		14,8	400	3,33	90	5,2×10	$1,4\times10^{3}$
18 F	Φθόριο (9)	0,74	20	0,74	20	$3,4\times10^{6}$	$9,3\times10^{7}$
52 Fe	Σίδηρος (26)	0,22	6	0,22	6	$2,7\times10^{5}$	$7,3\times10^{6}$
55 Fe		37	1000	37	1000	8,1×10	$2,2\times10^{3}$
59 Fe		0,37	10	0,37	10	$1,5\times10^{3}$	$4,9\times10^{4}$
72 Ga	Γάλλιο (31)	0,26	7	0,26	7	$1,1\times10^{5}$	$3,1\times10^{6}$
153 Gd	Γαδολίνιο (64)	7,4	200	3,7	100	$1,3\times10^{2}$	$3,6\times10^{3}$
159 Gd		11,1	300	11,1	300	$4,1\times10^{4}$	$1,1\times10^{6}$
71 Ge	Γερμάνιο (32)	37	1000	37	1000	$5,9\times10^{3}$	$1,6\times10^{5}$
3 H	Υδρογόνο (1) Βλ.Τ–Τριτιο						
181 Hf	Άφνιο (72)	1,11	30	1,11	30	$5,9\times10^{2}$	$1,6\times10^{4}$
197m Hg	Υδράργυρος (80)	7,4	200	7,4	200	$2,4\times10^{4}$	$6,6\times10^{5}$
197 Hg		7,4	200	7,4	200	$9,3\times10^{3}$	$2,5\times10^{5}$
203 Hg		2,96	80	2,96	80	$5,2\times10^{2}$	$1,4\times10^{4}$
166 Ho	Όλμιο (67)	1,11	30	1,11	30	$2,6\times10^{3}$	$6,9\times10^{5}$
125 I	Ιώδιο (53)	37	1000	2,59	70	$6,3\times10^{2}$	$1,7\times10^{4}$
126 I		1,48	40	0,37	10	$2,9\times10^{3}$	$7,8\times10^{4}$
129 I		37	1000	$7,4\times10^{-2}$	2	$5,9\times10^{-6}$	$1,6\times10^{-4}$
131 I		1,48	40	0,37	10	$4,4\times10^{3}$	$1,2\times10^{5}$
132 I		0,26	7	0,26	7	$4,1\times10^{5}$	$1,1\times10^{7}$
133 I		1,11	30	1,11	30	$4,1\times10^{4}$	$1,1\times10^{6}$
134 I		0,3	8	0,3	8	$1,0\times10^{6}$	$2,7\times10^{7}$

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1 TB_q	A_1 (Ci)	A_2 TB_q	A_2 (Ci)	Ειδική δραστηριότητα $TB_{q/g}$	Ειδική δραστηριότητα (Ci/q)
135 I	Ιώδιο (53) (συνέχεια)	0,37	10	0,37	10	$1,3\times10^5$	$3,5\times10^6$
113m In	Ινδιο (49)	2,22	60	2,22	60	$5,9\times10^5$	$1,6\times10^7$
114m In		1,11	30	0,74	20	$8,5\times10^2$	$2,3\times10^4$
115m In		3,7	100	3,7	100	$2,3\times10^5$	$6,1\times10^6$
190 Ir	Ιριδιο (77)	0,37	10	0,37	10	$2,3\times10^3$	$6,2\times10^4$
192 Ir		0,74	20	0,74	20	$3,4\times10^2$	$9,1\times10^3$
194 Ir		0,37	10	0,37	10	$3,2\times10^4$	$8,5\times10^5$
42 K	Κάλι (19)	0,37	10	0,37	10	$2,2\times10^5$	$6,0\times10^6$
85m Kr (Μη συμπεπιεσμένο)	Κρυπτό (36)	3,7	100	3,7	100	$3,1\times10^5$	$8,4\times10^6$
85m Kr (συμπεπιεσμένο)		0,11	3	0,11	3	$3,1\times10^5$	$8,4\times10^6$
85 Kr (Μη συμπεπιεσμένο)		37	1000	37	1000	$1,5\times10$	$4,0\times10^2$
85 Kr (συμπεπιεσμένο)		0,19	5	0,19	5	$1,5\times10$	$4,0\times10^2$
87 Kr (Μη συμπεπιεσμένο)		0,74	20	0,74	20	$1,0\times10^6$	$2,8\times10^7$
87 Kr (συμπεπιεσμένο)		0,02	0,6	0,02	0,6	$1,0\times10^6$	$2,8\times10^7$
140 La	Λανσάνιο (57)	1,11	30	1,11	30	$2,1\times10^4$	$5,6\times10^5$
LLS	(Στερεά υλικά, μικρής δραστηριότητος)						
	βλ. περιθώριο 2700	(2)					
LSA	(Υλικά μικρής ειδικής δραστηριότητος)						
	βλ. περιθώριο 2700	(2)					
177 Lu	Λουτήτιο (71)	11,1	300	11,1	300	$4,1\times10^3$	$1,1\times10^5$
MFP	Μείγμα προϊόντα σχάσεως	0,37	10	0,015	0,4		
28 Mg	Μαγνήσιο (12)	0,22	6	0,22	6	$1,9\times10^5$	$5,2\times10^6$
52 Mn	Μαγγάνιο (25)	0,19	5	0,19	5	$1,6\times10^4$	$4,4\times10^5$
54 Mn		0,74	20	0,74	20	$3,1\times10^2$	$8,3\times10^3$
56 Mn		0,19	5	0,19	5	$8,1\times10^5$	$2,2\times10^7$
99 Mo	Μολυβδαίνιο (42)	3,7	100	3,7	100	$1,7\times10^4$	$4,7\times10^5$
22 Na	Νάτριο (11)	0,3	8	0,3	8	$2,3\times10^2$	$6,3\times10^3$
24 Na		0,19	5	0,19	5	$3,2\times10^5$	$8,7\times10^6$
93m Nb	Νιόβιο (41)	37	1000	37	1000	$4,1\times10$	$1,1\times10^3$
95 Nb		0,74	20	0,74	20	$1,4\times10^3$	$3,9\times10^4$
97 Nb		0,74	20	0,74	20	$9,6\times10^5$	$2,6\times10^7$
147 Nd	Νεοδύμιο (60)	3,7	100	3,7	100	$3,0\times10^3$	$8,0\times10^4$
149 Nd		1,11	30	1,11	30	$4,1\times10^5$	$1,1\times10^7$

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1		A_2		Ειδική δραστηριότητα	
		TB_q	(Ci)	TB_q	(Ci)	$TB_{q/g}$	(Ci/q)
59 Ni	Νικέλιο (28)	37	1000	33,3	900	$2,3\times10^{-3}$	$8,1\times10^{-2}$
63 Ni		37	1000	3,7	100	1,7	$0,46\times10^{2}$
65 Ni		0,37	10	0,37	10	$7,0\times10^{5}$	$1,9\times10^{7}$
237 Np	Νεπτούνιο (93)	0,19	5	$1,85\times10^{-4}$	0,005	$2,6\times10^{-5}$	$6,9\times10^{-4}$
239 Np		7,4	200	7,4	200	$8,5\times10^{3}$	$2,3\times10^{5}$
185 Os	Οσμιο (76)	0,74	20	0,74	20	$2,7\times10^{2}$	$7,3\times10^{3}$
191 Os		22,2	600	14,8	400	$1,7\times10^{3}$	$4,6\times10^{4}$
191m Os		7,4	200	7,4	200	$4,4\times10^{4}$	$1,2\times10^{6}$
193 Os		3,7	100	3,7	100	$2,0\times10^{4}$	$5,3\times10^{5}$
32 P	φωσφόρος (15)	1,11	30	1,11	30	$1,1\times10^{4}$	$2,9\times10^{5}$
230 Pa	προκτακτίνιο (91)	0,74	20	0,03	0,8	$1,2\times10^{3}$	$3,2\times10^{4}$
231 Pa		0,07	2	$7,4\times10^{-5}$	0,002	$1,7\times10^{-3}$	$4,5\times10^{-2}$
233 Pa		3,7	100	3,7	100	$7,8\times10^{2}$	$2,1\times10^{4}$
210 Pb	Μόλυβδος (82)	3,7	100	0,007	0,2	3,3	8,8 ×10
212 Pb		0,22	6	0,22	6	$5,2\times10^{4}$	$1,4\times10^{6}$
103 Pd	Παλλάδιο (46)	37	1000	25,9	700	$2,8\times10^{3}$	$7,5\times10^{4}$
109 Pd		3,7	100	3,7	100	$7,8\times10^{4}$	$2,1\times10^{6}$
147 Pm	Προμήθιο (61)	37	1000	2,96	80	3,5×10	$9,4\times10^{2}$
149 Pm		3,7	100	3,7	100	$1,6\times10^{4}$	$4,2\times10^{5}$
210 Po	Πολώνιο (84)	7,4	200	0,007	0,2	$1,7\times10^{2}$	$4,5\times10^{3}$
142 Pr	Πρασεοδύμιο (59)	0,37	10	0,37	10	$4,4\times10^{4}$	$1,2\times10^{6}$
143 Pr		11,1	300	7,4	200	$2,4\times10^{3}$	$6,6\times10^{4}$
191 Pt	Λευκόχρυσος (78)	3,7	100	3,7	100	$8,5\times10^{3}$	$2,3\times10^{5}$
193 Pt		7,4	200	7,4	200	$7,4\times10^{3}$	$2,0\times10^{5}$
197m Pt		11,1	300	11,1	300	$4,4\times10^{5}$	$1,2\times10^{7}$
197 Pt		11,1	300	11,1	300	$3,3\times10^{4}$	$8,8\times10^{5}$
238 Pu	Πλουτώνιο (94)	0,11	3	1,11×10	$0,003^{-4}$	6,6×10	$1,7\times10^{-1}$
239 Pu		0,07	2	$7,4\times10^{-5}$	0,002	$2,3\times10^{-3}$	$6,2\times10^{-2}$
240 Pu		0,07	2	$7,4\times10^{-5}$	0,002	$8,5\times10^{-3}$	$2,3\times10^{-1}$
241 Pu		37	1000	0,004	0,1	4,1	$1,1\times10^{2}$
242 Pu		0,11	3	$1,11\times10^{-4}$	0,003	$1,4\times10^{-4}$	$3,9\times10^{-3}$
223 Ra	Ράδιο (88)	1,85	50	0,007	0,2	$1,9\times10^{3}$	$5,0\times10^{4}$

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1 TB$_q$	A_1 (Ci)	A_2 TB$_q$	A_2 (Ci)	Ειδική δραστηριότητα TB$_{q/g}$	Ειδική δραστηριότητα (Ci/q)
224 Ra	Ράδιο (88) (συνέχεια)	0,22	6	0,02	0,5	$5,9\times10^{3}$	$1,6\times10^{5}$
226 Ra		0,37	10	0,002	0,05	$3,7\times10^{-2}$	1,0
228 Ra		0,37	10	0,002	0,05	8,5	$2,3\times10^{2}$
86 Rb	Ρουβίθιο (37)	1,11	30	1,11	30	$2,3\times10^{3}$	$8,1\times10^{4}$
87 Rb		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$2,4\times10^{-9}$	$6,6\times10^{-8}$
Rb (Φυσικό)		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$6,7\times10^{-10}$	$1,8\times10^{-8}$
186 Re	Ρήνιο (75)	3,7	100	3,7	100	$7,0\times10^{3}$	$1,9\times10^{5}$
187 Re		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$1,4\times10^{-9}$	$3,8\times10^{-8}$
188 Re		0,37	10	0,37	10	$3,7\times10^{4}$	$1,0\times10^{6}$
Re (Φυσικό)		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$8,9\times10^{-10}$	$2,4\times10^{-8}$
103m Rh	Ρόδιο (45)	37	1000	37	1000	$1,2\times10^{5}$	$3,2\times10^{7}$
105 Rh		7,4	200	7,4	200	$3,0\times10^{4}$	$8,2\times10^{5}$
222 Rn	Ραδόνιο (86)	0,37	10	0,07	2	$5,6\times10^{3}$	$1,5\times10^{5}$
97 Ru	Ρουθήνιο (44)	2,96	80	2,96	80	$2,0\times10^{4}$	$5,5\times10^{5}$
103 Ru		1,11	30	1,11	30	$1,2\times10^{3}$	$3,2\times10^{4}$
105 Ru		0,74	20	0,74	20	$2,4\times10^{5}$	$6,6\times10^{6}$
106 Ru		0,37	10	0,26	7	$1,3\times10^{2}$	$3,4\times10^{3}$
35 S	Θείο (16)	37	1000	11,1	300	$1,6\times10^{3}$	$4,3\times10^{4}$
122 Sb	Αντιμώνιο (51)	1,11	30	1,11	30	$1,4\times10^{4}$	$3,9\times10^{5}$
124 Sb		0,19	5	0,19	5	$6,7\times10^{2}$	$1,8\times10^{4}$
125 Sb		1,48	40	1,11	30	5,2×10	$1,4\times10^{3}$
46 Sc	Σκάνδιο (21)	0,3	8	0,3	8	$1,3\times10^{3}$	$3,4\times10^{4}$
47 Sc		7,4	200	7,4	200	$3,0\times10^{4}$	$8,2\times10^{5}$
48 Sc		0,19	5	0,19	5	$5,6\times10^{4}$	$1,5\times10^{6}$
75 Se	Σελήνιο (34)	1,48	40	1,48	40	$5,2\times10^{2}$	$1,4\times10^{4}$
31m Si	Πυρίτιο (14)	3,7	100	3,7	100	$1,4\times10^{6}$	$3,9\times10^{7}$
147 Sm	Σαμάριο (62)	Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$7,4\times10^{-10}$	$2,0\times10^{-8}$
151 Sm		37	1000	3,33	90	$9,6\times10^{-1}$	2,6×10
153 Sm		11,1	300	11,1	300	$1,6\times10^{4}$	$4,4\times10^{5}$
113 Sn	Κασσίτερος (50)	2,22	60	2,22	60	$3,7\times10^{2}$	$1,0\times10^{4}$
125 Sn		0,37	10	0,37	10	$4,1\times10^{3}$	$1,1\times10^{5}$
85m Sr	Στρόντιο (38)	2,96	80	2,96	80	$1,2\times10^{6}$	$3,2\times10^{7}$
85 Sr		1,11	30	1,11	30	$8,9\times10^{2}$	$2,4\times10^{4}$
87 Sr		1,85	50	1,85	50	$4,4\times10^{5}$	$1,2\times10^{7}$

ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1 TB_q	A_1 (Ci)	A_2 TB_q	A_2 (Ci)	Ειδική δραστηριότητα $TB_{q/g}$	Ειδική δραστηριότητα (Ci/q)
89 Sr	Στρόντιο (38) (συνέχεια)	3,7	100	1,48	40	$1,1\times10^{3}$	$3,2\times10^{4}$
90 Sr		0,37	10	$1,5\times10^{-2}$	0,4	5,6	$1,5\times10^{2}$
91 Sr		0,37	10	0,37	10	$1,3\times10^{5}$	$3,6\times10^{6}$
92 Sr		0,37	10	0,37	10	$4,8\times10^{5}$	$1,3\times10^{7}$
T (μη συμπιεσμένο)	Τρίτιο (1)	37	1000	37	1000	$3,6\times10^{2}$	$9,7\times10^{3}$
T (συμπιεσμένο)		37	1000	37	1000		
T (δραστηριοποιημένη) φωταυγεία μπογιά)		37	1000	37	1000		
T (απορροφημένη σε) στερεό ελκυστήρα)		37	1000	37	1000		
T (Τριτιομένο νερό)		37	1000	37	1000		
T (Άλλες μορφές)		0,74	20	0,74	20		
182 T	Τεντάλιο (73)	0,74	20	0,74	20	$2,3\times10^{2}$	$6,2\times10^{3}$
160 Tb	Τερβιο (65)	0,74	20	0,74	20	$4,1\times10^{2}$	$1,1\times10^{4}$
96m Tc	Τεχνήτιο (43)	37	1000	37	1000	$1,4\times10^{6}$	$3,8\times10^{7}$
96 Tc		0,22	6	0,22	6	$1,2\times10^{4}$	$3,2\times10^{5}$
97m Tc		37	1000	7,4	200	$5,6\times10^{2}$	$1,5\times10^{4}$
97 Tc		37	1000	14,8	400	$5,2\times10^{-5}$	$1,4\times10^{-3}$
99m Tc		3,7	100		100	$1,9\times10^{5}$	$5,2\times10^{6}$
99 Tc		37	1000	2,96	80	$6,3\times10^{-4}$	$1,7\times10^{-2}$
125m Te	Τελλούριο (52)	37	1000	3,7	100	$6,7\times10^{2}$	$1,8\times10^{4}$
127m Te		11,1	300	1,48	40	$1,5\times10^{3}$	$4,0\times10^{4}$
127 Te		11,1	300	11,1	300	$9,6\times10^{4}$	$2,6\times10^{6}$
129m Te		1,11	30	1,11	30	$9,3\times10^{2}$	$2,5\times10^{4}$
129 Te		3,7	100	3,7	100	$7,4\times10^{5}$	$2,0\times10^{7}$
131m Te		0,37	10	0,37	10	$3,0\times10^{4}$	$8,0\times10^{5}$
132 Te		0,26	7	0,26	7	$1,1\times10^{4}$	$3,1\times10^{5}$
227 Th	Θόριο (90)	7,4	200	$7,4\times10^{-3}$	0,2	$1,2\times10^{3}$	$3,2\times10^{4}$
228 Th		0,22	6	$2,96\times10^{-5}$	0,0008	$3,1\times10$	$8,3\times10^{2}$
230 Th		0,11	3	$1,11\times10^{-4}$	0,0003	$7,0\times10^{-4}$	$1,9\times10^{-2}$
231 Th		37	1000	37	1000	$2,0\times10^{4}$	$5,3\times10^{5}$
232 Th		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$4,1\times10^{-9}$	$1,1\times10^{-7}$
234 Th		0,37	10	0,37	10	$8,5\times10^{2}$	$2,3\times10^{4}$
Th		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	(Βλ. πίνακα XXI)	

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδιου	Ατομικός αριθμός και στοιχείο	A_1		A_2		Ειδική δραστηριότητα	
		TB_q	(Ci)	TB_q	(Ci)	$TB_{q/g}$	(Ci/q)
Th (Ακτινοβολημένο)	Θόριο (90) (συνέχεια)	a/	a/	a/	a/		
200 Tl	Θάλιο (81)	0,74	20	0,74	20	$2,2\times10^{4}$	$5,8\times10^{5}$
201 Tl		7,4	200	7,4	200	$8,1\times10^{3}$	$2,2\times10^{5}$
202 Tl		1,48	40	1,48	40	$2,0\times10^{3}$	$5,4\times10^{4}$
204 Tl		11,1	300	1,11	30	$1,6\times10$	$4,3\times10^{2}$
170 Tm	Θουλιο (69)	11,1	300	1,48	40	$2,2\times10^{2}$	$6,0\times10^{3}$
171 Tm		37	1000	3,7	100	$4,1\times10$	$1,1\times10^{3}$
230 U	Ουράνιο (92)	3,7	100	$3,7\times10^{-3}$	0,1	1×10^{3}	$2,7\times10^{4}$
232 U		1,11	30	$1,11\times10^{-3}$	0,03	$7,8\times10^{-1}$	$2,1\times10$
233 U		3,7	100	$3,7\times10^{-3}$	0,1	$3,5\times10^{-4}$	$9,5\times10^{-3}$
234 U		3,7	100	$3,7\times10^{-3}$	0,1	$2,3\times10^{-4}$	$6,2\times10^{-3}$
235 U		3,7	100	$7,4\times10^{-3}$	0,2	$7,8\times10^{-8}$	$2,1\times10^{-6}$
236 U		7,4	200	$7,4\times10^{-3}$	0,2	$2,3\times10^{-6}$	$6,3\times10^{-5}$
238 U		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη	$1,2\times10^{-8}$	$3,3\times10^{-7}$
U (φυσικό)		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη		(Βλ. πίνακα XXI)
U (Εμπλουτισμένο)	20%	Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη		(Βλ. πίνακα XXI)
U (Ελατωμένο)	20%	3,7	100	$3,7\times10^{-3}$	0,1		
		Απεριόριστη	Απεριόριστη	Απεριόριστη	Απεριόριστη		(Βλ. πίνακα) (XXI)
U (Ακτινοβολημένο		b/	b/	b/	b/		
V-48	Βανάδιο (23)	0,22	6	0,22	6	$6,3\times10^{3}$	$1,7\times10^{5}$
W-181	Τουγκστένιο (74)	7,4	200	3,7	100	$1,9\times10^{2}$	$5,0\times10^{3}$
W-185		37	1000	3,7	100	$3,6\times10^{-4}$	$9,7\times10^{-3}$
W-187		1,48	40	1,48	40	$2,6\times10^{4}$	$7,0\times10^{5}$
131m Xe(συμπιεσμένο)	Ξένο (54)	0,37	10	0,37	10	$3,7\times10^{3}$	$1,0\times10^{5}$

a/ Οι τιμές του A_1 και A_2 πρέπει να υπολογίζονται με το περιθώριο 3691 (3) λαμβανοντας υπ' όψιν την δραστηριότητα των προιόντων σχάσεως και του ουράνιο-233 επιπλέον αυτή του θορίου.

β/ Οι τιμές του A_1 και A_2 πρέπει να υπολογίζονται με τις προδιαγραφές του περιθωρίου (3) λαμβάνοντας υπ' όψιν την δραστηριότητα των προϊόντων σχάσεως και των ισοτόπων του πλουτώνιο, επιπλέον αυτή του ουράνιο.

Πίνακας XX (συνέχεια)

Σύμβολο του Ραδιονουκλεΐδίου	Ατομικός αριθμός και στοιχείο	A_1		A_2		Ειδική δραστηριότητα	
		TB_q	(Ci)	TB_q	(Ci)	$TB_{q/g}$	(Ci/q)
131m Xe (μη συμπεπιεσμένο)	Ξένο (54) (συνέχεια)	3,7	100	3,7	100	$3,7\times10^{3}$	$1,0\times10^{5}$
133 Xe (μη συμπεπιεσμένο)		37	1000	37	1000	$7,0\times10^{3}$	$1,9\times10^{5}$
133 Xe (συμπεπιεσμένο)		0,19	5	0,19	5	$7,0\times10^{3}$	$1,9\times10^{5}$
135 Xe (μη συμπεπιεσμένο)		2,59	70	2,59	70	$9,3\times10^{3}$	$2,5\times10^{5}$
135 Xe (συμπεπιεσμένο)		0,07	2	0,07	2	$9,3\times10^{3}$	$2,5\times10^{5}$
90 Y	Υτεριο (39)	0,37	10	0,37	10	$9,3\times10^{3}$	$2,5\times10^{5}$
91 Ym		1,11	30	1,11	30	$1,5\times10^{6}$	$4,1\times10^{7}$
91 Y		1,11	30	1,11	30	$9,3\times10^{2}$	$2,5\times10^{4}$
92 Y		0,37	10	0,37	10	$3,5\times10^{5}$	$9,5\times10^{6}$
93 Y		0,37	10	0,37	10	$1,2\times10^{5}$	$3,2\times10^{6}$
175 Yb	Υττερβιο (70)	14,8	400	14,8	400	$6,7\times10^{3}$	$1,8\times10^{5}$
65 Zn	Ψευδάργυρος (30)	1,11	30	1,11	30	$3,0\times10^{2}$	$8,0\times10^{3}$
69m Zn		1,48	40	1,48	40	$1,2\times10^{5}$	$3,3\times10^{6}$
69 Zn		11,1	300	11,1	300	$2,0\times10^{6}$	$5,3\times10^{7}$
93 Zr	Ζιρκόνιο (40)	37	1000	7,4	200	$1,3\times10^{-4}$	$3,5\times10^{-3}$
95 Zr		0,74	20	0,74	20	$7,8\times10^{2}$	$2,1\times10^{4}$
97 Zr		0,74	20	0,74	20	$7,4\times10^{4}$	$2,0\times10^{6}$

Πίνακας XXI – Σχέσεις δραστηριότητα. 3690
Μάζα για το ουράνιο και φυσικό θόριο α) Γίνεται παραπομπή στον πίνακα αυτό, στον πίνακα XX)

ραδιο-ενεργή ουσία	$TB/_q$	(Ci/g)	g/TB_q	(g/Ci)
ουράνιο (% σε μάζα 235_U)				
0,45	$1,9\times10^{-8}$	$5,0\times10^{-7}$	$5,4\times10^{7}$	$2,0\times10^{6}$
0,72(φυσικό)	$2,6\times10^{-8}$	$7,06\times10^{-7}$	$3,8\times10^{7}$	$1,42\times10^{6}$
1,0	$2,8\times10^{-8}$	$7,6\times10^{-7}$	$3,5\times10^{7}$	$1,3\times10^{6}$
1,5	$3,7\times10^{-8}$	$1,0\times10^{-6}$	$2,7\times10^{7}$	$1,0\times10^{6}$
5,0	$1,0\times10^{-7}$	$2,7\times10^{-6}$	$1,0\times10^{7}$	$3,7\times10^{5}$
10,0	$1,8\times10^{-7}$	$4,8\times10^{-6}$	$5,7\times10^{6}$	$2,1\times10^{5}$
20,0	$3,7\times10^{-7}$	$1,0\times10^{-5}$	$2,7\times10^{6}$	$1,0\times10^{5}$
35,0	$7,4\times10^{-7}$	$2,0\times10^{-5}$	$1,4\times10^{6}$	$5,0\times10^{4}$
50,0	$9,3\times10^{-7}$	$2,5\times10^{-5}$	$1,1\times10^{6}$	$4,0\times10^{4}$
90,0	$2,1\times10^{-6}$	$5,8\times10^{-5}$	$4,6\times10^{5}$	$1,7\times10^{4}$
93,0	$2,6\times10^{-6}$	$7,0\times10^{-5}$	$3,8\times10^{5}$	$1,4\times10^{4}$
95,0	$3,4\times10^{-6}$	$9,1\times10^{-5}$	$3,0\times10^{5}$	$1,1\times10^{4}$
φυσικό θόριο	$8,1\times10^{-9}$	$2,2\times10^{-7}$	$1,2\times10^{8}$	$4,6\times10^{6}$

α. Για το ουράνιο οι αριθμοί λαμβάνουν υπ' όψη την δραστηριότητα του ουρανίου -234 που συγκεντρώνεται κατά την διαδικασία διαχωρισμού. Για το θόριο η δραστηριότητα συμπεριλαμβάνει αυτή του θόριου -228 στην συγκέντρωση ισορροπίας.

(2) Για όλα τα καθαρά-ραδιο-νουκλείδια των οποίων η ταυτότητα είναι γνωστή, αλλά που δεν αναφέρονται στον πίνακα XX οι τιμές Αι και Α2 θα καθοριστούν σύμφωνα με τους εξής κανόνες.

α. Αν το ραδιο-νουκλειδιο εκπέμπει μόνον 1 τύπο ακτινοβολίας Αι θα καθοριστεί σύμφωνα με τους κανόνες που αναγράφονται στο i) ii) iii) και iv) κατωτέρω. Για τα ραδιονουκλείδια που εκπέμπουν διαφόρων τύπων ακτινοβολίες Αι θα είναι η πιο περιοριστική τιμή, από αυτές που θα καθορισθούν για κάθε τύπο ακτινοβολίας.

Όμως στις δύο περιπτώσεις Αι θα περιορισθεί στη μέγιστη τιμή των 37 TBQ (1000 2i). Αν ένα νουκλείδιο γενικά μια διάσπαση ένα προϊόν του γένους με μικρότερη ζωή του οποίου η περίοδος δεν είναι ανώτερη από 10 μέρες Αι θα υπολογισθεί στον πυρηνικό πατέρα.

i) Για τους πομπούς γάμμα Αι θα ορισθεί με τους κανόνες.

$$Ai = \frac{4,65\times10^{6}}{\Gamma\alpha} \text{ (σε TBQ) ή}$$

$$Ai = \frac{9}{\Gamma\beta} \text{ (σε Ci)}$$

με Γα ως ειδική σταθερά της ακτινοβολίας γάμμα (σε C M2/χγ) που αντιστοιχεί στην παροχή εκθέσεως σε C/χγ.'ς, από ένα μέτρο ανά BQ. Ο αριθμός $4,65\times10^{6}$ προκύπτει από την επιλογή του 10 μSV/ω σε απόσταση 3μ από την επιλογή ισότιμης δόσης συσχετισμού, και με Γβ ως ειδική σταθερή ακτινοβολία γάμμα σε R.μ2/Ci.ω. που ανταποκρίνεται στην παροχή έκθεσης σε R/ω από 1 μέτρο ανά Ci. ο αριθμός 9 προκύπτει από την επιλογή του 1 ρεμ/ω σε απόσταση 3μ ως παροχή ισότιμης δόσης συσχετισμού.

ii) Για τους πομπούς ακτινοβολίας χ, Αι θα καθοριστεί σύμφωνα με τον ατομικό αριθμό νουκλειδίου.

Για Z≤55, Αι=37TBQ (1000Ci)

Για Z>55, Αι=7,4TBQ (200Ci)

iii) Για τους πομπούς βήτα Αι θα καθορισθεί σύμφωνα με την μέγιστη ενέργεια βήτα (Ε μαξ) σύμφωνα με τον πίνακα XXIII.

ii) Για τους πομπούς αλφα Αι θα καθορισθεί με τον κανόνα Αι=1000 A3

A3 είναι η τιμή που αναγράφεται στον πίνακα XXIII.

Β A2 θα είναι η πιό περιοριστική τιμή εκ των 2 εξής τιμών

i) η ανάλογη τιμή Αι και

ii) η τιμή A3 απόσπασμένη από τον πίνακα XXIII

Πίνακας XXII Σχέση μεταξύ Αι και Ε μαξ για τους πομπούς βήτα.

Ε μαξ MeV)	Αι (TBQ)	Αι (RK Ci)
<0,5	37	1000
0,5- <1,0	11,1	300
1,0- <1,5	3,7	100
1,5- <2,0	1,11	30
>2,0	0,37	10

. . . . . .

Πίνακας XXIII «Σχέση μεταξύ A3 και του ατομικού αριθμού του ραδιονουκλείδιου

. . . . . .

Ατομ αριθ. Περίοδος μικρότερη από 1000 ημ.	A3 Περίοδος μεταξύ 1000 ημερών και 10^6 ετών	Περίοδος ανώτερη από 10^6 ετών
1 έως 81	0,11 TBQ(3Ci)	1,85 GBQ (50μCi) 0,11 TBQ (3Ci)
82 και άνω.	74MBQ(2μCi)	0,11 TBQ (3Ci)

(3) Για όλα τα καθαρά ραδιονουκλείδια των οποίων η ταυτότης δεν είναι γνωστή, η τιμή του Αι θα καθορισθεί στους 74 TBQ (2Ci) και αυτή του A2 σε 74 MBQ (0,002 Ci). Αν όμως γνωρίζομε ότι ο ατομικός αριθμός του ραδιονουκλεϊδίου είναι μικρότερος από 82, η τιμή του Αι θα καθορισθεί σε 370 GBQ (10 Ci) και εκείνη του A2 σε 14,8 GBQ (0,4 Ci).

2 Μείγματα ραδιο-νουκλειδίων συμπεριλαμβανομένων και των αλυσίδων ραδιο-ενεργών διασπάσεων.

(1) Για τα μείγματα – προϊόντα μπορούμε να παραδεχθούμε τα εξής όρια δραστηριότητος αν δεν αναλύονται λεπτομερέστατα τα μείγματα 3691

Αι – 370 GBQ (10 Ci)

A2 – 14,8 GBQ (0,4 Ci)

(2) Μία μόνο αλυσίδα ραδιο-ενεργούς διάσπασης όπου τα ραδιο-νουκλεΐδια ευρίσκονται στις ίδιες αναλογίες όπως στη φυσική κατάσταση και όπου κανένα κατιόν δεν έχει περίοδο ανώτερη από 10 μέρες ή ανώτερη απ' αυτή του πυρηνικού πατέρα, θα θεωρηθεί σαν καθαρό ραδιονουκλείδιο. Η δραστηριότητα που πρέπει να λαμβάνεται υπ' όψη και οι τιμές του Αι και A2 που πρέπει να εφαρμοσθούν θα είναι αυτές που θα αναλογούν στο πυρηνικό πατέρα της αλυσίδας αυτής.

Στις περιπτώσεις όμως των αλυσίδων ραδιο-ενεργών διασπάσεων όπου 1 ή περισσότερα κατιόντα έχουν περίοδο ανώτερη των 10 ημερών ή ανώτερη από εκείνη του πυρηνικού πατέρα, ο πυρηνικός πατέρας και ο κατιών του (ή οι κατιόντες του) θα θεωρηθούν σαν μείγμα διαφορετικών νουκλειδίων.

(3) Στην περίπτωση ενός μείγματος διαφορετικών ραδιονουκλειδίων του οποίου η ταυτότητα και η δραστηριότητα εκάστου εξ αυτών είναι γνωστές, η επιτρεπτέα δραστηριότης εκάστου ραδιο-νουκλειδίου

R1 R2 .....Rv να μην είναι ανώτερο από την μονάδα.

Στο άθροισμα αυτό

$$Fi = \frac{\text{Συνολική δραστηριότης του Ri}}{\text{Ai (Ri)}}$$

$$Fi = \frac{\text{Συνολική δραστηριότης του R2}}{\text{Ai (R2)}}$$

$$Fi = \frac{\text{Συνολική δραστηριότης του Rv}}{\text{Ai (Rv)}}$$

Ai (Ri, R2, ...Rv) είναι η τιμή του Αι ή του A2 ανάλογα με την περίπτωση, για το ραδιο-νουκλείδιο Ri, R2 .....Rv.

(4) Αν η ταυτότητα όλων των ραδιο-νουκλειδίων είναι γνωστή αλλά αν οι αντίστοιχες δραστηριότητες μερικών απ' αυτά δεν είναι, θα εφαρμόσουμε τον κανόνα της παραγράφου

(3) για να καθορισθούν οι τιμές του Αι ή του Α2 ανάλογα με την περίπτωση.

Όλα τα ραδιο-νουκλεΐδια των οποίων οι αντίστοιχες δραστηριότητες δεν είναι γνωστές (όμως η συνολική τους δραστηριότητα είναι γνωστή) θα ταξινομούνται σε μία ίδια ομάδα και η πιό περιοριστική τιμή του Αι και Α2 εφαρμοστέα σε ένα οιονδήποτε εξ αυτών, θα χρησιμοποιηθεί σαν τιμή του Αι ή του Α2 στον παρονομαστή του κλάσματος.

(5) Αν η ταυτότητα όλων των ραδιο-νουκλειδίων είναι γνωστή αλλά η δραστηριότητα κανενός εξ αυτών δεν είναι γνωστή, η πιό περιοριστική τιμή του Αι ή του Α2 εφαρμοστέα σ' οποιοδήποτε εκ των παρόντων ραδιο-νουκλεΐδίων θα χρησιμοποιηθεί.

(6) Αν η ταυτότητα όλων των ραδιο-νουκλειδίων ή μερικών εξ αυτών δεν είναι γνωστή, η τιμή του Αι θα καθορισθεί σε 74 GBQ (2Ci) και εκείνη του Α2 σε 74 MBQ (0,002 Ci). Όμως αν γνωρίζομε ότι δεν υπάρχουν πομποί Άλφα, η τιμή του Α2 θα καθορισθεί σε 14,8 GBQ (0,4 Ci)

Τμήμα VII Απολύμανση, διαρροές και ατυχήματα.

(1) Αν ένα δέμα περιέχον ραδιο-ενεργείς ουσίες, απάσει ή παρουσιάσει διαρροές ή εμπλακεί σε ατύχημα κατά την μεταφορά, το όχημα ή η εμπλακείσα ζώνη θα απομονωθούν ώστε να αποφευχθεί να έλθουν τα άτομα σε επαφή με τις ραδιο-ενεργείς ουσίες και όταν θα είναι δυνατόν θα αναφερθούν και θα περικλεισθούν με φράγματα.

Κανένας δεν θα έχει την άδεια να παραμείνει στην απομονωμένη ζώνη πριν φθάσουν εξειδικευμένα άτομα για να διευθύνουν τις εργασίες μεταχείρισης και διάσωσης. Ο αποστολέας και οι ενδιαφερόμενες αρχές θα προειδοποιηθούν αμέσως. Πέραν αυτών των διατάξεων η παρουσία ραδιο-ενεργών ουσιών, δεν θα πρέπει να θεωρηθεί σαν εμπόδιο στις διαδικασίες διάσωσης ή καταπολέμησης της πυρκαγιάς.

(2) Αν οι ραδιο-ενεργείς ουσίες διαρεύσουν χυθούν ή διασκορπιστούν σ' ένα χώρο σε ένα έδαφος ή σε φορτία ή υλικό που χρησιμοποιείται για την αποθήκευση, θα καλέσομε το συντομώτερο δυνατό εξειδικευμένα άτομα, για να διευθύνουν τις διαδικασίες απολύμανσης. Ο χώρος το έδαφος ή το υλικό που μολύνθηκαν θα επανέλθουν σε λειτουργία παρά μόνον όταν η χρήση τους θα έχει κηρυχθεί απηλλαγμένη από κίνδυνο, από εξειδικευμένα άτομα.

(3) Με επιφύλαξη των διατάξεων της παραγράφου 4 όλα τα σχήματα τα υλικά ή τμήματα των υλικών που μολύνθηκαν κατά την μεταφορά ραδιο-ενεργών ουσιών, θα απολυμανθούν το συντομώτερο δυνατό από άτομα εξειδικευμένα και θα μπορέσουν να επαναχρησιμοποιηθούν μόνον αν η μη καθοριζομένη ραδιο-ενεργής μόλυνση είναι χαμηλώτερη από τα επίπεδα που αναφέρονται στον πίνακα XIX και αν τα οχήματα, τα υλικά ή τα τμήματα του υλικού δηλώθηκαν μη επικίνδυνα από άποψη της έντασης της υπολειμματικής ακτινοβολίας, από εξειδικευμένα άτομα.

(4) Τα οχήματα ή τα τμήματα που χρησιμοποιήθηκαν για την μεταφορά χύμα ή σε δεξαμενή υλικών μικρής ειδικής δραστηριότητας ή για την μεταφορά δια πλήρους φόρτωσης δεμάτων που περιέχουν υλικά μικρής ειδικής δραστηριότητας ή ρευστά υλικά μικρής δραστηριότητας δεν θα χρησιμοποιηθούν για άλλα φορτία πριν υποβληθούν σε απολύμανση, σύμφωνα με τις οδηγίες της διάταξης της παραγράφου (3).

Κεφάλαιο Α.7

Επιφυλασσόμενο

Κεφάλαιο Α.8

Επιφυλασσόμενο

Κεφάλαιο Α9

I Προδιαγραφές σχετικές με τις επιγραφές κινδύνου.

(I) Οι επιγραφές υπ' αριθ. 1, 3, 4. 1, 4. 2, 4. 3, 5, 6. 1, 6. 1Α, 7Α, 7Β, 7C και 8 έχουν την μορφή τετραγώνου 10 εκ πλευρού, τοποθετημένου στη γωνία. Σημειώνονται στην περιφέρεια σε μαύρη γραφμμή τοποθετημένη σε 5μμ από το χείλος.

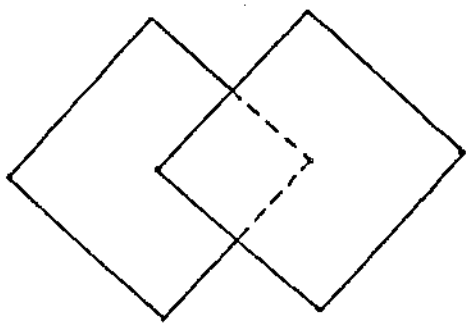
Η διάσταση του πλευρού πρέπει να είναι 30 εκ. τουλάχιστον για τις επιγραφές που προορίζονται για την τοποθέτηση στις στερεές δεξαμενές και τις αποσυναρμολογούμενες δεξαμενές.

(2) Οι επιγραφές 10, 11 και 12 έχουν την μορφή παραλληλόγραμου κανονικής διάστασης Α 5 (148×210)μμ. Για τα δέματα, οι διαστάσεις αυτές μπορούν να περιορισθούν μέχρι μεγέθους Α7 (74×105μμ).

(3) Μπουρούμε να εμφανίσουμε στο κάτω μέρος των πειγραφών μιά σημείωση σε αριθμούς ή γράμματα, σχετική με την φύση του κινδύνου. 3901

(I) Οι επιγραφές κινδύνου όταν απαιτούνται από τις διατάξεις του παρόντος συνημμένου, πρέπει να κολληθούν στο δέμα ή στις στερεές δεξαμενές ή να στερεοποιούνται με άλλο κατάλληλο τρόπο. Μόνον στην περίπτωση κατά την οποία η εξωτερική κατάσταση δεν το επιτρέπει θα κολληθούν σε χαρτόνια ή σε ταμπέλες που στερεοποιούνται γερά στο δέμα.

Οι επιγραφές μπορούν να αντικατασταθούν στις συσκευασίες αποστολής και στις στερεές δεξαμενές με σημειώματα κινδύνου που δεν σβήνουν και που ανταποκρίνονται ακριβώς
3693 στα μοντέλα που περιγράφονται.
3694 (2) Όταν ένα δέμα πρέπει να φέρει δύο επιγραφές του
3695 ιδίου μοντέλου αυτές πρέπει να τοποθετούνται με τον εξής τρόπο.



(3) Ο αποστολέας είναι υποχρεωμένος να τοποθετήσει τις επιγραφές στα δέματα ή στις στερεές δεξαμενές και τα κοντέινερ.

(4) Πέρα από τις επιγραφές κινδύνου που συνιστώνται από το ADR μπορούν να τοποθετούνται επιγραφές κινδύνου σύμφωνα με τις προδιαγραφές που εφαρμόζονται σε άλλους τρόπους μεταφοράς επάνω στα δέματα, κοντέινερ, κοντέινερ - δεξαμενών, και δοχεία που περιέχουν επικίνδυναν φορτία, και που μεταφέρονται οδικώς σ' ένα τμήμα του δρομολογίου και των οποίων οι επιγραφές πρέπει να ανταποκρίνονται στις διατάξεις των εν λόγω προδιαγραφών.

Κεφάλαιο Α9.

2. Επεξήγηση των εικόνων. 3902

Οι επιγραφές κινδύνου που προβλέπονται για τα υλικά και τα αντικείμενα των κλάσεων I εως 8 βλέπε συνημμένο πίνακα σημαίνουν.

Αριθ. I (Μαύρη βόμβα σε πορτοκαλί φόντο), υπόκειται στην έκρηξη (προβλ. στα περιθώρια 2117 (I), 2145 και 2563.

Αρ. 2 Αυτός ο αριθμός επιφυλάσσεται στην εικόνα που αποδέχεται διεθνώς και που αντιπροσωπεύει φιάλη αερίου σε πράσινο φόντο σε περίπτωση μελλοντικής χρήσης. Καμμία
3696 επιγραφή φέρουσα αυτή την εικόνα δεν προβλέπεται τώρα
3699 για τα υλικά της κλάσης 2 του ADR.
3700 Αρ. 3 (Μαύρη φλόγα σε κόκκινο φόντο προβλεπόμενη στα
3799 περιθώρια) 2225
2312(I)
3800 2479(2)
3899 2612(3)
και 2812(3)
3800 Κίνδυνος πυρκαγιάς (ρευστά εύφλεκτα υλικά).

Αρ 4.I Μαύρη φλόγα σε φόντο αποτελούμενο από κάθετες γραμμές με ίδη απόσταση μεταξύ τους εναλλακτικά κόκκινη και λευκή, που προβλέπεται στο περιθώριο 2414(I) «κίνδυνος πυρκαγιάς» (στερεά εύφλεκτα υλικά).

Αρ 4.2. (Μαύρη φλόγα σε λευκό φόντο του κάτω τριγώνου της επιγραφής κόκκινο).

Προβλέπεται στο περιθώριο 2443(I4.

Υλικό υποκείμενο σε ξαφνική εύφλεξη.

Αρ 4.3 (Μαύρη φλόγα σε μπλέ φόντο.

Προβλέπεται στο περιθώριο 2479 (I).

Κίνδυνος εκπομπής εύφλεκτου αερίου κατά την επαφή με νερό.

Αρ 5. (Φλόγα επάνω από κύκλο μαύρη σε κίτρινο φόντο. Προβλέπεται στα περιθώρια 2511(1) 2563(I) 2703 δελτίο 5 και 2812(3).

Αναφλεκτικό υλικό ή οργανικό υπεροξείδιο.

Αρ 6.1 Κράνος επένω σε δύο στα μαύρα ε λευκό φόντο, προβλέπεται στα περιθώρια 2312(2), 2612(1) και 2812(3) Τοξική ουσία να απομοωνθεί από διατροφές ή άλλα αντικείμενα που προορίζονται για κατανάλωση, στα οχήματα, στους χώρους φόρτωσης, ξεφόρτωσης ή μεταφόρτωσης.

Αριθ. 6. ΙΑ. Σταυρός του Αγ. Ανδρέα σε στάχυ αίτου μαύρου ή λευκό φόντο, προβλέπεται στα περιθώρια 2312(2) και 2612(2).

Βλαβερή ουσία. Να απομονωθεί από διατροφή στα οχήματα στους χώρους φόρτωσης ξεφόρτωσης ή μεταφόρτωσης.

Αρ. 6.2 Αυτός ο αριθμός επιφυλλάσεται στο ότι η διεθνής αποδεκτή εικόνα που αντοπροσωπεύει ένα κύκλο φορτωμένο με τρία κρουκασάν σε περίπτωση μελλοντικής χρήσης, καμία επιγραφή φέρουσα αυτή την εικόνα δεν προβλέπεται σήμερα για τα υλικά της κλάσης 6.2 του ADR.

Αρ. 7Α (σχηματισεμνο τριφύλι σημείωση RADIOACTIVE - ραδιο - ενεργό) μία κάθετη γραμμή στο μισό κάτω μέρος με το εξής κείμενο.

Περιεχόμενο.

Δραστηριότητα.

Σύμβολο και σημείωση με μαύρο σε λευκό φόντο, κάθετη κόκκινη γραμμή προβλεπόμενη στα δελτία 5 έως 12 του περιθωρίου 2703, ανάλογα με την περίπτωση και στο περιθώριο 3656(I) (2) και (3) ραδιο - ενεργό υλικό σε δέματα της κατηγορίας I - λευκή, σε περίπτωση ζημίας των δεμάτων, κινδύνου για την υγιεία σε περίπτωση κατάποσης εισπνοής ή επαφής με το υλικό που θα είχε διασπαφθεί.

Αρ. 7Β. Όπως το προηγούμενο, δύο κάθετες γραμμές στο κάτω μισό μέρος με το εξής κείμενο.

Περιεχόμενο .....

Δραστηριότης .....

Συντελεστής μεταφοράς .....

Σύμβολο και σημείωμα σε μαύρο φόντο ανωτέρω ήμισυ κίτρινο φόντο κατωτέρω ήμισυ λευκό.

(κάθετες κόκκινες γραμμές).

προβλεπόμενα στα δελτία 5 έως 12 του περιθωρίου 2703 σύμφωνα με την περίπτωση και στο περιθώριο 3656 (I), (2) και (3), ραδιοενεργό υλικό σε δέματα της κατηγορίας II - κίτρινο, δέματα που πρέπει να διατηρούνται σε απόσταση από δέματα που περιέχουν ραδιογραφικές ή μη εμφανιζόμενες φωτογραφικές πλάκες ή ζελατίνες, σε περίπτωση ζημίας του δέματος κινδυνου για την υγεία, με κατάποση εισπνοή ή επαφή με το υλικό που θα είχε διασπαρεί, όπως και κίνδυνο εξωτερικής ακτινοβολίας από απόσταση.

Αρ. 7C. (όπως το προηγούμενο αλλά με τρεις κάθετες γραμμές στο κάτω μισό μέρος) προβλέπεται στα δελτία 5 έως 12 του περιθωρίου 2703 ανάλογα με την περίπτωση και στο περιθώριο 3656(II), (2) και (3).

Ράδιο ενεργό υλικό στα δέματα της κατηγορίας III - κίτρινη δέματα που πρέπει να διατηρούνται σε απόσταση από τα δέματα που περιέχουν μη εμφανιζόμενες φωτογραφικές ή ραδιογραφικές πλάκες ή ζελατίνες, σε περίπτωση ζημίας των δεμάτων κινδύνου για την υγιεία με κατάποση, εισπνοή ή επαφή με το υλικό που θα είχε διασπαρεί όπως και κίνδυνος εξωτερικής ακτινοβολίας από απόσταση.

Αρ. 7D. Ο αριθμός αυτός αναφέρεται στην επιγραφή που προβλέπεται στο περιθώριο 240010 του κεφαλαίου Β4.

Αρ. 8. (σταγόνες που πέφτουν από μια δοκιμαστική σωλήνα σε μία πλάκα και από άλλη δοκιμαστική σωλήνα σε ένα χέρι. μαύρα σε λευκό φόντο, το κάτω τρίγωνο της επιγραφής είναι μαύρο με λευκή γραμμή γύρω), προβλέπεται στα περιθώρια 2312(2) 2479(2) 2511(1) 2612(3) 2703 δελτίο 5 και 2812(1).

- διαβρωτική ουσία.

Αρ. 9 Αυτός ο αριθμός επιφυλάσσεται στην κλάση 9 που θα μπορούσε νε ενταχθεί στο ADR.

Αρ. 10. (ανοικτή μαύρη ομπρέλλα σε λευκό φόντο) προβλέπεται στο περιθώριο 2479(1)

- ευαίσθητος στην υγρασία.

Αρ. 11. (δύο βέλη σε λευκό φόντο) προβλέπεται στα περιθώρια 2117(2) 2224(2), 2312(4), 2414(2) 2443(2) και 23), 2479(3) 2511(2), 2563(2) 2612(5) 2664 και 2812(5).

Άνω μέρος να τοποθετηθεί η επιγραφή με τις άκρες των βελών απάνω στις 2 αντίθετες πλευρές του δέματος.

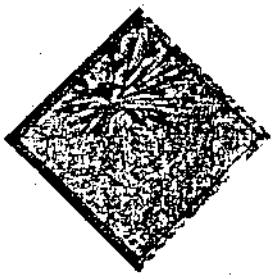
Αρ. 12. Κολωνάτο ποτήρι σε λευκό φόντο. Προβλέπονται στα περιθώρια 2117(2) 2188(2) 2224(1) και (2), 2414(2) 2443(3) 2479(3) 2511(2) 2562(2), 2612(4) 2664 και 2812(4) να μεταχειρισθεί με προσοχή ή να μην αναποδογυρισθεί.

Αρ. 13. Αυτός ο αριθμός χρησιμοποιείται αποκλειστικά στη διεθνή μεταφορά επικίνδυνων φορτίων με σιδηρόδρομο.

Κεφάλαιο Α–9 Επιγραφές κινδύνου. (Βλέπε περιθώριο 3902)

Περιορισμένη αναπαραγωγή

No. 1



No. 3



No. 4.1



No. 4.2



No. 4.3



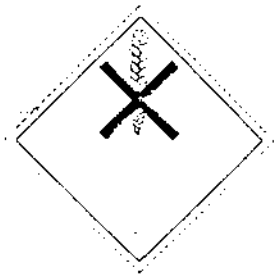
No. 5



No. 6.1



No. 6.1A



No. 8



No. 7A



No. 7B



No. 7C



No. 10



No. 11



No. 12



ΟΙΚΟΝΟΜΙΚΗ ΚΟΜΙΣΙΟΝ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ
ΕΠΙΤΡΟΠΗ ΕΣΩΤΕΡΙΚΗΣ ΜΕΤΑΦΟΡΑΣ

. . . . . .

ΕΥΡΩΠΑΪΚΗ ΣΥΜΒΑΣΗ

που αφορά τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων οδικώς (ADR) και πρωτόκολλο υπογραφής που έγινε στη Γενεύη στις 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ ΙΙΙ

(Παράρτημα Β)

ΗΝΩΜΕΝΑ ΕΘΝΗ
Νέα Υόρκη, 1985

ΠΑΡΑΡΤΗΜΑ Β: ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΞΟΠΛΙΣΜΟ ΜΕΤΑΦΟΡΑΣ ΚΑΙ ΕΡΓΑΣΙΕΣ ΜΕΤΑΦΟΡΑΣ

ΠΕΡΙΕΧΟΜΕΝΑ

		Περιθωριακό
Σχέδιο του Παραρτήματος		10 000
Εφαρμοσιμότητα άλλων διατάξεων, εθνικών ή διεθνών		10 001
Εφαρμοσιμότητα των διατάξεων του Μέρους Ι		10 002
ΜΕΡΟΣ Ι	ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΕΦΑΡΜΟΣΙΜΕΣ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΟΛΩΝ ΤΩΝ ΚΑΤΗΓΟΡΙΩΝ	
	Γενικά	10 010 & επόμ.
	Πλαίσιο του παρόντος Παραρτήματος (περιλαμβανομένων περιορισμένων ποσοτήτων)	10 010 & επόμ.
	Ορισμοί	10 014
Παράγραφος 1	Τρόπος μεταφοράς	10 000 & επόμ.
	Μέθοδος αποστολής, περιορισμοί στη μεταφορά	10 105
	Πλήρες φορτίο	10 108
	Μεταφορά χύμα	10 111
	Μεταφορά σε κοντέηνερς	10 118
	Μεταφορά σε δεξαμενές	10 121
	Χαρακτηρισμός δεξαμενοκοντέηνερς & συστοιχιών δοχείων	10 130
Παράγραφος 2	Ειδικές προϋποθέσεις προς εκπλήρωση από τα μεταφορικά μέσα και τον εξοπλισμό τους	10 200 & επόμ.
	Τύποι οχημάτων	10 204
	Οχήματα με σταθερές ή αφαιρούμενες δεξαμενές ή συστοιχίες δοχείων	10 220
	Πυροσβεστικές συσκευές	10 240
	Ηλεκτρολογικός εξοπλισμός	10 251
	Διάφορος εξοπλισμός	10 260
	Έγκριση οχημάτων	10 282 & 10 283
Παράγραφος 3	Γενικές απαιτήσεις εξυπηρετήσεως	10 300 & επόμ.
	Πληρώματα οχημάτων	10 311
	Ειδική εκπαίδευση οδηγών	10 315
	Επίβλεψη οχημάτων	10 321
	Μεταφορά επιβατών	10 325
	Χρήση πυροσβεστικών συσκευών	10 340
	Φορητές Φωτιστικές συσκευές	10 353
	Απαγόρευση καπνίσματος	10 374
	Άδειες δεξαμενές	10 378
	Έγγραφα που πρέπει να υπάρχουν στη μονάδα μεταφοράς	10 381
	Γραπτές οδηγίες	10 385
Παράγραφος 4	Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό	10 400 & επόμ.
	Περιορισμός των μεταφερόμενων ποσοτήτων	10 401
	Απαγόρευση μικτής φορτώσεως σε ένα όχημα	10 403
	Απαγόρευση μικτής φορτώσεως σε ένα κοντέηνερ	10 404
	Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε κοντέηνερ	10 405
	Καθαρισμός προ τη φορτώσεως	10 413
	Χειρισμός και στοιβασία	10 414
	Καθαρισμός μετά την εκφόρτωση	10 415
	Προφυλάξεις για ηλεκτροστατικές φορτίσεις	10 417
	Φόρτωση και εκφόρτωση επικίνδυνων ουσιών σε κοντέηνερς	10 419
	Θέση σε κίνηση της μηχανής κατά τη διάρκεια της φορτώσεως ή της εκφορτώσεως	10 431
Παράγραφος 5	Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων	10 500 & επόμ.
	Σήμανση των οχημάτων	10 500
	Στάθμευση γενικά	10 503
	Στάθμευση τη νύκτα ή σε κακή ορατότητα	10 505
	Στάθμευση οχήματος που αποτελεί ειδικό κίνδυνο	10 507
	Άλλες διατάξεις	10 599
Παράγραφος 6	Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ιδιόρρυθμες για ορισμένες χώρες	10 600 & επόμ.
	Ταχεία διαδικασία για να επιτραπούν παρεκλίσεις προς το σκοπό δοκιμών	10 602

ΜΕΡΟΣ ΙΙ	ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΤΩΝ ΚΑΤΗΓΟΡΙΩΝ 1 ΜΕΧΡΙ 8	
Κατηγορίες Ια, Ιβ & Ιγ	Εκρηκτικές ουσίες και είδη Είδη γεμισμένα με εκρηκτικές ουσίες· αναφλεκτήτες, πυροτεχνήματα και παρόμοια είδη	11 000 & επόμ.
Κατηγορία 2	Αέρια: Συμπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση	21 000 & επόμ.
Κατηγορία 3	Εύφλεκτα υγρά	31 000 & επόμ.
Κατηγορία 4.1	Εύφλεκτα στερεά	41 000 & επόμ.
Κατηγορία 4.2	Ουσίες υποκείμενες σε αιφνίδια καύση	42 000 & επόμ.
Κατηγορία 4.3	Ουσίες που δίνουν εύφλεκτα αέρια σε επαφή με το νερό	43 000 & επόμ.
Κατηγορία 5.1	Οξειδωτικές ουσίες	51 000 & επόμ.
Κατηγορία 5.2	Οργανικά Υπεροξείδια	52 000 & επόμ.
Κατηγορία 6.1	Τοξικές ουσίες	61 000 & επόμ.
Κατηγορία 6.2	Αποκρουστικές ουσίες και ουσίες που μπορεί να προκαλέσουν μόλυνση	62 000 & επόμ.
Κατηγορία 7	Ραδιενεργές ουσίες	71 000 & επόμ.
Κατηγορία 8	Διαβρωτικές ουσίες	81 000 & επόμ.
ΠΑΡΑΡΤΗΜΑΤΑ		
	Διατάξεις κοινές στα Παραρτήματα Β.Ι	200 000–210 999
Παράρτημα Β.Ια	Διατάξεις που αφορούν σταθερές δεξαμενές (οχήματα δεξαμενές) αφαιρετές δεξαμενές και συστοιχία δοχείων	211 000–211 999
Παράρτημα Β.Ιβ	Διατάξεις που αφορούν εμπορευματοκιβώτια δεξαμενές	212 000–212 999
Παράρτημα Β.Ιγ	Διατάξεις που αφορούν σταθερές δεξαμενές και κινητές δεξαμενές από ενισχυμένο πλαστικό	213 000–213 999
Παράρτημα Β.Ιδ	Προϋποθέσεις που αφορούν τα υλικά και την κατασκευή σταθερών δεξαμενών, κινητών δεξαμενών και περιβλημάτων εμπορευματοκιβωτίων δεξαμενών που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθειάς καταψύξεως κατηγορίας 2	214 000–219 999
Παράρτημα Β.2	Διατάξεις που αφορούν ηλεκτρολογικών εξοπλισμών	220 000–222 999
Παράρτημα Β.3	Πιστοποιητικό εγκρίσεως για οχήματα που μεταφέρουν ορισμένα επικίνδυνα εμπορεύματα	230 000–239 999
Παράρτημα Β.4	Πίνακες που αφορούν τη μεταφορά επικινδύνων ουσιών της Κατηγορίας 7· τοποθέτηση πινακίδας που πρέπει να τοποθετηθεί σε οχήματα που τις μεταφέρουν	240 000 – 249 999
Παράρτημα Β.5	Κατάλογος ουσιών που καλύπτονται από το περιθωριακό 10 500 (2)	250 000–259 999
Παράρτημα Β.6	Πιστοποιητικό εκπαιδεύσεως οδηγού σύμφωνα με το περιθωριακό 10 315 (1)	260 000–269 999

ΠΡΟΣΑΡΤΗΜΑ Β: ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΞΟΠΛΙΣΜΟ ΜΕΤΑΦΟΡΑΣ ΚΑΙ ΕΡΓΑΣΙΕΣ ΜΕΤΑΦΟΡΑΣ

Σχέδιο του Προσαρτήματος

10000 (1) Το παρόν προσάρτημα περιλαμβάνει:

(α) Γενικές διατάξεις που έχουν εφαρμογή στη μεταφορά επικίνδυνων ουσιών όλων των Κατηγοριών (Μέρος Ι).

(β) Ειδικές διατάξεις που έχουν εφαρμογή στην μεταφορά επικίνδυνων ουσιών των κατηγοριών Ι μέχρι 8 (Μέρος ΙΙ).

(γ) Παραρτήματα όπως τα παρακάτω:

– Παράρτημα Β.Ια που αφορά σταθερές δεξαμενές (οχήματα, δεξαμενές), λυόμενες δεξαμενές και συστοιχίες δοχείων·

– Παράρτημα Β.Ιβ που αφορά κοντέηνερ δεξαμενές·

– Παράρτημα Β.Ιγ που αφορά σταθερές δεξαμενές και λυόμενες δεξαμενές κατασκευασμένες από ενισχυομένο πλαστικό·

– Παράρτημα Β.Ιδ που αφορά τις προϋποθέσεις για τα υλικά και την κατασκευή σταθερών δεξαμενών, λυόμενων δεξαμενών και περιβλημάτων κοντέηνερ δεξαμενών, που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθειάς καταψύξεως της Κατηγορίας 2·

– Παράρτημα Β.2 που αφορά ηλεκτρικό εξοπλισμό·

– Παράρτημα Β.3 που περιέχει τύπο πιστοποιητικού για έγκριση οχημάτων·

– Παράρτημα Β.4 που περιέχει πίνακες που αφορούν τη μεταφορά ουσιών της Κατηγορίας 7 και υπόδειγμα πινακίδας για τοποθέτηση στα οχήματα που μεταφέρουν αυτές τις ουσίες·

– Παράρτημα Β.5 που περιέχει τον κατάλογο ουσιών που καλύπτονται από το περιθωριακό 10500 (2)·

– Παράρτημα Β.6 που περιέχει υπόδειγμα πιστοποιητικού εκπαιδεύσεως οδηγού.

(2) Οι γενικές διατάξεις του Μέρους Ι και οι ειδικές διατάξεις του Μέρους ΙΙ χωρίζονται σε τμήματα με τις ακόλουθες επικεφαλίδες:

Γενικά: Το παρόν τμήμα περιγράφει το πλαίσιο του παρόντος Προσαρτήματος και περιλαμβάνει τις διατάξεις που αφορούν επιτρεπόμενες εξαιρέσεις και ορισμούς·

Τμήμα 1: Τρόπος μεταφοράς εμπορευμάτων (αυτό το τμήμα περιέχει τις διατάξεις που αφορούν μέθοδο αποστολής, περιορισμούς αποστολής, πλήρη φορτία και τη δυνατότητα μεταφοράς εμπορευμάτων χύμα, μέσα σε κοντέηνερ ή σε δεξαμενές)·

Τμήμα 2: Ειδικές προϋποθέσεις προς εκπλήρωση με τα μέσα μεταφοράς και εξοπλισμός αυτών·

Τμήμα 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις)·

Τμήμα 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό (αυτό το τμήμα περιέχει επίσης τις απαγορεύσεις επί μικτής φορτώσεως)·

Τμήμα 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων·

Τμήμα 6: Μεταβατικές διατάξεις, μειώσεις και διατάξεις αποκλειστικές για ορισμένες χώρες.

Εφαρμοσιμότητα άλλων διατάξεων, εθνικών ή διεθνών.

(1) Αν το όχημα που εκτελεί εργασία μεταφοράς με την επιφύλαξη των διατάξεων του ADR αποστέλλεται πάνω σε τμήμα του ταξειδιού κατά τρόπο διαφορετικό από την οδική έλξη, οποιεσδήποτε εθνικές ή διεθνείς διατάξεις που διέπουν την μεταφορά επικίνδυνων εμπορευμάτων σ' εκείνο το τμήμα με τον τρόπο μεταφοράς που χρησιμοποιείται για την αποστολή του οδικού οχήματος, θα έχουν εφαρμογή σ' εκείνο το τμήμα του ταξειδίου. 10001

Εφαρμοσιμότητα των διατάξεων του Μέρους I του Προσαρτήματος.

Όταν διατάξεις του Μέρους II ή των Παραρτημάτων του παρόντος Προσαρτήματος συγκρούονται με διατάξεις του Μέρους I, εκείνες οι διατάξεις του Μέρους I δεν θα έχουν εφαρμογή. 10002

Παρά ταύτα.

(α) οι διατάξεις των περιθωριακών 10010 013 θα έχουν προτεραιότητα πάνω σ' εκείνες του Μέρους II·

(β) οι διατάξεις του περιθωριακού 10403 θα λαμβάνουν προτεραιότητα επί των απαγορεύσεων για μικτή φόρτωση που προβλέπεται στα τμήματα 4 του Μέρους II.

ΜΕΡΟΣ I. ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΟΛΩΝ ΤΩΝ ΚΑΤΗΓΟΡΙΩΝ

(Βλέπε, όμως, το περιθωριακό 10002)

Γενικά

Πλαίσιο του παρόντος Προσαρτήματος

Το Προσάρτημα Α εξαιρεί από τις διατάξεις του παρόντος Προσαρτήματος, τη μεταφορά που γίνεται σύμφωνα με τους όρους (συσκευασίας, όγκου κ.λπ.) που αναφέρονται στα περιθωριακά 2201α, 2301α, 2401α, 2401α, 2431α, 2471α, 2501α, 2601α και 2801α. 10010

Πίνακας που καθορίζει τις περιορισμένες ποσότητες επικίνδυνων ουσιών σε δέματα που μπορεί να μεταφερθούν σε μία μεταφορική μονάδα χωρίς εφαρμογή των διατάξεων του παρόντος Προσαρτήματος που έχουν σχέση με: 10011

– Τύπους οχημάτων (περιθωριακά XX 204 των Μερών I και II και τα περιθωριακά 11205 και 11206 του Μέρους II που αφορούν τις κατηγορίες Ια, Ιβ και Ιγ)·

– Πληρώματα οχήματος (περιθωριακά XX 311 ή Μέρος I & II)·

– Επίβλεψη οχημάτων (περιθωριακά XX 321 των Μερών I και II)·

– Μεταφορά επιβατών (περιθωριακό 10325)·

– Γραπτές οδηγίες (περιθωριακά 10381 (J) (β), 10385 και 61385)·

– Το ειδικό πιστοποιητικό εγκρίσεως για οχήματα (περιθωριακά 10282 και 11282)·

– Την ειδική εκπαίδευση για οδηγούς (περιθωριακό 10315)·

– Οι ειδικές προϋποθέσεις που πρέπει να εκπληρωθούν από τα μεταφορικά μέσα και τον εξοπλισμό αυτών (όλα τα τμήματα 2 των Μερών I και II), με την επιφύλαξη, όμως, συμμορφώσεως προς τις διατάξεις του περιθωριακού 21212·

– Τόπους φορτώσεως και εκφορτώσεως (περιθωριακά 11407, 21407 και 61407)· και

– Τη λειτουργία οχημάτων (όλα τα τμήματα 5 των Μερών I και II), με την επιφύλαξη, όμως, συμμορφώσεως προς τις διατάξεις του περιθωριακού 61515.

	ΟΥΣΙΕΣ	Ανώτατη συνολική ποσότητα κατά μεταφορική μονάδα (μικτός όγκος)							
		A	B	C	D	E	F	G	
ΚΑΤΗΓΟΡΙΕΣ	Πολλαπλασιαστές για τον υπολογισμό των συνολικών ποσοτήτων που εξαιρούνται για φορτίο που περιλαμβάνει πολλές ουσίες που η κάθε μία περιορίζεται από διαφορετικά όρια όγκου (βλέπε παρακάτω σημείωση Ι)	200	50	20	10	3	2	1	Απεριόριστα
		5 KG	20 KG	50 KG	100 KG	333 KG	500 KG	1000 KG	
1α, 2 (μόνο τα αέρια που ταξινομούνται με (α) και (β)), 3, 4.2 4.3, 5.1, 5.2, 6.1 και 8		Κενές συσκευασίες (περιλαμβανόμενων των δοχείων, αποκλειόμενων των δεξαμενών)							X
1α	1° – 14°	X							
1β	2° (β), 4°				X				
	Άλλα αντικείμενα		X						
1γ	1° (α)								X
	3°				X				
	Άλλα αντικείμενα		X						
2	CYANOGEN CHLORIDE των 3°	X							
	FOSGENE των 3°, FLUORINE 1° (AT)			X					
	1° (α) και (β), 2° (α) και (β)							X	
	Άλλες ουσίες και κενή συσκευασία που περιείχε αέριο ταξινομημένο με (AT), (BT), (γ) ή (CT)					X			
3	12°, 13° και ουσίες του (α) των 11° και 14° μέχρι 26°	X							
	Ουσίες του (β) των 11° και 14° μέχρι 26°			X					
	1° (α), 2° (α) και (β), 3° (β) 4° (α) και (β), 5° (α), 6° (α) και (β)								
	32° (α) και 34° (γ)							X	
	Άλλες ουσίες					X			
4.1	9°, 10°								X
	2° (α), 11° (β)				X				
	Άλλες ουσίες		X						
4.2	5° – 13°				X				
4.2	5° – 13°				X				
4.3	Ανθρακασβέστιο των 2° (α), CALCIUM SILICIDE ή MANGANESE CALCIUM SILICIDE των 2° (δ)							X	
	Άλλες ουσίες	X							

	2°		X				
5.1	1°, 3° και 10°			X			
	Άλλες ουσίες					X	
	45° (β), 46° (α), 47° (α) και (β) συσκευασμένα σύμφωνα με το περιθωριακό 2559	X*					
5.2	1° – 22°, 30°, 31° συσκευασμένα σύμφωνα με το περιθωριακό 2561		X				
	1° – 22°, 30°, 31°, 40° συσκευασμένα σύμφωνα με το περιθωριακό 2553 μέχρι 2556 και 2558			X			
	Ουσίες ταξινομημένες με (γ)				X		
6.1	Ουσίες ταξινομημένες με (β)			X			
	Άλλες ουσίες (πλήν 1° και 2°)	x					
	SODIUM SULPHIDE των 45° (β)						X
	1° (α), 2° (α), 6°, 8° (β) 21° (α), 22° (β), 24°, 25°, 26°, 26° (α), 36° (α), 37 (α) 44° (α), 53° (β)		X				
8	21° (β), 26° (β), 33° (β) 36° (β), 37° (β), 44° (β), 52° (γ), 53° (γ), άλλες ουσίες υπό (α) και (β)				X		
	Άλλες ουσίες					X	

* Εξαιρούμενου του όγκου της ψυκτικής συσκευής, αν υπάρχει.

Γενικές διατάξεις που έχουν εφαρμογή στη Μεταφορά επικίνδυνων ουσιών όλων των κατηγοριών

10 011

ΣΗΜΕΙΩΣΗ: 1. Οι ανώτατες ποσότητες που εμφανίζονται στον παραπάνω πίνακα αντιπροσωπεύουν βαθμό κινδύνου ο οποίος μπορεί, από μια πολύ απλοποιημένη άποψη, να θεωρηθεί σαν ισότιμος για κάθε μία από τις αναγραφόμενες ουσίες. Ο κίνδυνος αυτός δεν θα ξεπερνιέται ακόμη και όταν ένα φορτίο που δεν θίγεται από οποιαδήποτε απαγόρευση επί μικτής φορτώσεως περιλαμβάνει περισσότερες από μία επικίνδυνες ουσίες.

Όπου το ίδιο όριο εξαιρέσεως ισχύει για τις ουσίες για τις οποίες πρόκειται, οι αντίστοιχοι όγκοι τους προσθέτονται και το σύνολο δεν πρέπει να υπερβεί εκείνο το όριο.

Όπου εν τούτοις, ισχύουν για τις ουσίες διαφορετικά όρια εξαιρέσεως, οι ανώτατες ποσότητες που επιτρέπονται για κάθε μία θα υπολογίζονται όπως παρακάτω:

(α) Η ολική πραγματική μάζα κάθε ουσίας που αναφέρεται σε οποιαδήποτε στήλη του πίνακα θα πολλαπλασιάζεται με το συντελεστή που αναφέρεται στην κεφαλή της στήλης·

(β) Τα προϊόντα που επιτυγχάνονται κατ' αυτό τον τρόπο θα προστίθενται μαζί και το σύνολό τους δεν θα υπερβαίνει το 1,000.

Μέχρι αυτό τον αριθμό, η διαφορά διαιρούμενη με το συντελεστή που αντιστοιχεί προς κάποια άλλη ουσία δίνει το όριο εξαιρέσεως που δεν έχει ακόμη καλυφθεί.

Παράδειγμα αυτών των υπολογισμών

Κατηγ.	Ουσία	Ανώτατη ποσότητα						
		5 KG	20 KG	50 KG	100 KG	333 KG	500 KG	1000 KG
2	2° (α)							100
3	31°						50	
4.1	7° (α)			2				
6.1	6° (β)			3				
6.1	6° (γ)				25			
Σύνολο μεταφερόμενων ποσοτήτων				5	25		50	100
Πολλαπλασιαστής		200	50	20	10	3	2	1
Προϊόν (πολλαπλασ. × ποσότητα)				100	250		100	100
Σύνολο προϊόντων				100	+250		+100	+100= 550

Αφού το σύνολο των προϊόντων είναι λιγότερο από 1,000, η παραπάνω περίπτωση αφήνει διαθέσιμα μέσα στο όριο εξαιρέσεως 1,000 – 550 = 450 που μπορεί να χρησιμοποιηθεί για να συμπληρωθεί το φορτίο με, παραδείγματος χάρη, κυλίνδρους αερίου της Κατηγορίας 2, ΙΙ° (α) (όριο 333 KG) σε αξία 450: 3= 150 KG.

Αυτοί οι πολλαπλασιασμοί ή διαιρέσεις μπορεί να αποφευχθούν με τη χρησιμοποίηση των πινάκων μάζας που υπάρχουν παρακάτω.

Ανώτατη μάζα κάθε μιάς από δύο διαφορετικές ουσίες που αναφέρονται στις στήλες A μέχρι G του παραπάνω πίνακα που μπορεί να φορτωθούν μαζί σε μεταφορική μονάδα χωρίς να υπερβαίνουν τα όρια εξαιρέσεως (σε KG):

Στήλες A και επόμ.

A	A	A και B	A και C	A και D	A και E	A και F	A και G
1	4	1 16	1 40	1 80	1 266	1 400	1 400
2	3	2 12	2 30	2 60	2 200	2 300	2 600
3	2	3 8	3 20	3 40	3 133	3 200	3 400
4	1	4 4	4 10	4 20	4 66	4 100	4 200
5	0	5 0	5 0	5 0	5 0	5 0	5 0

Στήλες B και επόμ.

B	B	B και C	B και D	B και E	B και F	B και G
2	18	2 45	2 90	2 300	2 450	2 900
4	16	4 40	4 80	4 266	4 400	4 800
6	14	6 35	6 70	6 233	6 350	6 700
8	12	8 30	8 60	8 200	8 300	8 600
10	10	10 25	10 50	10 166	10 250	10 500
12	8	12 20	12 40	12 133	12 200	12 400
14	6	14 15	14 30	14 100	14 150	14 300
16	4	16 10	16 20	16 66	16 100	16 200
18	2	18 5	18 10	18 33	18 50	18 100
20	0	20 0	20 0	20 0	20 0	20 0

Στήλες C και επόμ.

C	C	Cκαι D	C και E	C και F	C και G
5	45	5 90	5 300	5 450	5 900
10	40	10 80	10 266	10 400	10 800
15	35	15 70	15 233	15 350	15 700
20	30	20 60	20 200	20 300	20 600
25	25	25 50	25 166	25 250	25 500
30	20	30 40	30 133	30 200	30 400
40	10	40 20	40 66	40 100	40 200
45	5	45 10	45 33	45 50	45 100
50	0	50 0	50 0	50 0	50 0

Στήλες D και επόμ.

D	D	Dκαι E	D και F	D και G
10	90	10 300	10 450	10 900
20	80	20 266	20 400	20 800
30	70	30 233	30 350	30 700
40	60	40 200	40 300	40 600
50	50	50 166	50 250	50 500
60	40	60 133	60 200	60 400
70	30	70 100	70 150	70 300
80	20	80 66	80 100	80 200
90	10	90 33	90 50	90 100
100	0	100 0	100 0	100 0

Στήλες E και επόμ.

E	E	Eκαι F	E και G
25	308	25 462	25 925
50	283	50 425	50 850
75	258	75 387	75 775
100	233	100 350	100 700
125	208	125 312	125 625
150	183	150 271	150 550
175	158	175 237	175 475
200	133	200 200	200 400
225	108	225 162	225 325
250	83	250 125	250 250
275	58	275 87	275 175
300	33	300 50	300 100
325	8	325 12	325 25
333	0	333 0	333 0

Στήλες F και G

F	F	Fκαι G
50	450	50 900
100	400	100 800
150	350	150 700
200	300	200 600
250	250	250 500
300	200	300 400
350	150	350 300
400	100	400 200
450	50	450 100
500	0	500 0

Αν, λαμβάνοντας υπόψη τον όγκο της πρώτης προς φόρτωση ουσίας (όπως φαίνεται σε μία από τις στήλες πίνακα ταχείας αναφοράς), δεν επιτευχθεί η ανώτατη ποσότητα για τη δεύτερη ουσία (στην άλλη στήλη του ίδιου πίνακα) ο όγκος που απομένει διαθέσιμος μπορεί να χρησιμοποιηθεί για τρίτη ουσία. Για να εξακριβωθεί ο επιτρεπόμενος όγκος εκείνης της ουσίας, πρέπει να γίνει αναφορά στον πίνακα ταχείας αναφοράς που έχει επικεφαλίδα από τα γράμματα στήλης που αντιστοιχούν στη δεύτερη και τρίτη ουσία. Αν και η ανώτατη ποσότητα για την τρίτη ουσία δεν εξαντληθεί, μπορεί να ακολουθηθεί η ίδια διαδικασία σχετικά με τη φόρτωση μιας ή περισσοτέρων άλλων ουσιών.

Στην αριστερική στήλη κάθε πίνακα, μια ενδιάμεση υψηλότερη αξία για την πραγματικά φορτωθείσα ποσότητα (π.χ. στον πίνακα B και D, 9 μεταξύ 8 και 10) μπορεί να στρογγυλευτεί στη χαμηλότερη εμφαινόμενη αξία (σ' αυτή την περίπτωση 8). Στη δεξιά στήλη, από το άλλο μέρος, μια ενδιάμεση αξία για μια πραγματικά φορτωθείσα ποσότητα (π.χ. στον ίδιο πίνακα, 55 αντί για 60) μπορεί να στρογγυλευτεί στην υψηλότερη εμφαινόμενη αξία (σ' αυτή την περίπτωση 60).

Γενικές διατάξεις ισχύουσες για τη Μεταφορά Επικίνδυνων ουσιών όλων των κατηγοριών.

10 011 (συν.)

ΣΗΜΕΙΩΣΗ 2: Για την εφαρμογή αυτού του περιθωριακού και του πίνακά του, οι όγκοι των υγρών ή αερίων που περιέχονται στις συνηθισμένες σταθερές δεξαμενές μέσων μεταφοράς για την προώθησή τους ή για τη λειτουργία του εξειδι-

κευμένου εξοπλισμού τους (ψυκτικές συσκευές, για παράδειγμα) ή για την εξασφάλιση της ασφάλειας αυτών δεν θα λαμβάνονται υπόψη.

Στην περίπτωση εξαιρέσεων που προβλέπονται στο περιθωριακό 10 011, το έγγραφο μεταφοράς που προβλέπεται από το περιθωριακό 2002 (3) θα φέρει την παρακάτω εγγραφή μετά από τα στοιχεία που καθορίζονται στο κεφάλαιο Β των ειδικών προϋποθέσεων για κάθε κατηγορία του Προσαρτήματος Α: 10 012

«Φορτίο μη υπερβαίνον τα όρια εξαιρέσεως που προβλέπονται στο περιθωριακό 10 011».

(Ι) Οι μόνες διατάξεις του παρόντος Προσαρτήματος που έχουν εφαρμογή για τη μεταφορά επικινδύνων ουσιών της Κατηγορίας 6.2 θα είναι εκείνες του Μέρους ΙΙ που σχετίζονται με αυτή την Κατηγορία και εκείνες των περιθωριακών του παρόντος Μέρους Ι που ρητά κατέστησαν εφαρμόσιμες από εκείνες τις διατάξεις του Μέρους ΙΙ. 10 013

(2) Παρεκκλίσεις από τις διατάξεις του παρόντος Προσαρτήματος μπορεί να γίνουν σε περίπτωση επείγουσας μεταφοράς για τη σωτηρία ανθρώπινων ζωών.

Ορισμοί

(Ι) Δια την εφαρμογή του παρόντος Προσαρτήματος: 10 014

Ο όρος «αρμόδια αρχή» σημαίνει την αρχή που έχει υποδειχθεί σαν τέτοια σε κάθε χώρα και σε κάθε συγκεκριμένη περίπτωση από την Κυβέρνηση·

Ο όρος «εύθραυστη συσκευασία» σημαίνει συσκευασία που περιέχει εύθραυστο δοχείο (δηλ. δοχείο από γιαλί, πορσελάνη, πήλινο ή από παρόμοια υλικά) που δεν περιέχεται σε συσκευασία με πλήρεις πλευρές που το προστατεύουν αποτελεσματικά κατά της κρούσεως (βλέπε επίσης και Προσάρτημα Α, περιθωριακό 2001(7)·

Ο όρος «αέριο» σημαίνει αέριο ή ατμός·

Ο όρος επικίνδυνες ουσίες, όταν χρησιμοποιείται μόνος σημαίνει τις ουσίες και τα αντικείμενα που ορίζονται ότι είναι ουσίες και αντικείμενα του ADR·

Ο όρος «RID» σημαίνει διατάξεις που αφορούν διεθνή μεταφορά επικίνδυνων εμπορευμάτων με σιδηρόδρομο που αποτελούν το Προσάρτημα Ι της COTIF – Συνθήκη που αφορά τις σιδηροδρομικές μεταφορές με σιδηρόδρομο, Παράρτημα Β – Ενιαίοι κανόνες που αφορούν το συμβόλαιο για διεθνή μεταφορά εμπορευμάτων με τον σιδηρόδρομο (CIM)·

Ο όρος «μεταφορά χύμα» σημαίνει τη μεταφορά στερεάς ουσίας χωρίς συσκευασία·

Ο όρος «κοντέηνερ» σημαίνει αντικείμενο εξοπλισμού μεταφοράς (ανυψούμενο όχημα, λυόμενη δεξαμενή ή άλλες παρόμοιες κατασκευές):

Μόνιμου χαρακτήρα και κατά συνέπεια αρκετά στερεό για να είναι κατάλληλος για επανειλημένη χρήση·

Ειδικά σχεδιασμένος για να διευκολύνει τη μεταφορά εμπορευμάτων, με ένα ή περισσότερα μέσα μεταφοράς, χωρίς θραύση του φορτίου·

Εξοπλισμένου με συσκευές που επιτρέπουν τον έγκαιρο χειρισμό του, ειδικότερα όταν μεταφορτώνεται από ένα μέσον μεταφοράς σε άλλο·

10 014 (συν)

Σχεδιασμένος κατά τέτοιο τρόπο ώστε να είναι το γέμισμα και το άδειασμα, και να έχει εσωτερικό όγκο όχι λιγότερο από 1 $μ^3$.

Ο όρος «κοντέηνερ» δεν καλύπτει συμβατικές συσκευασίας, ή οχήματα, ή κοντέηνερ–δεξαμενές·

Ο όρος «μεγάλο κοντέηνερ» σημαίνει κοντέηνερ που έχει εσωτερικό όγκο πάνω από 3 $μ^3$.

Ο όρος «μικρό κοντέηνερ» σημαίνει κοντέηνερ που έχει εσωτερικό όγκο όχι λιγότερο από 1 $μ^3$ και όχι περισσότερο από 3 $μ^3$·

Ο όρος «κοντέηνερ – δεξαμενή» σημαίνει είδος εξοπλισμού μεταφοράς που ταιριάζει με τον ορισμό του όρου «κοντέηνερ που δίνεται παραπάνω και κατασκευασμένο για να περιέχει υγρές, αερώδεις, σε σκόνη ή σε κόκκους ουσίες, αλλά που έχει χωρητικότητα πάνω από 0.45 $μ^3$.

Ο όρος «συστοιχία δοχείων» σημαίνει συγκρότημα που περιλαμβάνει αριθμό δοχείων (αποκαλούμενων «στοιχεία») των οποίων η ατομική ή μέση χωρητικότητα είναι πάνω από 150 λίτρα, τα οποία αλληλοσυνδέονται με πολλαπλό αγωγό και είναι μόνιμα τοποθετημένα πάνω σε πλαίσιο (για πλαίσια κυλίνδρων αερίου, βλέπε Προσάρτημα Α, περιθωριακό 2212 (Ι) (δ))·

Ο όρος «αποσυναρμολογούμενη δεξαμενή» σημαίνει δεξαμενή άλλη, εκτός από σταθερή δεξαμενή, δεξαμενοκοντέηνερ ή συστοιχεία δοχείων, που έχει χωρητικότητα πάνω από 1000 λίτρα, δεν είναι σχεδιασμένη για τη μεταφορά εμπορευμάτων χωρίς θραύση φορτίου, και συνήθως χειρισμός της μπορεί να γίνει μόνο όταν είναι άδεια.

Ο όρος «σταθερή δεξαμενή» σημαίνει δεξαμενή που είναι δομικά προσαρτημένη σε όχημα (που τότε γίνεται όχημα δεξαμενή) ή αποτελεί αναπόσπαστο μέρος του πλαισίου αυτού του οχήματος·

Ο όρος «δεξαμενή» όταν χρησιμοποιείται χωριστά, σημαίνει δεξαμενή κοντέηνερ ή δεξαμενή χωρητικότητας που ξεπερνά το 1 $μ^3$, που μπορεί να είναι σταθερή δεξαμενή, αποσυναρμολογούμενη δεξαμενή ή συστοιχεία δοχείων. (Βλέπε, εντούτοις, περιορισμό στην έννοια της λέξεως «δεξαμενή» στις διατάξεις των Παραρτημάτων Β.1, περιθωριακό 200.000 (2))·

Ο όρος «μονάδα μεταφοράς» σημαίνει αυτοκίνητο όχημα χωρίς προσαρτημένο ρυμουλκούμενο, ή συρμό αποτελούμενο από αυτοκίνητο όχημα και προσαρτημένο ρυμουλκούμενο·

Ο όρος «κλειστό όχημα» σημαίνει όχημα που έχει αμάξωμα που μπορεί να κλείνει·

Ο όρος «ανοικτό σχήμα» σημαίνει όχημα του οποίου η πλατφόρμα δεν έχει υπερκατασκευή ή έχει απλώς πλευρικά και οπίσθια σανιδώματα·

Ο όρος «όχημα με κάλυμα» σημαίνει ανοικτό όχημα εφοδιασμένο με κάλυμα για την προστασία του φορτίου·

Ο όρος «όχημα δεξαμενή» σημαίνει όχημα κατασκευασμένο για τη μεταφορά υγρών, αερίων ή ουσιών σε σκόνη ή σε κόκκους που περιλαμβάνουν μία ή περισσότερες σταθερές δεξαμενές·

Ο όρος «όχημα συστοιχία» σημαίνει όχημα – δεξαμενή που περιλαμβάνει αριθμό σταθερών δεξαμενών (που αποκαλούνται στοιχεία) που συνδέονται με κλαδωτό αγωγό.

(2) Για την εφαρμογή του παρόντος Προσαρτήματος, οι δεξαμενές (βλέπε ορισμό στο παραπάνω (Ι)) δεν είναι τοποθετημένες πάνω στην ίδια βάση όπως τα δοχεία, του όρου δοχεία χρησιμοποιούμενου με περιορισμένη έννοια. Οι διατάξεις που αφορούν δοχεία έχουν εφαρμογή σε σταθερές δεξαμενές, συστοιχίες δοχείων, αποσυναρμολογούμενες δεξαμενές και δεξαμενές κοντέηνερς μόνο αν αυτό καθορίζεται ρητά.

(3) Ο όρος «πλήρες φορτίο» σημαίνει οποιοδήποτε φορτίο που προέρχεται από ένα αποστολέα, για τον οποίο η χρήση ενός οχήματος ή μεγάλου κοντέηνερ κρατείται αποκλειστικά και όλες οι εργασίες φορτώσεως και εκφορτώσεως γίνονται σύμφωνα με τις οδηγίες του αποστολέα ή του παραλήπτη (βλέπε περιθωριακό 10 108).

(Ι) Εκτός αν ρητώς αναφέρεται διαφορετικά, το σημείο «%» στο παρόν Προσάρτημα αντιπροσωπεύει: 10 015

(α) Στην περίπτωση αναμίξεως στερεών ή υγρών, επίσης δε και στην περίπτωση διαλυμάτων και στερεών υγραμένων από υγρό: ποσοστό μάζας βασιζόμενο στη συνολική μάζα του μίγματος, το διάλυμα ή το βρεγμένο υγρό·

(β) Στην περίπτωση αναμίξεως αερίων: ποσοστό κατά όγκο βασιζόμενο στο συνολικό όγκο του μίγματος αερίων.

(2) Όταν στο παρόν Προσάρτημα αναφέρεται η μάζα δέματος, εννοείται η μικτή μάζα εκτός αν αναφέρεται διαφορετικά. Η μάζα των κοντέηνερ ή δεξαμενών που χρησιμοποιούνται για τη μεταφορά εμπορευμάτων δεν περιλαμβάνεται στη μικτή μάζα.

(3) Οι πιέσεις όλων των ειδών που σχετίζονται με τις δεξαμενές (όπως η πίεση δοκιμής, πίεση εργασίας, πίεση ανοίγματος βαλβίδας ασφαλείας) δείχνονται πάντα σε πίεση μετρητή (πίεση πέρα από την ατμοσφαιρική πίεση)· όμως η πίεση εξαερώσεως των ουσιών εκφράζεται πάνω σε απόλυτη πίεση.

(4) Όπου το παρόν Προσάρτημα ορίζει βαθμός πληρωσεως για δεξαμενές, ο βαθμός πληρώσεως δίνεται πάντα για θερμοκρασία των ουσιών στους 15°K εκτός αν ορίζεται κάποια άλλη θερμοκρασία.

10 016

Παράγραφος 1: Τρόπος μεταφοράς εμπορευμάτων 10 099

10 100

Μέθοδος αποστολής, περιορισμοί μεταφοράς 10 104

Η μεταφορά ορισμένων επικίνδυνων εμπορευμάτων εντεταλμένες χρήσεις ενός συγκεκριμένου τύπου μεταφοράς ή εξοπλισμού. Αυτοί οι ειδικοί όροι καθορίζονται στο παρόν Προσάρτημα, Μέρος ΙΙ, περιθωριακά ΧΧ 105. 10 105

10 106

Πλήρες φορτίο 10 107

Όπου έχουν εφαρμογή οι διατάξεις περί μεταφοράς σαν «πλήρες φορτίο», οι αρμόδιες αρχές μπορεί να ζητήσουν, όπως το όχημα ή μεγάλο κοντέηνερ που χρησιμοποιείται γι' αυτή τη μεταφορά να φορτωθεί μόνο σε ένα σημείο και να εκφορτωθεί μόνο σε ένα σημείο. 10 108

10 109

Μεταφορά χύμα 10 110

(1) Οι στερεές επικίνδυνες ουσίες δεν μπορεί να μεταφέρονται χύμα εκτός αν αυτός ο τρόπος μεταφοράς επιτρέπεται ρητά γι' αυτές τις ουσίες από τις διατάξεις του Μέρους ΙΙ του παρόντος Προσαρτήματος, και τότε μόνο κάτω από τις συνθήκες που καθορίζονται από εκείνες τις διατάξεις. Παρ' όλα αυτά, η κενή συσκευασία, χωρίς να έχει καθαριστεί, μπορεί να μεταφέρεται χύμα αν αυτός ο τρόπος μεταφοράς δεν απαγορεύεται ρητά από τις απαιτήσεις του Προσαρτήματος Α, Μέρος ΙΙ. 10 111

(2) Για μεταφορά χύμα σε κοντέηνερς, βλέπε περιθωριακό 10 118 (2) και (5).

10 112

Μεταφορά σε κοντέηνερς 10 117

ΣΗΜΕΙΩΣΗ: Οι διατάξεις που αφορούν μεταφορά σε κοντέηνερ–δεξαμενές καθορίζονται στα περιθωριακά που τιτλοφορούνται «Μεταφορά σε δεξαμενές»

(1) Η μεταφορά δεμάτων σε κοντέηνερς επιτρέπεται. 10 118

(2) Ουσίες δεν μπορεί να μεταφέρονται χύμα σε κοντέηνερ εκτός αν η μεταφορά τους χύμα επιτρέπεται ρητά (βλέπε περιθωριακό 10 211)· τα μικρά κοντέηνερ θα είναι του κλειστού τύπου και θα έχουν πλήρη τοιχώματα.

(3) Τα μεγάλα κοντέηνερ θα ανταποκρίνονται στις απαιτήσεις που αφορούν το αμάξωμα του οχήματος που καθορίζεται στο παρόν Προσάρτημα για το φορτίο για το οποίο πρόκειται· το αμάξωμα του οχήματος τότε δεν χρειάζεται να ανταποκρίνεται σ' αυτές τις διατάξεις.

(4) Με την επιφύλαξη των διατάξεων της τελευταίας φράσεως στο παραπάνω (3), το γεγονός ότι επικίνδυνες ουσίες περιέχονται σε ένα ή περισσότερα κοντέηνερ δεν θα θίγει τους όρους που πρέπει, καλύπτει το όχημα εξ αιτίας της φύσεως και των ποσοτήτων των μεταφερόμενων επικίνδυνων ουσιών.

(5) Αν οι επικίνδυνες ουσίες που μεταφέρονται μέσα σε κοντέηνερ είναι τέτοιες ώστε, σύμφωνα με το Προσάρτημα Α, πρέπει να τοποθετηθούν στη συσκευασία που τις περιέχει μία ή περισσότερες ετικέττες ΠΕΡΙ ΚΙΝΔΥΝΟΥ, ίδια ετικέττα ή ετικέττες θα τοποθετούνται στο έξω μέρος του κοντέηνερ που περιέχει αυτές τις ουσίες σε δέματα (κουτιά) ή σε χύμα. Εντούτοις, η ετικέττα No. ΙΙ δεν χρειάζεται ή εγγραφή που να δείχνει καθαρά ποιό είναι το πάνω μέρος.

10 119

Μεταφορά σε δεξαμενές 10 120

(1) Οι επικίνδυνες ουσίες μπορεί να μεταφέρονται σε δεξαμενές αν αυτός ο τρόπος μεταφοράς επιτρέπεται ρητά γι' αυτές τις ουσίες από τις διατάξεις περί χρησιμοποιήσεως σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων που ορίζονται σε κάθε παράγραφο του Παραρτήματος Β.Ια, Μέρος ΙΙ και εκείνες πάνω στη χρήση των κοντέηνερ–δεξαμενών που ορίζονται σε κάθε παράγραφο Ι του παραρτήματος Β.Ιβ, Μέρος ΙΙ. 10 121

(2) Δεξαμενές ενισχυμένου πλαστικού μπορεί να χρησιμοποιούνται μόνο αν η χρήση τους επιτρέπεται ρητά στο Παράρτημα Β.Ιγ, περιθωριακό 213 010 (Χρήση). Η θερμοκρασία της μεταφερόμενης ουσίας δεν θα υπερβαίνει τους 50°K κατά το χρόνο της πληρώσεως.

ΣΗΜΕΙΩΣΗ: Βλέπε περιθωριακό 10 500 για το μαρκάρισμα και την επιγραφή των οχημάτων με σταθερές ή αποσυναρμολογούμενες δεξαμενές. 10 122

Τοποθέτηση επιγραφής σε κοντέηνερ δεξαμενές και συστοιχίες δοχείων 10 129

(1) Τα κοντέηνερ–δεξαμενές και οι συστοιχίες δοχείων θα φέρουν και στις δύο πλευρές τις ετικέττες που προβλέπονται στα περιθωριακά ΧΧ 130 κάθε Κατηγορίας. Αν αυτές οι επιγραφές δεν είναι ορατές από το εξωτερικό του οχήματος, οι ίδιες επιγραφές θα τοποθετούνται στο πλευρό του οχήματος και στα πίσω τοιχώματα. 10 130

(2) Οι παραπάνω προϋποθέσεις έχουν επίσης εφαρμογή σε κενά κοντέηνερ–δεξαμενές και συστοιχίες δοχείων, που δεν έχουν καθαριστεί και απαερωθεί.

ΣΗΜΕΙΩΣΗ: Βλέπε περιθωριακό 10 500 για το μαρκάρισμα οχημάτων που μεταφέρουν κοντέηνερ–δεξαμενές ή συστοιχίες δοχείων.

10 131

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από το μέσο μεταφοράς και τον εξοπλισμό του 10 199

10 200

Τύποι οχήματος 10 203

(1) Μεταφορική μονάδα φορτωμένη με επικίνδυνες ουσίες σε καμμιά περίπτωση δεν μπορεί να περιλαμβάνει περισσότερα από ένα συρόμενο ή ημισυρόμενο. 10 204

(2) Ειδικές διατάξεις που αφορούν τους τύπους οχήματος που θα χρησιμοποιηθεί για τη μεταφορά ορισμένων επικινδύνων ουσιών θα βρεθούν, όπου χρειάζεται, στο Μέρος ΙΙ του παρόντος Προσαρτήματος (βλέπε επίσης τα περιθωριακά που αναφέρονται σε μεταφορά σε κοντέηνερ, μεταφορά στερεών ουσιών χύμα, μεταφορά σε δεξαμενές και δεξαμενές).

(ε) Συσκευασίες που περιλαμβάνουν δέματα από υλικά που είναι ευαίσθητα στην υγρασία θα φορτώνονται σε κλειστά οχήματα.

10 205

10 219

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων.

ΣΗΜΕΙΩΣΕΙΣ: (α) Οι διατάξεις που αφορούν το σχέδιο, επιθεώρηση, πλήρωση και χρήση των σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων, και οι διάφορες διατάξεις που αφορούν οχήματα - δεξαμενές και τη χρήση αυτών, βρίσκονται στο Παράρτημα Β.Ια και όσον αφορά το σχέδιο των σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων που προορίζονται για τη μεταφορά υγραερίων βαθειάς καταψύξεως της Κατηγορίας 2, στο Παράρτημα Β.Ιδ (για την έγκριση οχημάτων-δεξαμενών βλέπε περιθωριακό 10 282).

(β) Οι διατάξεις που αφορούν την κατασκευή, τα είδη του εξοπλισμού, έγκριση τύπου, δοκιμές, μαρκάρισμα, κ.λπ. των κοντέηνερ - δεξαμενών υπάρχουν στο Παράρτημα Β.Ιβ και όσον αφορά την κατασκευή των κοντέηνερ - δεξαμενών που προορίζονται για τη μεταφορά υγραερίων βαθειάς καταψύξεως της κατηγορίας 2, στο Παράρτημα Β.Ιδ.

(γ) Οι διατάξεις που αφορούν την κατασκευή σταθερών δεξαμενών και αποσυναρμολογούμενων δεξαμενών από ενισχυμένο πλαστικό υπάρχουν στο Παράρτημα Β.Ιγ.

(δ) Οι κοινές διατάξεις των Παραρτημάτων Β.Ι υπάρχουν στο περιθωριακό 200 000.

(ε) Για τα δοχεία, βλέπε Παράρτημα Α.

(1) Οπίσθια προστασία των οχημάτων: Προφυλακτήρας αρκετά ανθεκτικός στην πρόσκρουση από πίσω θα τοποθετείται στο πλήρες πλάτος της δεξαμενής στο πίσω μέρος του οχήματος. Θα υπάρχει διάκενο 100 χιλ. τουλάχιστο μεταξύ του πίσω τοιχώματος της δεξαμενής και του πίσω μέρους του προφυλακτήρα, διάκενο που μετράται από το πιό πάνω 10 220

σημείο της δεξαμενής ή από προεξέχοντα εξαρτήματα που βρίσκονται σε επαφή με τη μεταφερόμενη ουσία.

ΣΗΜΕΙΩΣΗ: Για την προστασία των δεξαμενών από ζημία προερχόμενη από πλευρική πρόσκρουση ή ανατροπή, βλέπε το περιθωριακό 211 127 (4) και τη Σημείωσή του.

(2) Οχήματα που μεταφέρουν υγρά που έχουν σημείο αναφλέξεως 55 °K ή παρακάτω ή τα εύφλεκτα αέρια που αναγράφονται στο περιθωριακό 220 002 θα ανταποκρίνονται επί πλέον στις παραπέρα παρακάτω απαιτήσεις:

(α) Κινητήρες και συστήματα εξαγωγής καυσαερίων

Ο κινητήρας που προωθεί το όχημα και όπου έχει εφαρμογή, η αντλία εκφορτώσεως θα είναι εφοδιασμένη κατά τέτοιο τρόπο και θα βρίσκεται έτσι και οι σωλήνες εξαγωγής καυσαερίων ή κατευθύνονται ή θα προστατεύονται κατά τέτοιο τρόπο ώστε να απουφευχθεί οποιοσδήποτε κίνδυνος για τι φορτίο από θέρμανση ή ανάφλεξη.

(β) Δεξαμενές καυσίμων

Οι δεξαμενές καυσίμων για τον εφοδιασμό του κινητήρα θα είναι έτσι τοποθετημένες ώστε να προστατεύονται όσο είναι δυνατό κατά οποιασδήποτε προσκρούσεως, και έτσι ώστε σε περίπτωση οποιασδήποτε διαροής το καύσιμο να πέφτει απ' ευθείας στο έδαφος. Οι δεξαμενές σε καμμιά περίπτωση δεν θα είναι τοποθετημένες αμέσως πάνω από την εξάτμιση και οι δεξαμενές που περιέχουν πετρέλαιο θα είναι εξοπλισμένες με αποτελεσματική τάπα στο άνοιγμα γεμίσεως ή με τάπα με την οποία το άνοιγμα τροφοδοσίας να μένει ερμητικά κλειστό.

10 221
10 239

Συσκευές καταπολεμήσεως πυρκαϊάς

(1) Κάθε μεταφορική μονάδα που μεταφέρει επικίνδυνες ουσίες θα είναι εξοπλισμένη με: 10 240

(α) Τουλάχιστο ένα φορητό πυροσβεστήρα επαρκούς συνολικής χωρητικότητας, κατάλληλο για την καταπολέμηση πυρκαϊάς στον κινητήρα ή σε οποιοδήποτε άλλο τμήμα της μεταφορικής μονάδας, τέτοιο ώστε, αν χρησιμοποιηθεί για την καταπολέμηση πυρκαϊάς στο φορτίο, δεν επιδεινώνει τη φωτιά και αν είναι δυνατόν, την ελέγχει· εντούτοις, αν το όχημα είναι εφοδιασμένο με μόνιμο πυροσβεστήρα, αυτόματο ή εύκολα τιθέμενο σε λειτουργία για την καταπολέμηση πυρκαϊάς στον κινητήρα, ο φορητός πυροσβεστήρας δεν χρειάζεται να είναι κατάλληλος για την καταπολέμηση φωτιάς στον κινητήρα·

(β) Πέραν από τον εξοπλισμό που περιγράφεται στο παραπάνω (α), τουλάχιστον ένας φορητός πυροσβεστήρας κατάλληλης χωρητικότητας, κατάλληλος για την καταπολέμηση φωτιάς στο φορτίο, και τέτοιος ώστε, αν χρησιμοποιηθεί για καταπολέμηση φωτιάς στον κινητήρα ή σε οποιοδήποτε άλλο τμήμα της μεταφορικής μονάδας, να μην επιδεινώνει τη φωτιά και, αν είναι δυνατό, να την ελέγχει·

(2) Ο καταβεστικός παράγων που περιέχεται στον πυροσβεστήρα ή πυροσβεστήρες με τους οποίους είναι εφοδιασμένη μια μεταφορική μονάδα θα είναι τέτοιοι ώστε να μην εξαπολύουν τοξικά αέρια στο κουβούκλιο του οδηγού ή υπό την επίδραση της θερμότητας της φωτιάς·

(3) Όπου μια μεταφορική μονάδα περιλαμβάνει συρόμενο και το φωρτομένο συρόμενο είναι ασύνδετο και έχει αφεθεί στη δημόσια εθνική οδό, σε κάποια απόσταση από το σύρον όχημα, το συρόμενο θα είναι εξοπλισμένο με τουλάχιστον ένα πυροσβεστήρα σύμφωνο με τις διατάξεις του εδαφίου (Ι) (β) του παρόντος περιθωριακού.

10 241
10 250

Ηλεκτρικός εξοπλισμός

Οι προϋποθέσεις που αφορούν τον ηλεκτρικό εξοπλισμό οχημάτων που ορίζεται στο Παράρτημα Β.2 θα έχουν εφαρμογή μόνο στα παρακάτω οχήματα: 10 250

(α) Οχήματα με σταθερές δεξαμενές, οχήματα τα οποία φέρουν αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων που μεταφέρουν είτε υγρά που έχουν σημείο αναφλέξεως 55 °K ή παρακάτω, ή τα εύφλεκτα αέρια που αναφράφονται στο περιθωριακό 220 002·

(β) Οχήματα προοριζόμενα για τη μεταφορά εκρηκτικών και που πρέπει να ανταποκρίνονται στις προϋποθέσεις του περιθωριακού 11 205 (2)(γ) για μεταφορικές μονάδες της κατηγορίας Β.ΙΙΙ.

10 252
10 259

Διάφορος εξοπλισμός

Κάθε μεταφορική μονάδα που μεταφέρει επικίνδυνα εμπορεύματα θα είναι εφοδιασμένη με: 10 260

(α) κιβώτιο εργαλείων για επείγουσες επισκευές του οχήματος·

(β) για κάθε όχημα, τουλάχιστο ένα τάκο κατάλληλου μεγέθους προς το βάρος του οχήματος και τη διάμετρο των τροχών·

(γ) δύο κίτρινα φώτα. Αυτά τα φώτα θα είναι ανεξάρτητα από τον ηλεκτρικό εξοπλισμό του οχήματος και θα είναι έτσι σχεδιασμένα ώστε η χρήση τους να μη μπορεί να προκαλέσει ανάφλεξη των μεταφερόμενων εμπορευμάτων· θα είναι σταθερά ή αναβοσβύνοντα.

Έγκριση οχημάτων

(1) Οχήματα - δεξαμενές, οχήματα που φέρουν αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων και, όπου χρειάζεται σύμφωνα με τις διατάξεις του Μέρους ΙΙ του παρόντος Προσαρτήματος, αλλά οχήματα θα υπόκεινται σε τεχνική επιθεώρηση στη χώρα εγγραφής τους για να εξασφαλιστεί ότι είναι σύμφωνα με τις διατάξεις του παρόντος Προσαρτήματος, περιλαμβανόμενων εκείνων των παραρτημάτων του και τις γενικές διατάξεις ασφαλείας (που αφορούν τα φρένα, τον φωτισμό κ.λπ.) που ισχύουν στη χώρα εγγραφής τους· αν αυτά τα οχήματα είναι συρόμενα ή ημισυρόμενα συνδεμένα πίσω από σύρον όχημα, το σύρον όχημα θα υπόκειται σε τεχνική επιθεώρηση για τους ίδιους σκοπούς. 10 282

(2) Πιστοποιητικό εγκρίσεως θα εκδίδεται από την αρμόδια αρχή της χώρας εγγραφής για κάθε όχημα του οποίου η επιθεώρηση δίνει ικανοποιητικά αποτελέσματα. Θα είναι συνταγμένο στη γλώσσα ή σε μία από τις γλώσσες της χώρας που το εκδίδει, επίσης δε αν αυτή η γλώσσα δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός αν συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερομένων χωρών στο χώρο της μεταφοράς προβλέπουν διαφορετικά. Θα είναι όπως το υπόδειγμα που δίνεται στο Παράρτημα Β.3.

(3) Ειδικό πιστοποιητικό εγκρίσεως που εκδίδεται από τις αρμόδιες αρχές ενός Συμβαλλόμενου Μέρους για όχημα γραμμένο στην περιοχή εκείνου του Συμβαλλόμενου Μέρους θα γίνεται δεκτό, εφόσον η ισχύς του συνεχίζεται, από τις αρμόδιες αρχές των άλλων Συμβαλλόμενων Μερών.

(4) Η ισχύς του ειδικού πιστοποιητικού εγκρίσεως θα λήγει όχι αργότερα από ένα έτος μετά την ημερομηνία του τεχνικού ελέγχου του οχήματος που προηγείται της εκδόσεως του πιστοποιητικού. Εντούτοις, στην περίπτωση δεξαμενών που υπόκεινται σε υποχρεωτική περιοδική επιθεώρηση αυτή η διάταξη δεν θα σημαίνει ότι οι δοκιμές στεγανότητας, οι δοκιμές υδραυλικής πιέσεως ή οι εσωτερικές επιθεωρήσεις των δεξαμενών πρέπει να γίνωνται σε χρονικά διαστήματα βραχύτερα εκείνων που ορίζονται στα Παραρτήματα Β.Ια και Β.Ιγ.

Οι μεταφορικές μονάδες που προορίζονται για τη μεταφορά κοντέηνερ-δεξαμενών που υπερβαίνουν τη χωρητικότητα των 3000 λίτρων θα υπόκεινται σε ετήσιο τεχνικό έλεγχο στη χώρα εγγραφής τους για να εξασφαλιστεί ότι ανταποκρίνονται στις γενικές διατάξεις ασφαλείας που αφορούν φρένα, φωτισμό κ.λπ., που ισχύουν στη χώρα τους. Πιστοποιητικό εγκρίσεως θα εκδίδεται από την αρμόδια αρχή της χώρας εγγραφής για κάθε στοιχείο της μεταφορικής μονάδας της οποίας η επιθεώρηση δίνει ικανοποιητικά αποτελέσματα. Η ημερομηνία της τελευταίας επιθεωρήσεως πρέπει να καθορίζεται. Το υπόδειγμα που υπάρχει στο Παράρτημα Β.3 μπορεί να χρησιμοποιείται γι' αυτό το πιστοποιητικό. 10 283

10 284
10 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως

10 300
10 310

Πληρώματα οχήματος

Όπου οι σχετικές διατάξεις του Μέρους ΙΙ του παρόντος Προσαρτήματος απαιτούν την παρουσία στο όχημα βοηθού, ο βοηθός πρέπει να είναι σε θέση να αναλάβει το όχημα από τον οδηγό. 10 311

10 312

Ειδική εκπαίδευση οδηγών 10 314

(1) Οι οδηγοί δεξαμενοχημάτων ή μεταφορικών μονάδων που φέρουν δεξαμενές ή δεξαμενοκοντέηνερ με ολική χωρητικότητα μεγαλύτερη των 3,000 λίτρων θα κρατούν πιστοποιητικό εκδομένο από την αρμόδια αρχή ή από οργανισμό αναγνωρισμένο από εκείνη την αρχή που θα αναφέρει ότι έχουν με επιτυχία συμμετάσχει σε εκπαιδευτικό κύκλο πάνω στις συγκεκριμένες απαιτήσεις που πρέπει να ανταποκρίνονται στη διάρκεια μεταφοράς επικίνδυνων εμπορευμάτων. 10 315

(2) Με κατάλληλες ανανεώσεις πάνω σ' αυτό το πιστοποιητικό που θα γίνονται κάθε πέντε χρόνια από την αρμόδια αρχή ή από τον οργανισμό που είναι αναγνωρισμένος από εκείνη την αρχή, ο οδηγός του οχήματος πρέπει να είναι σε θέση να δείξει ότι έχει επιτυχώς συμμετάσχει σε κύκλους ανανεώσεως της εκπαιδεύσεως. Εντούτοις, η αρμόδια αρχή ή οποιοσδήποτε οργανισμός που είναι αναγνωρισμένος από εκείνη την αρχή, προς την οποία έχει γίνει αίτηση για παράταση της περιόδου ισχύος του πιστοποιητικού μπορεί να εξαιρέσει τον αιτούντα από την υποχρέωση να κάνει εκπαιδευτικό κύκλο ανανεώσεως με τον όρο ότι μπορεί να αποδείξει ότι έχει συνεχίσει το επάγγελμά του χωρίς διακοπή από τότε που εκδόθηκε το πιστοποιητικό του ή από την τελευταία επικύρωση ανανεώσεως.

(3) Η εκπαίδευση θα γίνεται σε κύκλους εκπαιδεύσεως της εγκρίσεως της αρμόδιας αρχής. Οι κύριοι στόχοι της είναι να ενημερώσει τους οδηγούς για τους κινδύνους που παρουσιάζονται στη μεταφορά επικίνδυνων εμπορευμάτων και να τους δώσει βασικές πληροφορίες απαιραίτητες για την ελαχιστοποίηση του ενδεχόμενου ατυχήματος και, αν γίνει, να μπορέσουν να λάβουν μέτρα που μπορεί να αποδειχθούν αναγκαία για την δική τους ασφάλεια και εκείνη του περιβάλλοντος και για τον περιορισμό των συνεπειών του συμβάντος. Η εκπαίδευση αυτή, η οποία πρέπει να περιλαμβάνει ατομικές πρακτικές ασκήσεις όπου συντρέχει λόγος, πρέπει να καλύπτει:

α) Τις γενικές προϋποθέσεις που καλύπτουν τη μεταφορά επικίνδυνων εμπορευμάτων·

(β) Τους κύριους τύπους κινδύνων·

(γ) Προληπτικά και ασφαλείας μέτρα κατάλληλα για τους διάφορους τύπους κινδύνου·

δ) Τι να κάνουν μετά από ατύχημα (πρώτες βοήθειες, οδική ασφάλεια, βασικές γνώσεις για τη χρήση προστατευτικού εξοπλισμού, κ.λπ.)

(ε) Μαρκάρισμα και σήμανση για να δείχνεται κίνδυνος·

(στ) Τι πρέπει να κάνει και τι να μην κάνει ο οδηγός του οχήματος στη διάρκεια μεταφοράς επικινδύνων εμπορευμάτων·

(ζ) Το σκοπό και τη μέθοδο λειτουργίας του τεχνικού εξοπλισμού πάνω σε οχήματα·

(η) Τη συμπεριφορά οχημάτων που φέρουν δεξαμενές ή κοντέηνερ–δεξαμενές πάνω στο δρόμο, περιλαμβανόμενων των κινήσεων του φορτίου.

(4) Όλα τα πιστοποιητικά εκπαιδεύσεως που είναι σύμφωνα με τις παραγράφους (1), (2) και (3) του παρόντος περιθωριακού και εκδίδονται σύμφωνα με το υπόδειγμα που υπάρχει στο Παράρτημα B.6 από τις αρμόδιες αρχές Συμβαλλόμενου Μέρους ή από οργανισμό αναγνωρισμένο από αυτές τις αρχές, θα γίνονται δεκτά στη διάρκεια της περιόδου ισχύος τους από τις αρμόδιες αρχές άλλων Συμβαλλόμενων Μερών.

10 316

10 320

Επίβλεψη οχημάτων

Οι μεταφορικές μονάδες που μεταφέρουν επικίνδυνα εμπορεύματα σε ποσότητες που αναγράφονται στα σχετικά περιθωριακά του Μέρους ΙΙ θα τελούν υπό επίβλεψη ή εναλλακτικά μπορεί να σταθμεύουν, χωρίς επίβλεψη, σε απομονομένη θέση στα ανοικτά σε ασφαλή αποθήκη ή σε ασφαλή κτίρια εργοστασίου. Αν δεν υπάρχουν τέτοιες διευκολύνσεις, η μεταφορική μονάδα, αυτού διασφαλιστεί κατάλληλα, μπορεί να σταθμεύσει με μεμονομένη θέση που ανταποκρίνεται στις απαιτήσεις των παραγράφων (i), (ii) ή (3) παρακάτω. Οι διευκολύνσεις σταθμεύσεως που επιτρέπονται στην παράγραφο (ii) θα χρησιμοποιούνται μόνο αν αυτές που περιγράφονται στην παράγραφο (i) δεν υπάρχουν και αυτές που περιγράφονται στην παράγραφο (iii) μπορούν να χρησιμοποιούνται μόνο αν δεν υπάρχουν οι διευκολύνσεις που περιγράφονται στις παραγράφου (i) και (ii). 10 321

(i) Χώρος σταθμεύσεως οχημάτων εποπτευόμενος από φύλακα, ο οποίος έχει ειδοποιηθεί για τη φύση του φορτίου και για το μέρος που βρίσκεται ο οδηγός·

(ii) Δημόσιος ή ιδιωτικός χώρος σταθμεύσεως όπου η μεταφορική μονάδα δεν είναι πιθανό να υποστεί βλάβη από άλλα οχήματα· ή

(iii) Κατάλληλος ανοικτός χώρος χωρισμένος από τη δημόσια εθνική οδό και από κατοικίες, όπου το κοινό συνήθως δεν διέρχεται ή συγκεντρώνεται.

10 322

Μεταφορά επιβατών 10 324

Εκτός από τα μέλη του πληρώματος οχήματος, δεν θα μεταφέρονται επιβάτες σε μεταφορικές μονάδες που μεταφέρουν επικίνδυνες ουσίες. 10 325

10 326

Χρήση πυροσβεστικών συσκευών 10 399

Το πλήρωμα του οχήματος πρέπει να γνωρίζει πως θα χρησιμοποιήσει τις πυροσβεστικές συσκευές. 10 340

10 341

Φορητές φωτιστικές συσκευές 10 352

Στο όχημα δεν μπορεί να εισέρχονται πρόσωπα τα οποία φέρουν φωτιστικές συσκευές που περιλαμβάνουν φλόγα. Επί πλέον, η φωτιστική συσκευή που χρησιμοποιείται δεν θα εμφανίζει μεταλλική επιφάνεια που ενδεχομένως μπορεί να δημιουργήσει σπινθήρα. 10 353

10 354

Απαγόρευση καπνίσματος 10 373

Το κάπνισμα θα απαγορεύεται στη διάρκεια εργασιών χειρισμού, κοντά σε δέματα που αναμένουν χειρισμό, κοντά σε ακινητοποιημένα οχήματα και μέσα στα οχήματα. 10 374

10 375

10 377

Κενές δεξαμενές

(I) Για μόνιμες δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων, βλέπε το περιθωριακό 211 177. 10 378

(2) Για κοντέηνερ – δεξαμενές, βλέπε το περιθωριακό 212 177.

10 379

Έγγραφα που πρέπει να υπάρχουν στη μεταφορική μονάδα 10 380

(I) Εκτός από τα έγγραφα που απαιτούνται σύμφωνα με άλλες διατάξεις, πρέπει να υπάρχουν στη μεταφορική μονάδα τα παρακάτω έγγραφα: 10 381

(α) Τα έγγραφα μεταφοράς που προβλέπονται στο Προσάρτημα A, περιθωριακό 2002 (3) και (4), καλύπτονται όλες τις μεταφερόμενες επικίνδυνες ουσίες· και

(β) Τις οδηγίες που προβλέπονται στο περιθωριακό 10 385, που αναφέρεται σε όλες τις μεταφορόμενες επικίνδυνες ουσίες.

(2) Όπου οι διατάξεις του παρόντος Προσαρτήματος απαιτούν τα παρακάτω έγγραφα, αυτά τα έγγραφα θα πρέπει να βρίσκονται στη μεταφορική μονάδα:

(α) Το ειδικό πιστοποιητικό εγκρίσεως που αναφέρεται στο περιθωριακό 10 282 ή 10283 για κάθε μεταφορική μονάδα ή στοιχείον αυτής·

(β) Το πιστοποιητικό εκπαιδεύσεως του οδηγού που προβλέπεται στο περιθωριακό 10 315 και απεικονίζεται στο Παράρτημα B.6· και

(γ) Την άδεια που επιτρέπει την εργασία μεταφοράς.

10 382

Γραπτές οδηγίες 10 384

(I) Σαν προληπτικό μέτρο κατά οποιουδήποτε ατυχήματος ή περιπτώσεις ανάγκης που μπορεί να συμβεί ή να προκύψει 10 385

στη διάρκεια της μεταφοράς, στον οδηγό θα δίδονται γραπτές οδηγίες που θα καθορίζουν συνοπτικά:

(α) Τη φύση του κινδύνου που ενυπάρχει στις μεταφερόμενες επικίνδυνες ουσίες και τα μέτρα ασφαλείας που πρέπει να παρθούν για την αποφυγή του.

(β) Την ενέργεια που πρέπει να γίνει και τη θεραπεία που πρέπει να εφαρμοστεί σε περίπτωση που πρόσωπα έλθουν σε επαφή με τα μετατρεπόμενα εμπορεύματα ή με οποιεσδήποτε ουσίες που μπορεί να διαφύγουν από αυτά·

(γ) Τα μέτρα που πρέπει να παρθούν σε περίπτωση πυρκαϊάς και, ειδικά, οι πυροσβεστικές συσκευές ή εξοπλισμός που δεν πρέπει να χρησιμοποιηθούν·

(δ) Τα μέτρα που πρέπει να ληφθούν σε περίπτωση απασίματος ή φθοράς των συσκευασιών ή των μεταφερόμενων επικίνδυνων ουσιών, ειδικά όπου αυτές οι επικίνδυνες ουσίες έχουν χυθεί πάνω στο οδόστρωμα·

(ε) Στην περίπτωση μεταφορικών μονάδων με δεξαμενές χωρητικότητας πάνω από 3000 λίτρα, που μεταφέρουν μία ή περισσότερες από τις ουσίες που αναφέρονται στο Παράρτημα Β.5, το όνομα της ουσίας/ουσιών, η Κατηγορία, ο αριθμός και το γράμμα του είδους και οι αριθμοί αναγνωρίσεως της ουσίας και του κινδύνου σύμφωνα με το Παράρτημα Β.5.

(2) Οι οδηγίες αυτές θα ετοιμάζονται για κάθε επικίνδυνη ουσία ή Κατηγορία επικίνδυνων ουσιών από τον βιομήχανο ή τον αποστολέα σε γλώσσα της χώρας προελεύσεως· όπου αυτή η γλώσσα δεν είναι ίδια με εκείνες των χωρών διελεύσεως ή προορισμού, οι οδηγίες θα συντάσσονται επίσης στη γλώσσα εκείνων των χωρών. Μια σειρά από αυτές τις οδηγίες θα φυλλάσεται στο κουβούκλιο του οδηγού.

(3) Οι οδηγίες αυτές θα δίδονται στον μεταφορέα το αργότερο όταν δίδεται η εντολή μεταφοράς, για να μπορέσει να λάβει όλα τα αναγκαία μέτρα για να εξασφαλίσει ότι οι ενδιαφερόμενοι υπάλληλοι γνωρίζουν αυτές τις οδηγίες και μπορούν να τις διεκπεραιώσουν σωστά.

10 386

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό 10 399

Περιορισμός των μεταφερόμενων ποσοτήτων 10 400

Το γεγονός ότι επικίνδυνες ουσίες περιέχονται σε ένα ή περισσότερους περιέκτες δεν θα επηρεάζει τους περιορισμούς βάρους που καθορίζονται στο παρόν Προσάρτημα σχετικά με τη μεταφορά σε ένα όχημα ή σε μία μεταφορική μονάδα. 10 401

Απαγόρευση μικτής φορτώσεως σε ένα όχημα 10 402

Εκτός αν το αντίθετο προβλέπεται ρητά από τις διατάξεις της Παραγράφου 4 του Μέρους Π του παρόντος Προσαρτήματος, οι απαγορεύσεις μικτής φορτώσεως σε ένα όχημα δεν θα έχουν εφαρμογή σε φορτία εμπορευμάτων συσκευασμένων μαζί με τον τρόπο που επιτρέπεται από τις διατάξεις μικτής συσκευασίας που περιέχονται στο Προσάρτημα Α. Η συμμόρφωση προς τις απαγορεύσεις περί μικτής φορτώσεως θα βασίζεται πάνω στις ετικέττες κινδύνου του Παραρτήματος Α.9 που θα τοποθετούνται πάνω στα δέματα σύμφωνα με τις απαιτήσεις που αναφέρονται για τις διάφορες κατηγορίες στο Προσάρτημα Α. 10 403

ΣΗΜΕΙΩΣΗ: Όπως προβλέπεται στο περιθωριακό 2002 (4), θα συντάσσονται χωριστά έγγραφα μεταφοράς για φορτία που δεν μπορούν να φορτωθούν μαζί στο ίδιο όχημα.

Απαγόρευση μικτής φορτώσεως σε ένα κοντέηνερ

Οι απαγορεύσεις μικτής φορτώσεως σε ένα όχημα θα τηρούνται επίσης σε κάθε κοντέηνερ 10 404

Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε κοντέηνερ

Προς το σκοπό εφαρμογής των απαγορεύσεων μικτής φορτώσεως σε ένα όχημα, δεν θα λαμβάνονται υπόψη ουσίες που περιέχονται σε κλειστά κοντέηνερ με πλήρεις πλευρές. 10 405

10 406

Καθαρισμός πριν από τη φόρτωση 10 412

Όλες οι διατάξεις στο παρόν Προσάρτημα που σχετίζονται με τον καθαρισμό οχημάτων πριν από τη φόρτωση θα έχουν επίσης εφαρμογή και για τον καθαρισμό των κοντέηνερ. 10 413

Χειρισμός και στοιβασία

(1) Τα διάφορα στοιχεία φορτίου που περιλαμβάνει επικίνδυνες ουσίες θα στοιβάζονται κατάλληλα στο όχημα και θα στερεώνονται με κατάλληλα μέσα για να αποφευχθεί η μετακίνησή τους κατά οποιονδήποτε τρόπο σε σχέση προς άλληλα και προς τα τοιχώματα του οχήματος. 10 414

(2) Αν το φορτίο περιλαμβάνει εμπορεύματα διαφόρων κατηγοριών τα δέματα των επικίνδυνων ουσιών θα χωρίζονται από τα άλλα δέματα.

(3) Όλες οι διατάξεις του παρόντος Προσαρτήματος που έχουν σχέση με τη φόρτωση και εκφόρτωση οχημάτων και με τη στοιβασία και χειρισμό ουσιών θα έχουν επίσης εφαρμογή για τη φόρτωση, στοιβασία και εκφόρτωση των κοντέηνερ επί και από τα οχήματα.

(4) Τίποτε γενικά δεν μπορεί να φορτωθεί πάνω από εύθραυστο δέμα.

(5) Ο οδηγός ή ο βοηθός οδηγός δεν μπορούν να ανοίξουν δέμα που περιέχει επικίνδυνες ουσίες.

Καθαρισμός μετά την εκφόρτωση

(1) Αν, όταν ένα όχημα που είναι φορτωμένο με συσκευασμένα επικίνδυνα εμπορεύματα ξεφορτώνεται, μερικά από τα περιεχόμενα διαπιστωθεί ότι έχουν διαφύγει, το όχημα θα καθαρίζεται το ταχύτερο δυνατό και πάντως πριν από την επόμενη φόρτωση. 10 415

(2) Οχήματα τα οποία έχουν φορτωθεί με επικίνδυνες ουσίες χύμα θα πλένονται καλά πριν από τη νέα φόρτωση εκτός αν το νέο φορτίο αποτελείται από την ίδια επικίνδυνη ουσία με το προηγούμενο φορτίο.

(3) Όλες οι διατάξεις του παρόντος Προσαρτήματος που έχουν σχέση με τον καθαρισμό ή την απομόλυνση οχημάτων θα έχουν επίσης εφαρμογή στον καθαρισμό την απομόλυνση των κοντέηνερ.

Προληπτικά μέτρα κατά ηλεκτροστατικών φορτίσεων 10 416

Σε περίπτωση ουσιών με σημείο αναφλέξεων 55° Κ ή κάτω, θα δημιουργηθεί καλή επαφή (ένωση) μεταξύ του αμαξώματος του οχήματος και του εδάφους πριν οι δεξαμενές γεμίσουν ή αδειάσουν. Επί πλέον, ο ρυθμός πληρώσεως θα είναι περιορισμένος. 10 417

Φόρτωση και εκφόρτωση επικίνδυνων ουσιών σε κοντέηνερ 10 418

Οι διατάξεις του παρόντος Προσαρτήματος που έχουν σχέση με τη φόρτωση και εκφόρτωση οχημάτων και τη στοιβασία και χειρισμό επικίνδυνων ουσιών θα έχουν επίσης εφαρμογή στη φόρτωση και εκφόρτωση επικίνδυνων ουσιών σε κοντέηνερ. 10 419

10 420

Λειτουργία του κινητήρα στη διάρκεια φορτώσεως ή εκφορτώσεως. 10 430

Εκτός όπου ο κινητήρας πρέπει να χρησιμοποιηθεί για την κίνηση των αντλιών ή άλλων συσκευών για φόρτωση ή για εκφόρτωση του οχήματος, η δε νομοθεσία της χώρας στην οποία λειτουργεί το όχημα επιτρέπει αυτή τη χρήση, ο κινητήρας θα είναι κλειστός στη διάρκεια των εργασιών φορτώσεως και εκφορτώσεως. 10 431

10 432

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων. 10 499

Μαρκάρισμα και σήμανση των οχημάτων

(1) Οι μεταφορικές μονάδες που μεταφέρουν επικίνδυνες ουσίες θα προβάλλουν δύο ορθογώνιες ανταυακλαστικές πινακίδες χρώματος πορτοκαλί με βάση 40 εκ. και ύψος όχι μικρότερο από 30 εκ. σε κάθετο επίπεδο. Οι πινακίδες θα έχουν μαύρο περίγραμμα πλάτους όχι μεγαλύτερου των 15 χιλ. πλάτος. Θα τοποθετούνται ένα μπροστά και ένα πίσω της μεταφορικής μονάδας, και τις δύο κατακόρυφες προς τον διαμήκη άξονα της μεταφορικής μονάδας. Θα είναι καθαρά ορατές. 10 500

ΣΗΜΕΙΩΣΗ: Το χρώμα των πορτοκαλιών πινακίδων σε συνθήκες κανονικής χρήσεως πρέπει να έχουν συντεταγμένες χρωματικότητας που να βρίσκονται μέσα στο χώρο του δια-

γράμματος χρωματικότητας που σχηματίζεται με την ένωση των παρακάτω συντεταγμένων:

Συντεταγμένες χρωματικότητας σημείων στις γωνίες του χώρου πάνω στο διάγραμμα χρωματικότητας.

Χ	0.52	0.52	0.578	0.618
Υ	0.38	0.40	0.422	0.38

Συντελεστής φωτεινότητας ανταναχλαστικού χρώματος: $\beta \geqslant 0.12$.

Κέντρο αναφοράς Ε, καθιερωμένο φωτιστικό Γ, κανονική πρόσπτωση 45°, θεώμενο σε 0°.

Συντελεστής φωτεινής εντάσεως ανταναχλάσεως σε γωνία φωτισμού 5°, θεώμενη στους 0.2°: όχι λιγότερο από 20 κηρία κατά λουξ ανά $μ^2$.

(2) Μεταφορικές μονάδες με δεξαμενές χωρητικότητας μεγαλύτερες από 3,000 λίτρα που μεταφέρουν ουσίες που αναφέρονται στο Παράρτημα Β.5 θα προβάλουν, επί πλέον, στα πλευρά κάθε δεξαμενής ή διαμερίσματος δεξαμενής, καθαρά ορατές και παράλληλες προς το διαμήκη άξονα του οχήματος, πορτοκαλλί πινακίδες ίδιες με αυτές που περιγράφονται στην παράγραφο (1). Αυτές οι πορτοκαλί πινακίδες θα φέρουν τους αριθμούς αναγνωρίσεως που προβλέπονται στο Παράρτημα Β.5 για κάθε μία από τις μεταφερόμενες στη δεξαμενή ουσίες ή σε διαμέρισμα της δεξαμενής.

(3) Όπου αυτές οι δεξαμενές είναι κοντέηνερ (δεξαμενοκοντέηνερ), οι πινακίδες που προβλέπονται στην παράγραφο (2) μπορεί να αντικαταστα θούν από αυτοκόλλητο φύλλο, από μπογιά ή από οποιοδήποτε ισότιμο τρόπο, με τον όρο ότι το υλικό που χρησιμοποιείται γι' αυτό το σκοπό είναι ανθεκτικό στις καιρικές συνθήκες και εξασφαλίζει ανθεκτική σήμανση. Στην περίπτωση αυτή, δεν θα έχουν εφαρμογή οι διατάξεις της τελευταίας φράσεως της παραγράφου (5), που αφορούν αντίσταση στη φωτιά.

(4) Για μεταφορικές μονάδες με σταθερές ή αποσυναρμολογούμενες δεξαμενές που μεταφέρουν μόνο μία από τις ουσίες που αναφέρονται στο Παράρτημα Β.5, οι πορτοκαλί πινακίδες που προβλέπονται στην παράγραφο (2) δε θα είναι αναγκαίες με τον όρο ότι αυτές που προβάλλονται μπροστά και πίσω σύμφωνα με την παράγραφο (1) φέρουν τους αριθμούς αναγνωρίσεως που προβλέπονται στο Παράρτημα Β.5.

(5) Οι αριθμοί αναγνωρίσεως θα αποτελούνται από μαύρους αριθμούς (ψηφία) ύψους 100 χιλ. και πάχους γραφής 15 χιλ. Ο αριθμός αναγνωρίσεως κινδύνου θα είναι γραμμένος στο επάνω μέρος της πινακίδας και ο αριθμός αναγνωρίσεως της ουσίας στο κάτω μέρος· θα χωρίζονται με οριζόντια μαύρη γραμμή, με πάχος γραφής 15 χιλ. εκτεινόμενη από πλευρά σε πλευρά σε μέσο ύψος (βλέπε Παράρτημα Β.5). Οι αριθμοί αναγνωρίσεως θα είναι ανεξίτηλοι και θα παραμένουν ευανάγνωστοι μετά από 15 λεπτά περιτύλιξη από τη φωτιά.

(6) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές θα φέρουν επίσης και στις δύο πλευρές και πίσω τις πινακίδες που προβλέπονται στα περιθωριακά ΧΧ 500 κάθε κατηγορία

ΣΗΜΕΙΩΣΗ: Βλέπε περιθωριακό 10 130 για τη σήμανση των δεξαμενο-κοντέηνερ και των συστοιχιών δοχείων.

(7) Οι παραπάνω προϋποθέσεις έχουν επίσης εφαρμογή για κενές δεξαμενές, μη καθαρισμένων και απαερωμένων.

(8) Μετά την εκφόρτωση των επικίνδυνων ουσιών και τον καθαρισμό και την απαέρωση των δεξαμενών, οι πορτοκαλί πινακίδες και οι ετικέττες κινδύνου δεν θα είναι πλέον ορατές.

10 501 Στάθμευση γενικά

10 502 Καμμία μεταφορική μονάδα που μεταφέρει επικίνδυνες ουσίες δεν μπορεί να σταθμεύσει χωρίς να χρησιμοποιηθούν τα φρένα σταθμεύσεως

10 503 Στάθμευση τη νύχτα ή με κακή ορατότητα.

10 504 (1) Αν ένα όχημα είναι σταθμευμένο τη νύχτα ή με κακή ορατότητα και τα φώτα του δεν εργάζονται, θα τοποθετηθούν στο δρόμο τα κίτρινα φώτα που αναφέρονται στο περιθωριακό 10 260 (γ),

10 505 Ένα περίπου 10 μ μπροστά από το όχημα· και

Το άλλο περίπου 10 μ πίσω από το όχημα.

(2) Οι διατάξεις του παρόντος περιθωριακού δεν θα έχουν εφαρμογή στην επικράτεια του Ηνωμένου Βασιλείου

10 506 Στάθμευση οχήματος που αποτελεί ειδικό κίνδυνο.

10 507 Χωρίς βλάβη των μέτρων που προβλέπονται στο παραπάνω περιθωριακό 10 505, αν η φύση των επικίνδυνων ουσιών που μεταφέρει το σταθμευμένο όχημα αποτελεί πηγή ειδικού κινδύνου προς τους χρήστες της οδού (π.χ. στην περίπτωση ουσιών επικίνδυνων για τους πεζούς, τα ζώα ή τα οχήματα χυνόμενες πάνω στο δρόμο)το δε πλήρωμα του οχήματος δεν είναι σε θέση να εξουδετερώσει τον κίνδυνο γρήγορα, ο οδηγός θα ειδοποιεί τις πλησιέστερες αρμόδιες αρχές ή θα ενεργεί για να ειδοποιηθούν, αμέσως. Επίσης, όπου χρειάζεται, θα λαμβάνει τα μέτρα που προβλέπονται στις οδηγίες που δίδονται στο περιθωριακό 10 385.

10 508

10 598

10 599 Άλλες διατάξεις:

Όσον αφορά τις διατάξεις που δεν περιλαμβάνονται στο παρόν τμήμα του Μέρους ΙΙ του παρόντος Προσαρτήματος που αφορούν τη λειτουργία οχημάτων που μεταφέρουν επικίνδυνα εμπορεύματα, τα σχετικά μέτρα που έχουν υιοθετηθεί στον τομέα αυτό από κάθε Συμβαλλόμενο Μέρος βάσει της εσωτερικής νομοθεσίας του και αφορά εσωτερικές μεταφορές που θα έχουν εφαρμογή στη διεθνή μεταφορά που χρησιμοποιεί την επικράτεια αυτού.

Παράγραφος 6: Μεταβατικές διατάξεις, μειώσεις και διατάξεις ιδιόμορφες για ορισμένες χώρες

10 600

10 601 Ταχεία διαδικασία για να επιτραπούν παρεκκλίσεις προς το σκοπό δοκιμών

10 602 Προς το σκοπό διεξαγωγής των αναγκαίων δοκιμών για να τροποποιηθούν οι διατάξεις του παρόντος Παραρτήματος για να προσαρμοστούν με τις τεχνολογικές και βιομηχανικές εξελίξεις, οι αρμόδιες αρχές των Συμβαλλόμενων Μερών μπορούν να συμφωνήσουν απ' ευθείας μεταξύ τους να επιτρέψουν μερικές μεταφορικές εργασίες στις επικράτειές τους με προσωρινή παρέκκλιση από τις διατάξεις του παρόντος Προσαρτήματος. Η αρχή που έλαβε την πρωτοβουλία σε σχέση με την προσωρινή παρέκκλιση που εγκρίθηκε θα ειδοποιεί την αρμόδια υπηρεσία της Γραμματείας των Ηνωμένων Εθνών για την παρέκκλιση, η οποία υπηρεσία θα το θέσει υπόψη των Συμβαλλόμενων Μερών.

10 603

10 999 Μέρος ΙΙ - ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΤΩΝ ΚΑΤΗΓΟΡΙΩΝ 1 ΜΕΧΡΙ 8 ΠΟΥ ΣΥΜΠΛΗΡΩΝΟΥΝ Η ΤΡΟΠΟΠΟΙΟΥΝ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΤΟΥ ΜΕΡΟΥΣ 1

Κατηγορίες

Ια Εκρηκτικές ουσίες και αντικείμενα

Ιβ Αντικείμενα γεμισμένα με εκρηκτικές ύλες

Ιγ Αναφλεκτήρες, πυροτεχνήματα και παρόμοια

Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

11 000

11 099 Παράγραφος 1: Τρόπος μεταφοράς

11 100

11 104 Μέθοδος αποστολής και περιορισμοί στην αποστολή

11 105 Ουσίες της Κατηγορίας Ια, 13° και 14° (α) και (β), μπορεί να μεταφέρονται μόνο σαν πλήρες φορτίο. Εντούτοις, δέματα που δεν ζυγίζουν πάνω από 10 κιλά και παραδίδονται για μεταφορά σε ποσότητα που δεν υπερβαίνει τα 100 κιλά μπο-

ρούν να μεταφέρονται διαφορετικά παρά σαν πλήρες φορτίο.

11 106
11 117

Μεταφορά κοντέηνερ

Τα μικρά κοντέηνερ θα καλύπτουν τις απαιτήσεις που προβλέπονται σε σχέση με το αμάξωμα του οχήματος για την εργασία μεταφοράς για την οποία πρόκειται· τότε δεν θα είναι αναγκαίο όπως το αμάξωμα του οχήματος καλύπτει εκείνες τις απαιτήσεις. 11 118

11 119
11 199

Παράγραφος 2: Ειδικές απαιτήσεις προς εκπλήρωση από το μέσο μεταφοράς και τον εξοπλισμό του

11 200
11 203

Τύποι οχήματος

(Βλέπε επίσης περιθωριακά 11 205 και 11 206)

Επικίνδυνες ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β και 1γ μπορεί να μεταφέρονται μόνο σε κλειστά οχήματα ή σε επενδυμένα οχήματα εφοδιασμένα με πλευρικά παραπέτα και οπίσθιο παραπέτο. Το φύλλο ενός επενδεδυμένου οχήματος πρέπει να είναι από αδιάβροχο υλικό που δεν αναφλέγεται εύκολα. Πρέπει να είναι τεντωμένο ώστε να καλύπτει το όχημα από όλες τις πλευρές, με επικάλυψη όχι μικρότερη των 20 εκ προς τα κάτω επί των τοιχωμάτων του οχήματος και να συγκρατείται στη θέση του με μεταλλικές ράβδους ή αλυσσίδες που κλειδώνονται. 11 204

Κατηγορίες οχημάτων

Για την εφαρμογή του παρόντος Προσαρτήματος, μεταφορικές μονάδες που έχουν άδεια μεταφοράς επικίνδυνων ουσιών ή αντικειμένων των Κατηγοριών 1α, 1β και 1γ κατατάσσονται όπως παρακάτω: 11 205

(1) Μεταφορικές μονάδες «Α»: Μεταφορικές μονάδες των οποίων οι κινητήρες χρησιμοποιούν υγρό καύσιμο σε σημείο αναφλέξεως κάτω των 55° Κ.

(2) Μεταφορικές μονάδες «Β»: Μεταφορικές μονάδες των οποίων οι κινητήρες χρησιμοποιούν υγρό καύσιμο με σημείο αναφλέξεως 55° Κ ή παραπάνω· αυτή η κατηγορία Β περιλαμβάνει τις παρακάτω υποκατηγορίες:

(α) Μεταφορικές μονάδες «Β.Ι.»:

Αυτές είτε δεν έχουν συρόμενο είτε έχουν συρόμενο που καλύπτει τους παρακάτω όρους:

Η συσκευή σύνδεσής του αποσυνδέεται γρήγορα και είναι στερεά· και

Είναι εφοδιασμένο με αποτελεσματική συσκευή πεδήσεως που ενεργεί σε όλους τους τροχούς, κινούμενη από σύστημα ελέγχου πεδήσεως του σύροντος οχήματος και σταματά αυτόματα το συρόμενο σε περίπτωση θραύσεως της συνδέσεως.

(β) Μεταφορικές μονάδες «Β.ΙΙ»:

Αυτές έχουν τα παρακάτω χαρακτηριστικά πέρα από εκείνα της υποκατηγορίας Β.Ι.

(i) Κινητήρας και σύστημα εξαγωγής καυσαερίων

Ο κινητήρας και το σύστημα εξαγωγής των καυσαερίων είναι τοποθετημένα μπροστά από το μπροστινό τοίχωμα του αμαξώματος. Το στόμιο του σωλήνα εξαγωγής των καυσαερίων κατευθύνεται προς τα έξω από το όχημα.

(ii) Δεξαμενή καυσίμων

Η δεξαμενή καυσίμων είναι τοποθετημένη αρκετά μακριά από τον κινητήρα, τις ηλεκτρικές καλωδιώσεις και τον σωλήνα εξατμίσεως και με τέτοιο τρόπο ώστε σε περίπτωση διαρρροής από τη δεξαμενή το καύσιμο στάζει απ' ευθείας στο έδαφος και δεν μπορεί να φθάσει το φορτίο των εκρηκτικών. Η δεξαμενή καυσίμων βρίσκεται αρκετά μακριά από τη μπαταρία αποθηκεύσεως, ή τουλάχιστο χωρίζεται από αυτή σε στεγανό χώρισμα. Είναι τοποθετημένη κατά τέτοιο τρόπο ώστε να είναι όσο είναι δυνατό προστατευμένη σε περίπτωση συγκρούσεως. Ο κινητήρας δεν τροφοδοτείται με τη βαρύτητα

(iii) Κουβούκλιο οδηγού

Δεν έχει χρησιμοποιηθεί εύφλεκτο υλικό για την κατασκευή του κουβουκλίου του οδηγού, εκτός από τον εξοπλισμό των καθισμάτων.

(γ) Μεταφορικές μονάδες "Β.ΙΙΙ":

Αυτές έχουν όλα τα χαρακτηριστικά της υποκατηγορίας Β.ΙΙ και, επί πλέον, το αμάξωμά τους παρουσιάζει τα παρακάτω γνωρίσματα:

(i) είναι κλειστό και έχει συνεχή επιφάνεια χωρίζεται από το κουβούκλιο του οδηγού από χώρο που δεν είναι λιγότερο από 15 εκ. είναι στερεά κατασκευασμένο κατά τέτοιο τρόπο και από τέτοια υλικά ώστε προστατεύει αρκετά τα μεταφερόμενα εμπορεύματα· τα χρησιμοποιούμενα υλικά για επένδυση δεν μπορούν να προκαλέσουν σπινθήρες· οι μονωτικές και αντιθερμαντικές ιδιότητες του αμαξώματος είναι σε όλα τα σημεία τουλάχιστο ισότιμες με εκείνες ενός χωρίσματος αποτελούμενου από στρώμα αμιάντου πάχους 5 χιλ. μεταξύ δύο μεταλλικών τοιχωμάτων ή εκείνες χωρίσματος αποτελούμενου από εξωτερικό μεταλλικό τοίχωμα επενδυμένο με στρώμα άφλεκτου ξύλου πάχους 10 χιλ.

(ii) Η πόρτα ή πόρτες είναι εφοδιασμένες με κλειδαριά και κλειδί· όλοι οι αρμοί και τα κλεισίματα είναι του επικαλύπτοντος τύπου. Η πόρτα ή πόρτες πρέπει να είναι κατασκευασμένες με τέτοιο τρόπο ώστε να μειώνεται η αντοχή του αμαξώματος όσο το δυνατό λιγότερο.

Περιορισμοί στη χρήση οχημάτων ορισμένων κατηγοριών

(1) Οι μεταφορικές μονάδες "Α" μπορούν να μεταφέρουν μόνο αντικείμενα της Κατηγορίας 1β, 2° (β), 4° (α), (β) και (ε), και της Κατηγορίας 1γ, 1° (α) και 3°. 11 206

Δεν προβλέπεται ειδικός περιορισμός μάζας για τέτοια μεταφορά.

(2) Οι μεταφορικές μονάδες "Β.Ι" μπορούν να μεταφέρουν

(α) χωρίς ειδικούς περιορισμούς μάζας, είδη της Κατηγορίας 1β, 2°(β) και 4°, και της Κατηγορίας 1γ, 1° (α) και 3°.

(β) Με την επιφύλαξη των περιορισμών μάζας που προβλέπονται στο περιθωριακό 11 401, τις επικίνδυνες ουσίες που αναφέρονται σ' εκείνο το περιθωριακό.

(3) Οι διατάξεις που σχετίζονται με τους περιορισμούς, υπό το φως της μάζας και της φύσεως του φορτίου, πάνω στη χρήση των μεταφορικών μονάδων "Β.ΙΙ" και "Β.ΙΙΙ" καθορίζονται στο περιθωριακό 11 401.

11 207

Υλικά που θα χρησιμοποιηθούν για την κατασκευή των αμαξωμάτων οχημάτων 11 209

Για την κατασκευή του αμαξώματος, δεν θα χρησιμοποιούνται υλικά που είναι ενδεχόμενο να σχηματίσουν επικίνδυνα μίγματα με τα μεταφερόμενα εκρηκτικά (π.χ. μόλυβδος στην περίπτωση μεταφοράς εξυλίου, πικρικού οξέος, PICRATES, εκρηκτικά μίγματα νίτρου διαλυτά στο νερό, ή εκρηκτικά όξινης φύσεως (βλέπε επίσης περιθωριακό 11 205 (2) (γ)). 11 210

11 211

Κουβούκλιο οδηγού 11 215
(Βλέπε περιθωριακό 11 205 (2) (β), (iii). 11 216
11 217

Συνδυασμός σύροντος οχήματος και συρόμενου 11 224
(Βλέπε περιθωριακό 11 205 (2) (α).) 11 225
11 226

Κινητήρας και σύστημα εξαγωγής καυσαερίων 11 230
(Βλέπε περιθωριακό 11 205 (2) (β), (i).) 11 231
11 232

Πυροσβεστικές συσκευές 11 239
Οι διατάξεις του περιθωριακού 10 240 (1) (β) και (3) δεν θα έχουν εφαρμογή για τη μεταφορά επικίνδυνων ουσιών της Κατηγορίας 1γ, 1° μέχρι 3°, 5° μέχρι 20°, 24°, 25° και 27°. 11 240

11 241

Ηλεκτρικός εξοπλισμός 11 250
(1) Η καθορισμένη τάση του ηλεκτρικού συστήματος φωτισμού δεν θα υπερβαίνει τα 24 V. 11 251

(2) Δεν θα εγκατασταθεί μέσα στα αμαξώματα των μεταφορικών μονάδων "Β.ΙΙ" και "Β.ΙΙΙ" ηλεκτρικό κύκλωμα.

11 252

Έγκριση οχημάτων 11 281
Οι απαιτήσεις του περιθωριακού 10 282 θα έχουν εφαρμογή στις μεταφορικές μονάδες "Β.ΙΙΙ" 11 282

11 283
11 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως

11 300

Πληρώματα οχημάτων 11 310
Σε κάθε μεταφορική μονάδα θα υπάρχει βοηθός οδηγού. Αν 11 311
οι εθνικές διατάξεις το προβλέπουν, η αρμόδια αρχή συμβαλλόμενης χώρας μπορεί να ζητήσει να υπάρχει στο όχημα εξουσιοδοτημένος κρατικός υπάλληλος με έξοδα του μεταφορέα.

11 312

Επιθεώρηση οχημάτων 11 320
Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή 11 321
για τα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες:

Κατηγορία 1α: Ουσίες και είδη του 1° - 14°: 5KG

Κατηγορία 1β: Είδη του 1° (β), (γ) και (δ) 5° - 7° και 9° - 11°: 50 κιλά, και

Κατηγορία 1γ: Είδη του 21° μέχρι 23°: 50 κιλά.

Επί πλέον, αυτά τα εμπορεύματα θα επιβλέπονται πάντοτε για να αποφευχθεί δόλια ενέργεια και για να κινητοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απωλείας ή πυρκαϊάς.

11 322
11 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση εκφόρτωση και χειρισμό

11 400

Περιορισμός των μεταφερόμενων ποσοτήτων

Η ποσότητα επικίνδυνων ουσιών ή ειδών των Κατηγοριών 11 401
Ια, Ιβ και Ιγ που μπορούν να μεταφερθούν πάνω σε μία μεταφορική μονάδα θα περιορίζεται όπως παρακάτω (βλέπε επίσης το περιθωριακό 11 403 όσον αφορά την απαγόρευση μικτής φορτώσεως).

(1) Μία μεταφορική μονάδα «Β.Ι» μπορεί να μεταφέρει μόνο

(α) Ένα από τα φορτία που επιτρέπονται από τα περιθωριακά 11 206 (1) και (2) (α)· ή

(β) Όχι περισσότερο από 500 κιλά των ειδών της Κατηγορίας Ιγ, 1° (β)· ή

(γ) Όχι περισσότερο από 300 κιλά ουσιών της Κατηγορίας Ια, 12°· ή

(δ) Όχι περισσότερο από 100 κιλά ουσιών της Κατηγορίας Ια, 11°, 13° και 14°.

(2) Μία μεταφορική μονάδα «Β.ΙΙ» μπορεί να μεταφέρει μόνο

(α) Ένα από τα φορτία που επιτρέπεται με το παραπάνω (1) για μεταφορικές μονάδας «Β.Ι»· ή

(β) Όχι περισσότερο από 500 κιλά ουσιών της Κατηγορίας Ια, 1° μέχρι 10° και 12°, καθώς και αντικείμενα της Κατηγορίας Ιβ, 1°, 2° (α), (γ) και (δ), 3° και 6° μέχρι 11°, ή επικίνδυνα εμπορεύματα της Κατηγορίας Ιγ. Εντούτοις, ουσίες της Κατηγορίας Ια, 3°, 4° και 5°, πρέπει να είναι συσκευασμένα σύμφωνα με τις απαιτήσεις για αποστολές που μεταφέρονται διαφορετικά από πλήρες φορτίο.

(3) Μία μεταφορική μονάδα «Β.ΙΙΙ» μπορεί να μεταφέρει μόνο

(α) Ένα από τα φορτία που επιτρέπονται με το παραπάνω (2) για μεταφορικές μονάδας «Β.ΙΙ»· ή

(β) Με τον όρο ότι η μάζα του φορτίου επικίνδυνων ουσιών δεν υπερβαίνει το 90 στα εκατό της μάζας του φορτίου κοινών εμπορευμάτων που κηρύχθηκαν επιτρεπτέα για το όχημα από την αρμόδια αρχή της χώρας εγγραφής του οχήματος όχι περισσότερα από 9,000 κιλά των επικίνδυνων ουσιών ή αντικειμένων των Κατηγοριών Ια, Ιβ ή Ιγ κατά αρθρωτό όχημα ή όχημα χωρίς ρυμουλκούμενο, ή όχι περισσότερο από 15,000 κιλά αυτών των επικίνδυνων ουσιών κατά μεταφορική μονάδα άλλου είδους. Εντούτοις, αν το φορτίο περιλαμβάνει μία ή περισσότερες ουσίες της κατηγορίας Ια, ΙΙ°, 13° ή 14°, ή ένα ή περισσότερα αντικείμενα της Κατηγοριάς Ιβ, 5°, 6° ή 11°, αυτά τα όρια θα μειώνονται σε 6,000 κιλά και 10,000 κιλά αντίστοιχα.

11 402

Απαγόρευση μικτής φορτώσεως σε ένα όχημα

(1) Ουσίες και αντικείμενα της Κατηγορίας Ια δεν θα φορ- 11 403
τώνονται μαζί σε ένα όχημα με:

(α) Αντικείμενα της Κατηγορίας Ιβ περιεχόμενα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1·

(β) Συσκευασίες που φέρουν ετικέττα σύμφωνα με οποιοδήποτε από τα υποδείγματα No. 4.3, 7Α, 7Β ή 7Γ·

(γ) Συσκευασίες που φέρουν μία ετικέττα ή δύο ετικέττες σύμφωνα με οποιοδήποτε από τα υποδείγματα No.3, 4.1, 4.2, 5, 6.Ι, 6.ΙΑ, ή 8.

(2) Αντικείμενα της Κατηγορίας Ιβ περιεχόμενα σε συσκευασίες που φέρουν ετικέττα που είναι σύμφωνη με οποιοδήποτε από τα υποδείγματα No. 1 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Αντικείμενα της Κατηγορίας Ιβ περιεχόμενα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1·

(β) Συσκευασίες που φέρουν ετικέττα σύμφωνα με οποιοδήποτε από τα υποδείγματα No. 4.3, 7Α, 7Β ή 7Γ·

(γ) Συσκευασίες που φέρουν ετικέττα ή δύο ετικέττες σύμφωνα με οποιοδήποτε από τα υποδείγματα No. 3, 4.1, 4.2, 5, 6.ΙΑ ή 8.

(3) Αντικείμενα της κατηγορίας Ιβ περιεχόμενα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες ή αντικείμενα των Κατηγοριών Ια, Ιβ ή Ιγ που περιέχονται σε συσκευασίες που φέρουν ετικέττα σύμφωνα με το υπόδειγμα No. Ι· ή

(β) Τις συσκευασίες που αναφέρονται με τα παραπάνω (2) (β) και (γ).

(4) Αντικείμενα της Κατηγορίας Ιγ που περιέχονται σε συσκευασίες που φέρουν ετικέττα σύμφωνα με το υπόδειγμα No. Ι δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Αντικείμενα της Κατηγορίας Ιβ που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. Ι

(β) Συσκευασίες που φέρουν ετικέττα σύμφωνη με οποιοδήποτε από τα υποδείγματα No. 4.3, 7Α, 7Β ή 7Γ·

(γ) Συσκευασίες που φέρουν μια ή δύο ετικέττες σύμφωνα με οποιοδήποτε από τα υποδείγματα No. 3, 4.Ι, 4.2, 5, 6.1, 6.ΙΑ ή 8.

Κατηγορίες Ια, Ιβ και Ιγ

Απαγόρευση μικτής φορτώσεως σε ένα κοντέηνερ

Η απαγόρευση μικτής φορτώσεως εμπορευμάτων που 11 404
αναφέρεται στο περιθωριακό 11 403 θα έχει εφαρμογή μέσα σε κάθε κοντέηνερ.

Απαγόρευση μικτής φορτώσεως με εμπορεύματα που περιέχονται σε ένα κοντέηνερ.

Οι διατάξεις του περιθωριακού 11 403 θα έχουν εφαρ- 11 405
μογή μεταξύ των επικίνδυνων εμπορευμάτων που περιέχονται σε κοντέηνερ και των άλλων επικίνδυνων εμπορευμάτων που είναι φορτωμένα στο ίδιο όχημα, είτε τα τελευταία περιέχονται ή όχι σε ένα ή περισσότερα άλλα κοντέηνερ.

Τόποι φορτώσεως και εκφορτώσεως 11 406

(1) Οι παρακάτω εργασίες απαγορεύονται: 11 407

(α) Φόρτωση ή εκφόρτωση επικίνδυνων ουσιών ή αντικειμένων των Κατηγοριών Ια, Ιβ και Ιγ, σε δημόσιο χώρο σε κατοικημένη περιοχή χωρίς ειδική έγκριση από τις αρμόδιες αρχές·

(β) Φόρτωση ή εκφόρτωση επικίνδυνων ουσιών ή αντικειμένων αυτών των Κατηγοριών σε δημόσιο χώρο αλλαχού από κατοικημένη περιοχή χωρίς προηγούμενη ειδοποίηση των αρμόδιων αρχών, εκτός αν αυτές οι εργασίες δικαιολογούνται για σοβαρούς λόγους ασφαλείας.

(2) Αν για οποιονδήποτε λόγο, οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, τότε:

Ουσίες και αντικείμενα διαφόρων ειδών θα χωρίζονται σύμφωνα με τις ετικέττες· και

Συσκευασίες εξοπλησμένες με μέσα χειρισμού θα τηρούνται επίπεδες κατά τον χειρισμό.

11 408

Καθαρισμός πριν από τη φόρτωση -11 412

Πριν φορτωθούν οι επικίνδυνες ουσίες ή αντικείμενα των Κατηγοριών Ια, Ιβ ή Ιγ, όλα τα κατάλοιπα αχύρου, κουρελιών, χαρτιού και παρόμοιων υλικών, και όλα τα σιδερένια αντικείμενα (καρφιά, βίδες, κ.λπ.) που δεν αποτελούν αναπόσπαστο μέρος του αμαξώματος του οχήματος θα απομακρύνονται. 11 413

Χειρισμός και στοιβασία

(1) Η χρήση πολύ ευφλέκτων υλικών για τη στοιβασία των δεμάτων τα οχήματα απαγορεύεται. 11 414

(2) Συσκευασίες που περιέχουν επικίνδυνες ουσίες ή αντικείμενα των Κατηγοριών Ια, Ιβ και Ιγ θα φορτώνονται κατά τέτοιο τρόπο ώστε να μπορούν να εκφορτωθούν μία μία στο σημείο προορισμού χωρίς να χρειάζεται επαναστοίβαξη του φορτίου.

(3) Οι συσκευασίες θα στοιβάζονται μέσα στο όχημα με τέτοιο τρόπο ώστε να μη μετατοπίζονται μέσα σ' αυτό. Θα προστατεύονται κατά οποιασδήποτε τριβής ή προσκρούσεως.

Αν μεταφέρονται βαρέλια καθισμένα με το πλευρό τους θα τακτοποιούνται κατά τέτοιο τρόπο ώστε ο κατά μήκος άξονας αυτών να είναι παράλληλος με εκείνο του οχήματος και θα τοποθετούνται σφήνες για να εμποδίζεται πλευρική κίνηση. 11 414

11 415
-11 499

Στάσεις για διέλευση από το Τελωνείο

Όταν μία μεταφορική μονάδα ή αντικείμενα των Κατηγοριών Ια, Ιβ και Ιγ πρόκειται να διέλθουν από το Τελωνείο στα σύνορα, η μεταφορική μονάδα (ή φάλαγγα) θα σταματά τουλάχιστον 50 μέτρα από το Τελωνείο. Ο βοηθός του οδηγού θα μεταβαίνει στο οίκημα του Τελωνείου για να πληροφορήσει τις αρχές για την άφιξη της μεταφορικής μονάδας (ή φάλαγγας) που μεταφέρουν επικίνδυνα εμπορεύματα. 11 508

Στάσεις περιωρισμένης διάρκειας για ανάγκες σέρβις

Όσο είναι δυνατό, οι στάσεις για ανάγκες σέρβις δεν θα γίνονται κοντά σε κατοικημένες περιοχές ή θέρετρα. Μία στάση κοντά σε τέτοιο χώρο δεν μπορεί να παραταθεί παρά μόνο με την έγκριση των αρμόδιων αρχών. 11 509

11 510
-11 519

Φάλαγγες

(1) Όταν οχήματα που μεταφέρουν ουσίες ή αντικείμενα των Κατηγοριών Ια, Ιβ και Ιγ ταξειδεύουν σε φάλαγγα, θα διατηρείται μεταξύ κάθε μεταφορικής μονάδας και της επόμενης απόσταση όχι μικρότερη από 80μ. 11 520

(2) Αν για οποιοδήποτε λόγο, η φάλαγγα υποχρεωθεί να σταματήσει και αν ειδικά, πρέπει να γίνουν εργασίες φορτώσεως σε δημόσιο χώρο, μεταξύ των οχημάτων που σταθμεύουν θα διατηρείται απόσταση όχι μικρότερη των 50μ.

(3) Οι αρμόδιες αρχές μπορεί να καταρτίσουν κανόνες για τη σειρά ή τη σύνθεση των φαλάγγων

11 521

Παράγραφος 6: Μεταβατικές περίοδοι, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες -11 599

11 600

Διατάξεις ειδικές για ορισμένες χώρες -11 609

Η μεταφορά επικίνδυνων ουσιών ή αντικειμένων των Κατηγοριών Ια, Ιβ και Ιγ θα υπόκειται στην επικράτεια του Ηνωμένου Βασιλείου στις διατάξεις που ισχύουν σ' αυτή τη χώρα κατά το χρόνο της μεταφοράς. 11 610

Κατηγορία 2: Αέρια: Πιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση

Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

21 000
-21 099

Παράγραφος 1: Τρόπος μεταφοράς

21 100
-21 104

Μέθοδος αποστολής και περιορισμοί κατά την αποστολή

Το διοξείδιο του άνθρακα και το νιτρικό οξύ του 7° (α), μίγματα που περιέχουν διοξείδιο του άνθρακα και νιτρικό οξύ του 8° (α) και τα αέρια του 7° (β) και 8° (β) μπορεί να μεταφέρονται μόνο σε σταθερές (μόνιμες) δεξαμενές, σε αποσυναρμολογούμενες δεξαμενές, σε συστοιχίες περιεκτών ή σε δεξαμενοκοντέηνερ. 21 105

21 106
-21 117

Μεταφορά σε κοντέηνερ

Η μεταφορά σε μικρά κοντέηνερ συσκευασιών που περιέχουν αέρια του 7° (α) και 8° (α) απαγορεύεται. 21 118

21 119

Χαρακτηρισμός δεξανοκοντέηνερ και συστοιχιών δοχείων -21 129

(1) Δεξαμενοκοντέηνερ και συστοιχίες δοχείων που περιέχουν ουσίες του 1° (β)· 2° (β)· 3° (β)· χλωροεθάνη (ETHYL CHLORIDE) του 3° (βτ)· ουσίες του 3° (γ)· ή ουσίες του 4° (β), 4° (γ)α, 5° (β), 6° (γ), 7° (β) ή 8° (β) θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνη με το υπόδειγμα No. 3. 21 130

(2) Δεξαμενοκοντέηνερ και συστοιχίες δοχείων που περιέχουν οξυγόνο του 1° (α)· μίγματα περιέχοντα περισσότερο από 20 στα εκατό οξυγόνο κατ' όγκο του 2° (α)· νιτρώδες οξύ (οξείδιο του αζώτου) του 5° (α)· νιτρώδες οξύ ή οξυγόνο του 7° (α)· ή υγροποιημένος αέρας ή μίγματα που περιέχουν περισσότερο από 20 στα εκατό οξυγόνο κατά βάρος, του 8° (α), θα φέρουν στις δύο πλευρές ετικέττα σύμφωνη με το υπόδειγμα No. 5.

(3) Δεξαμενοκοντέηνερ και συστοιχίες δοχείων που περιέχουν BORON TRIFLUORIDE του 1° (α τ), αμμωνία, BROMOMETHANE, χλωρίνη ή διοξείδιο του θείου του 3° (α τ) θα φέρουν σε αμφότερες τις πλευρές ετικέττα σύμφωνη με το υποδειγμα 6.1.

(4) Δεξαμενοκοντέηνερ και συστοιχίες δοχείων που περιέχουν αέρια του 1° (β τ) ή του 2° (β τ), η DIMETHYLAMINE, ETHYLAMINE, HYDROGEN SULPHIDE, METHYLAMINE, METHYL CHLORIDE, METHYL CHLORIDE, METHYL MERCAPTAN ή TRIMETHYLAMINE του 3° (β τ), VINYL BROMIDE ή METHYL VINYL ETHER του 3° (γ τ) ή ουσίες του 4° (γ τ), θα φέρουν σε αμφότερες τις πλευρές ετικέττες σύμφωνα με τα υποδείγματα No. 3 και 6.1.

(5) Δεξαμενο–κοντέηνερ ή συστοιχίες δοχείων που περιέχουν διοξείδιο του αζώτου ή φωσγένιο του 3° (α τ) θα φέρουν και στις δύο πλευρές ετικέττες σύμφωνα με τα υποδείγματα No. 5 και 6.1.

(6) Δεξαμενο–κοντέηνερ και συστοιχίες δοχείων που περιέχουν HYDROGEN BROMIDE του 3° (α τ) ή HYDROGEN CHLORIDE του 5° (α τ) θα φέρουν και στις δύο πλευρές ετικέττες σύμφωνα με τα υποδείγματα No. 6.1 και 8.

21 131
-21 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

21 200
-21 211

Αερισμός

Αν συσκευασίες που περιέχουν αέρια του 1° μέχρι 6° και 9° (γ) μεταφέρονται σε κλειστό όχημα, το όχημα θα είναι εφοδιασμένο με κατάλληλο εξαερισμό. 21 212

21 213
-21 239

Πυροσβεστικές συσκευές

Οι διατάξεις του περιθωριακού 10 240 (Ι) (β) και 3 δεν θα έχουν εφαρμογή σε μεταφορά άλλη από εκείνη των εύφλεκτων αερίων ή αντικειμένων που αναφέρονται στο περιθωριακό 220 002, ή σε κενές συσκευασίες του 14° που περιείχαν τέτοια αέρια. 21 240

21 241
-21 259

Ειδικός εξοπλισμός

Όταν μεταφέρονται πιεσμένα αέρια ή υγροποιημένα αέρια βλαβερά για τα αναπνευστικά όργανα ή που εγκυμονούν κίν- 21 260

δυνο δηλητηριάσεως και χαρακτηρίζονται με το γράμμα «τ» στον πίνακα των ουσιών, το πλήρωμα του οχήματος θα είναι εφοδιασμένα με ασφυξιογόνους προσωπίδες (αναπνευστήρες) τύπου κατάλληλιου για τα μεταφερόμενα αέρια.

21 261

Παράγραφος 3: Διατάξεις γενικής εξυπηρετήσεως (σέρβις) -21 299

21 300
-21 320

Επίβλεψη οχημάτων

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν αυτές που καθορίζονται: 21 321

BORON TRIFLUORIDE και FLUORINE του 1° (α τ)· οι ουσίες του 3° (α τ) του 3° (β τ) εκτός του ETHYL CHLORIDE και του 3° (γ τ)· HYDROGEN CHLORIDE του 5° (α τ)· και τα υγροποιημένα αέρια βαθείας καταψύξεως του 7° (α) και 8° (α): 1000 κιλά·

Οι ουσίες του 3° (β)· ETHYL CHLORIDE του 3° (β τ)· VINYL CHLORIDE του 3° (γ)· οι ουσίες του 4° (β)· και τα υγροποιημένα αέρια βαθειάς καταψύξεως του 7° (β) και 8 (β): 10000 κιλά

21 322
-21 352

Φορητές φωτιστικές συσκευές

Όταν μεταφέρονται εύφλεκτα άεριά ή αντικείμενα που αναφέρονται στο περιθωριακό 220 002, σε ένα κλειστό όχημα δεν μπορούν να εισέρχονται πρόσωπα που φέρουν φωτιστικές συσκευές εκτός από φορητούς λαμπτήρες σχεδιαμένους και κατασκευασμένους κατά τρόπο ώστε να μη μπορούν να αναφλέξουν οποιαδήποτε αέρια που μπορεί να έχουν εισχωρήσει στο εσωτερικό του οχήματος. 21 353

21 354
-21 377

Κενές δεξαμενές

Για σταθερές δεξαμενές (δεξαμενοαυτοκίνητα), αποσυναρμολογούμενες δεξαμενές, συστοιχίες δοχείων και δεξαμενοκοντέηνερ, βλέπε επίσης το Προσάρτημα Α, περιθωριακό 2201, 14°, Σημείωση Ι. 21 378

21 379
-21 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

21 400
-21 402

Απαγόρευση μικτής φορτώσεως σε ένα όχημα

Αντικείμενα της Κατηγορίας 2 κλεισμένα σε συσκευασίες που φέρουν ετικέττα σύμφωνα με το υπόδειγμα Νο. 3 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των Κατηγοριών Ια, Ιβ ή Ιγ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα Νο Ι. 21 403

21 404
-21 406

Τόποι φορτώσεως και εκφορτώσεως

(1) Οι παρακάτω εργασίες απαγορεύονται 21 407

(α) Φόρτωση ή εκφόρτωση των παρακάτω ουσιών σε δημόσιο χώρο σε κατοικημένη περιοχή χωρίς ειδική άδεια από τις αρμόδιες αρχές: HYDROGEN BROMIDE, χλωρίνη, διοξείδιο του αζώτου, διοξείδιο του θείου ή φωσγένιο (3° (α τ))· HYDROGEN SULPHIDE (3° (β τ)· και HYDROGEN CHLORIDE (5° (α τ))·

(β) Φόρτωση ή εκφόρτωση των παραπάνω υπό (α) αναφερομένων ουσιών σε δημόσιο χώρο αλλαχού από κατοικημένη περιοχή χωρίς προηγούμενη ειδοποίηση των αρμοδίων αρχών, εκτός αν οι προαναφερόμενες εργασίες δικαιολογούνται για σοβαρούς λόγους ασφαλείας.

(2) Αν για οποιοδήποτε λόγο οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, τότε:

Οι ουσίες και τα αντικείμενα διαφορετικών ειδών θα χωρίζονται σύμφωνα με τις ετικέττες· και

Συσκευασίες εφοδιασμένες με μέσα χειρισμού θα διατηρούνται επίπεδες κατά το χρόνο του χειρισμού.

21 408
-21 413

Χειρισμός και στοιβασία

(1) Οι συσκευασίες δεν θα ρίπτονται ή υποβάλλονται σε πρόσκρουση. 21 414

(2) Τα δοχεία θα στοιβάζονται κατά τέτοιο τρόπο ώστε στο όχημα να μη μπορούν να ανατραπούν ή να πέσουν και θα καλύπτονται οι παρακάτω προϋποθέσεις:

(α) Οι κύλινδροι που αναφέρονται στο περιθωριακό 2212 (Ι) (α) θα τοποθετούνται παράλληλα ή σε ορθές γωνίες προς τον κατά μήκος άξονα του οχήματος· εντούτοις, αυτοί που βρίσκονται πλησίον του εγκάρσιου τοιχώματος μπροστά θα τοποθετούνται σε ορθές γωνίες προς τον προαναφερόμενο άξονα.

Οι κοντοί κύλινδροι μεγάλης διαμέτρου (περίπου 30 εκατοστά και πάνω) μπορεί να στοιβάζονται κατά μήκος με τη συσκευή προστασίας της βαλβίδας στραμένη προς το μέσον του οχήματος.

Κύλινδροι που είναι αρκετά σταθεροί ή μεταφέρονται σε κατάλληλες συσκευές που εμποδίζουν αποτελεσματικά την ανατροπή μπορεί να τοποθετούνται όρθιοι.

Κύλινδροι που τοποθετούνται επίπεδα θα σφηνώνονται ή θα προσδένονται με τέτοιο τρόπο ώστε να μη μπορούν να μετακινηθούν·

(β) Δοχεία που περιέχουν αέρια του 7°(α) ή 8°(α) θα τοποθετούνται πάντα με τη θέση για την οποία έχουν σχεδιαστεί και θα προστατεύονται κατά οποιουδήποτε ενδεχόμενου να υποστούν βλάβες από άλλες συσκευασίες.

21 415
-21 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός οχημάτων

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή είχαν περιέξει (κενές δεξαμενές, ακάθαρτες) ουσίες που αναφέρονται στο Παράρτημα Β.5 θα φέρουν τις παρακάτω ετικέττες και στις δύο πλευρές και πίσω. 21 500

Αέρας, υγρός, βαθειάς κατάψυξης	5
Αμμωνία	6.1.+ 8
Αμμωνία, διαλυμμένη σε νερό	6.1.+ 8
Βουταδιένια	3
Βουτάνιο	3
1-BUTYLENE (1-BUTENE)	3
CIS-2-BUTYLENE (CIS-2-BUTENE)	3
TRANS-2-BUTYLENE (TRAN S-2-BUTENE)	3
CARBON BIOXIDE περιέχον ETHYLENE OXIDE	3
Χλωρίνη	6.1 + 8
1-CHLORO-1, 1-DIFLUOROETHANE (R 142β)	3
Κυκλοπροπάνιο	3
DICHLORODIFLUOROMETHANE περιέχον 12 στα εκατό ETHYLENE OXIDE σε όγκο	3 + 6.1
1, 1-DIFLUOROETHANE (R 152α)	3
1, 1-DIFLUOROETHYLENE (VINYLIDENE FLUORIDE)	3
DIMETHYLAMINE	3 + 6.1
DIMETHYL ETHER	3
ETHANE	3
ETHANE, υγρό, βαθειάς καταψύξεως	3
ETHYLAMINE, άνυδρη	3 + 6.1
ETHYL CHLORIDE	3 + 6.1
ETHYLENE, υγρό, βαθειάς καταψύξεως	3
ETHYLENE OXIDE περιέχον διοξείδιο του άνθρακα	3 + 6.1
ETHYLENE OXIDE με άζωτο	3 + 6.1
HEXAFLUOROPROPYLENE (R 1216)	6.1
Υδρογόνο, υγρό, βαθειάς καταψύξεως	3
Βρωμιούχο υδρογόνο	6.1 + 8
Χλωριούχο υδρογόνο	6.1 + 8
Θειούχο υδρογόνο	3 + 6.1

Ισοβουτάνιο	3
Ισοβουτυλένιο (Ισοβουτένιο)	3
Μεθάνιο, υγρό, βαθειάς καταψύξεως	3
Μεθυλαμίνη, άνυδρη	3 + 6.1
METHYL BROMIDE	6.1
METHYL CHLORIDE	3 + 6.1
Μεθυλική μερκαπτάνη	3 + 6.1
METHYL VINYL ETHER	3 + 6.1
Μίγματα I, 3-BUTADIENE και υδρογονάνθρακες	3
Μίγματα υδρογονανθράκων (Μίγματα A, A O, A I, B και Γ)	3
Μίγματα METHYLACETYLENE και PROPADIENE με υδρογονάνθρακες (Μίγματα P I και P2)	3
Μίγματα METHYL BROMIDE και χλωροπικρίνη	6.1
Μίγματα METHYL CHLORIDE & χλωροπικρίνη	3 + 6.1
Μίγματα METHYL CHLORIDE & METHYLENE CHLORIDE	3 + 6.1
Φυσικό αέριο, υγρό, βαθειάς κατάψυξης	3
Διοξείδιο του αζώτου NO_2 (NITROGEN PEROXIDE, NITROGEN TETROXIDE)	5 + 6.1
Μονοξείδιο του αζώου N_2O	5
Μονοξείδιο του αζώτου N_2O, υγρό, βαθειάς καταψύξεως	5
Οξυγόνο, υγρό, βαθειάς καταψύξεως	5
Φωσγένιο	5 + 6.1
Προπάνιο	3
Προπυλένιο	3
Διοξείδιο του θείου	6.1 + 8
TRIFLUOROCHLORETHYLENE (R 1113)	3 + 6.1
I, I, I-TRIFLUOROETHANE	3
TRIMETHYLAMINE, άνυδρη	3 + 6.1
VINYL BROMIDE	3 + 6.1
VINYL CHLORIDE	3
VINYL FLUORIDE	3

Στάσεις περιορισμένης διαρκείας για ανάγκες σέρβις

Στη μεταφορά επικίνδυνων ουσιών της Κατηγορίας 2 άλλων από εκείνες του 1°(α) και (α τ), 2°(α), 7°(α), 8°(α) και 10°, οι στάσεις για ανάγκες σέρβις δεν θα γίνονται όσο είναι δυνατό, πλησίον κατοικημένων περιοχών ή χώρους αναψυχής. Η στάση κοντά σε ένα τέτοιο τόπο δεν θα παρατείνεται παρά μόνο με την έγκριση των αρμόδιων αρχών. 21 509

21 510
-21 599

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

21 600
-30 999

Κατηγορία 3: Εύφλεκτα υγρά

Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

31 000
-31 099

Παράγραφος 1: Τρόπος μεταφοράς

31 100
-31 129

Τοποθέτηση επιγραφής σε δεξαμενο-κοντέηνερ. Τα δεξαμενο-κοντέηνερ που περιέχουν ή έχουν περιέξει ουσίες του 1° μέχρι 6°, 11° μέχρι 26°, 31°, ή 33° θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνη με το υπόδειγμα Νο 3. 31 130

Εκείνα που περιέχουν ή έχουν περιέξει ουσίες του 6° θα φέρουν επί πλέον ετικέττες σύμφωνες με το υπόδειγμα 6.1Α.

Εκείνα που περιέχουν ή έχουν περιέξει ουσίες του 11° μέχρι 20° θα φέρουν επί πλέον ετικέττες σύμφωνες με το υπόδειγμα 6.1.

Εκείνα που περιέχουν ή έχουν περιέξει ουσίες του 21° μέχρι 26° θα φέρουν επί πλέον ετικέττες σύμφωνες με το υπόδειγμα Νο 8.

31 131
-31 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

31 200
Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις) -31 299

31 300
Επίβλεψη οχημάτων -31 320

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις παρακάτω: 31 321

Ουσίες του 1° μέχρι 5° (α) και (β), 6° (α) και (β) και 21° μέχρι 26 ° 10.000 κιλά.

Ουσίες του 11° μέχρι το 20° 5.000 κιλά

31 322
Φορητές συσκευές φωτισμού -31 352

Σε κλειστό όχημα δεν μπορεί να μπαίνουν πρόσωπα που φέρουν συσκευές φωτισμού άλλες εκτός από τις φορητές λάμπες που είναι σχεδιασμένες και κατασκευασμένες κατά τρόπο ώστε να μη μπορούν να προκαλέσουν ανάφλεξη οποιωνδήποτε αερίων, τα οποία μπορεί να έχουν εισχωρήσει στο εσωτερικό του οχήματος. 31 353

31 354
Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση εκφόρτωση και χειρισμό -31 399

31 400
Απαγόρευση μικτής φορτώσεως σε ένα όχημα -31 402

(1) Ουσίες της κατηγορίας 3 που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα 3 δεν θα φορτώνονται σε ένα όχημα μαζί με ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β, ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα Νο 1. 31 403

(2) Ουσίες της Κατηγορίας 3 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα Νο 3. δεν θα φορτώνονται σε ένα όχημα μαζί με:

(α) Ουσίες της Κατηγορίας 5.1 ή Κατηγορίας 5.2 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα Νο 5·

(β) Ουσίες της Κατηγορίας 6.1 ή Κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα Νο. 6.1, 6.1Α ή 8.

31 404
Προφυλάξεις σε σχέση με αντικείμενα καταναλώσεως -31409

(1) Συσκευασίες που φέρουν ετικέττες σύμφωνα με τα υποδείγματα Νο. 6.1 ή 6.1Α θα κρατούνται χωριστά από τρόφιμα, άλλα είδη καταναλώσεως και ζωοτροφές σε οχήματα και σε τόπους φορτώσεως, εκφορτώσεως και μεταμορφώσεως. 31 410

(2) Τα κενά δοχεία, ακαθάριστα, που φέρουν ετικέττες σύμφωνα με τα υποδείγματα Νο 6.1 ή 6.1Α θα διατηρούνται μακριά από τρόφιμα, άλλα αντικείμενα καταναλώσεως και ζωοτροφές σε οχήματα και σε χώρους φορτώσεως, εκφορτώσεως και μεταφορτώσεως.

31 411
Χειρισμός και στοιβασία -31 413

Η χρησιμοποίηση εύκολα ευφλέκτων υλικών για τη στοιβασία δεμάτων σε οχήματα απαγορεύεται. 31 414

Καθορισμός μετά την εκφόρτωση

Αν οποιεσδήποτε ουσίες του 6° ή 11° μέχει 20° έχουν διαρεύσει ή έχουν διασκορπιστεί σε ένα όχημα, δεν μπορεί το όχημα να χρησιμοποιηθεί πάλι μέχρι να καθαριστεί επιμελώς και, αν χρειαστεί, να απολυμανθεί. Οποιαδήποτε άλλα εμπορεύματα και αντικείμενα που μεταφέρονται στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση. 31 415

31 416
Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων -31 499

Σήμανση και χαρακτηρισμός οχημάτων

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή έχουν περιέξει ουσίες του 1° μέχρι το 6°, 11° μέχρι 26°, 31° ή 33° θα φέρουν και στις δύο πλευρές και πίσω ετικέττα σύμφωνα με το υπόδειγμα Νο 3. 31 500

Όσες περιέχουν ή έχουν περιέξει ουσίες του 6° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα 6.1Α.

Όσες περιέχουν ή περιείχαν ουσίες του 11° μέχρι 20° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα Ν 6.1.

Όσες περιέχουν ή περιείχαν ουσίες του 21° μέχρι 26° θα φέρουν επί πλεόν ετικέττες σύμφωνα με το υπόδειγμα No. 8.

31 501

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες -31 599

(Έχουν εφαρμογή μόνο οι διατάξεις του Μέρους 1)

31 600

Κατηγορία 4.1: Εύφλεκτα στερεά 40 999

Γενικά

(Έχουν εφαρμογή μόνο οι διατάξεις του Μέρους 1)

41 000

Παράγραφος 1: Τρόπος μεταφοράς -41 099

41 100

Μέθοδος αποστολής και περιορισμοί φορτώσεως -41 104

Το θείο σε λυωμένη κατάσταση, 2° (β) και λυωμένη ναφθαλίνη 11° (γ), μπορεί να μεταφέρονται μόνο σε δεξαμενοοχήματα και δεξαμενο-κοντέηνερ. 41 105

41 106

Μεταφορά χύμα -41 110

(1) Θείο του 2°(α) μπορεί να μεταφέρεται χύμα. 41 111

(2) Η ναφθαλίνη του 11°(α) και (β) μπορεί να μεταφέρεται χύμα· στην περίπτωση αυτή θα μεταφέρεται σε κλειστά οχήματα με μεταλλικό αμάξωμα ή σε οχήματα ή επενδυμένα οχήματα με άφλεκτα φύλλα και είτε έχοντα μεταλλικό αμάξωμα είτε έχοντα φύλλο σφικτοπλεγμένου υλικού απλωμένο πάνω στο δάπεδο. Για τη μεταφορά ναφθαλίνης του 11° (α), τα δάπεδα των οχημάτων πρέπει να προστατεύονται με επένδυση κατά του λαδιού.

(3) Η διασταλτή πολυστερίνη του 12° μπορεί να μεταφέρεται χύμα σε ανοικτά αλλά επενδυμένα οχήματα με επαρκή αερισμό.

41 112

Μεταφορά σε κοντέηνερ -41 117

(1) Για τη μεταφορά ναφθαλίνης του 11° (α) και (β) θα τοποθετηθούν μικρά ξύλινα δοχεία με επένδυση κατά του λαδιού. 41 118

(2) Οι διασταλτές πολυστερίνες του 12° μπορούν επίσης να συσκευάζονται σε μικρά δοχεία του κλειστού τύπου με πλήρη τοιχώματα χωρίς εσωτερική συσκευασία. Τα μικρά δοχεία που περιέχουν διασταλτή πολυστερίνη θα φέρουν την ένδειξη: «Κρατήσατε μακριά από οποιαδήποτε πηγή αναφλέξεως». Η σήμανση αυτή θα είναι σε επίσημη γλώσσα της χώρας αναχωρήσεως και επίσης, αν η γλώσσα δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν οποιεσδήποτε συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερομένων χωρών στην μεταφορά αυτή προβλέπουν διαφορετικά.

41 119

Σήμανση των δεξαμενο-κοντέηνερ -41 129

Δεξαμενο-κοντέηνερ που περιέχουν ή περιείχαν θείο του 2° (α) ή 2°(β), PHOSPHOROUS SESQUISULPHIDE ή PHOSPHOROUS PENTASULPHIDE του 8°, ναφθαλίνη του 11° (γ), θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No. 4.1. 41 130

41 131

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μεταφορικά μέσα και τον εξοπλισμό τους -41 199

41 200

Τύποι οχήματος -41 203

Συσκευασίες που περιέχουν ουσίες του 4° μέχρι 8° θα μεταφέρονται σε κλειστά ή επενδυμένα οχήματα. 41 204

41 205

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις) -41 299

41 300

Επίβλεψη των οχημάτων -41 320

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες: Ουσίες του 7° (α), (β) και (γ): 1 000 κιλά. 41 321

41 322

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό -41 399

41 400

Απαγόρευση μικτής φορτώσεως σε ένα όχημα -41 402

(1) Ουσίες της Κατηγορίες 4.1 που περιέχονται σε συσκευασίες που φέρουν μία ετικέττα ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 4.1 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1. 41 403

(2) Ουσίες της Κατηγορίας 4.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα 4.1 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες των Κατηγοριών 5.1 ή 5.2 που περιέχονται σε συσκευασίες που φέρουν 2 ετικέττες σύμφωνα με το υπόδειγμα No. 5·

(β) Ουσίες της Κατηγορίας 6.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα No. 6.1 και 6.1Α·

(γ) Ουσίες της Κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 8.

41 404

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων -41 499

Σήμανση και χαρακτηρισμός των οχημάτων

(1) Οι διατάξεις του περιθωριακού 10 500, (1), (7) και (8) θα έχουν εφαρμογή για τη μεταφορά ουσιών του 2°, 4° μέχρι 8° και 11° (γ). 41 500

(2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν (άδειες δεξαμενές, ακάθαρτες) ουσίες που αναφέρονται στο Παράρτημα Β.5 θα φέρουν και στις δύο πλευρές και πίσω ετικέττες σύμφωνα με το υπόδειγμα No. 4.1.

41 501

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες. -41 599

(Ισχύουν μόνο οι γενικές διατάξεις του Μέρους 1)

41 600

Κατηγορία 4.2: Ουσίες που υπόκεινται σε αυτογενή ανάφλεξη -41 999

(Έχουν εφαρμογή μόνο οι διατάξεις του Μέρους 1)

42 000

Παράγραφος 1: Τρόπος μεταφοράς -42 099

41 100

Μεταφορά χύμα -42 110

Ουσίες του 5°, σκόνη από υψικάμινο του 6° (α) και ουσίες του 10° μπορεί να μεταφέρονται χύμα. Σ' αυτή την περίπτωση, οι ουσίες του 5° και 10° θα μεταφέρονται σε κλειστά οχήματα σε μεταλλικό αμάξωμα και η σκόνη από τα φίλτρα υψικαμίνου σε κλειστά οχήματα με μεταλλικό αμάξωμα ή σε οχήματα με επένδυση με μεταλλικό αμάξωμα. 42 111

41 112

Χαρακτηρισμός δεξαμενο-κοντέηνερ -41 129

Δεξαμενο-κοντέηνερ που περιέχουν ή περιείχαν ουσίες του 1° ή 3° θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No. 4.2. 42 130

Όσες περιέχουν ή περιείχαν ουσίες του 3° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 4.3.

42 131

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους. -42 199

42 200

Τύποι οχήματος -42 203

Συσκευασίες που περιέχουν ουσίες του 4° και 10° θα μεταφέρανται σε κλειστά ή επενδυμένα οχήματα. 42 204

42 205
Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις) -42 299

42 300
Επίβλεψη οχημάτων -42 320
Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα παρακάτω αναφερόμενα επικίνδυνα εμπορεύματα σε ποσότητες που υπερβαίνουν τις καθοριζόμενες: Ουσίες του 1° μέχρι 3° και 6° (α): 10 000 κιλά 42 321

42 322
Κενές δεξαμενές -42 377
Για τις άδειες δεξαμενές που περιείχαν φώσφορο του 1° βλέπε επίσης τα περιθωριακά 211 474 και 212 474 42 378

42 379
-42 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση εκφόρτωση και χειρισμό

42 400
Απαγόρευση μικτής φορτώσεως σε ένα όχημα -42 402
(1) Ουσίες της κατηγορίας 4.2 που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 4.2 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των κατηγοριών 1α, 1β ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1. 42 403

(2) Ουσίες του 4° που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 4.2 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες των κατηγοριών 5.1 ή 5.2 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 5.

(β) Ουσίες της Κατηγορίας 6.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα 6.1 ή 6.1Α'.

(γ) Ουσίες της Κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 8.

42 404
Χειρισμός και στοιβασία -42 413
(1) Δοχεία και συσκευασίες που περιέχουν ουσίες του 1° και του 3° δεν θα υποβάλλονται σε πρόσκρουση. Θα τοποθετούνται κατά τέτοιο τρόπο ώστε να μη μπορούν να ανατραπούν ή να πέσουν ή να μετατοπιστούν κατά οποιονδήποτε τρόπο. 42.414

(2) Η χρήση εύκολα αναφλεγόμενων υλικών για τη στοιβασία συσκευασιών στα οχήματα απαγορεύεται

42 415
-42 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός των οχημάτων
(1) Οι διατάξεις του περιθωριακού 10 500, παράγραφοι (1), (7) και (8), θα έχουν εφαρμογή μόνο για τη μεταφορά ουσιών του 1° μέχρι 4° και του 6°. 42 500

(2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν (κενές δεξαμενές, ακάθαρτες) ουσίες που αναφέρονται στο Παράρτημα Β.5 θα φέρουν και στις δύο πλευρές και πίσω ετικέττες σύμφωνα με το υπόδειγμα No 4.2. Εκείνες που περιέχουν ή περιείχαν ουσίες του 3° θα φέρουν, επί πλέον, ετικέττες σύμφωνα με το υπόδειγμα No 4.3

42 501
Παράγρ. 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες 42 599

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

42 600
Κατηγορία 4.3: Ουσίες που αναδίδουν εύφλεκτα άερια σε επαφή με το νερό -42 999

Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι).

43 000
-43 099

Παράγραφος 1: Τρόπος μεταφοράς

43 100
Μεταφορά χύμα -43 110
Κόκκοι μαγνησίου, επιχρισμένοι, του 1° (δ), ανθρακασβέστιο του 2° (α) και πυριτικό ασβέστιο (CALCIUM SILICIDE) σε βώλους του 2° (δ) μπορούν να μεταφέρονται χύμα σε ειδικά εξοπλισμένα οχήματα. Τα ανοίγματα που χρησιμοποιούνται για φόρτωση ή εκφόρτωση θα είναι σε θέση να κλείνονται ερμητικά. 43 111

43 112
Μεταφορά σε κοντέηνερς 43 117
Μικρά κοντέηνερ που χρησιμοποιούνται για τη μεταφορά χύμα των ουσιών που αναφέρονται στο περιθωριακό 43 111 θα είναι σύμφωνα με τις διατάξεις αυτού του περιθωριακού που αφορούν οχήματα και τα δοχεία των οχημάτων

43 119
Χαρακτηρισμός των δεξαμενο-κοντέηνερ -43 129
Δεξαμενο-κοντέηνερ που περιέχουν ή περιείχαν ουσίες της Κατηγορίας αυτής θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No.4.3. Εκείνα που περιέχουν ή περιείχαν ουσίες του 4° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 3 και 8. 43 130

43 131
43 199

Παράγραφος 2: Ειδικές προς κάλυψη προϋποθέσεις από τα μέσα μεταφοράς και τον εξοπλισμό τους

43 200
Τύποι οχήματος -43 203
Επικίνδυνες ουσίες της Κατηγορίας 4.3 σε συσκευασίες θα μεταφέρονται σε κλειστά ή επενδυμένα οχήματα. Εντούτοις, δοχεία που περιέχουν ανθρακασβέστιο του 2° (α) μπορούν επίσης να μεταφέρονται σε ανοικτά οχήματα. 43 204

43 205
-43 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις)

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες:

Αλκαλικά μέταλλα και ουσίες που περιέχουν αλκαλικά μέταλλα του 1°, υδρίδια αλκαλικών μετάλων του 2° (β) και ουσίες του 4°: 10 000 κιλά. 43 321

43 322
-43 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση εκφόρτωση και χειρισμό

43 400
Απαγόρευση μικτής φορτώσεως σε ένα όχημα 43 402
Ουσίες της Κατηγορίας 4.3 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των κατηγοριών 1α, 1β ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No 1. 43 403

43 404
Χειρισμός και στοιβασία -43 413
Οι συσκευασίες θα στοιβάζονται στο όχημα κατά τέτοιο τρόπο ώστε να μη μπορούν να μετατοπιστούν μέσα σ' αυτό. Θα προστατεύονται κατά οποιασδήποτε τριβής ή προσκρούσεως. Κατά το χειρισμό των συσκευασιών, θα λαμβάνονται ειδικά μέτρα ώστε να μην έλθουν σε επαφή με το νερό. 43 414

43 415
43 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός των οχημάτων
Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν (κενές δεξαμενές, ακαθάριστες) ουσίες της Κατηγορίας αυτής που αναφέρονται στο Παράρτημα Β.5 θα φέρουν και στις δύο πλευρές και πίσω ετικέττα σύμφωνα με το υπόδειγμα No. 4.3. Όσες περιέχουν ή περιείχαν ουσίες του 4° θα φέρουν επί πλέον ετικέττες σύμφωνα με τα υποδείγματα No.3 και 8. 43 500

43 501
Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες 43 599

Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

43 600
-50 999

Κατηγορία 5.1: Οξειδωτικές ουσίες

Γενικά:

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

51 000

Παράγραφος 1: Τρόπος μεταφοράς -51 099

51 100

Μεταφορά χύμα 51 110

(1) Ουσίες του 4° μέχρι 6° και 7° (α) και (β) μπορεί να μεταφέρονται χύμα σαν πλήρες φορτίο. 51 111

(2) Ουσίες του 4° και 5° θα μεταφέρονται σε μεταλλικούς ανοικτούς «κάδους» (οχήματα κάδους) καλυμένους με αδιάβροχο και μη εύφλεκτο φύλλο, ή σε μεταλλικά κοντέηνερ (βλέπε περιθωριακό 51 118 (2).

(3) Ουσίες του 6° και 7° (α) και (β) θα μεταφέρονται σε κλειστά οχήματα ή σε οχήματα καλυμένα με αδιάβροχο άφλεκτο φύλλο, των οχημάτων κατασκευασμένων κατ' αυτό τον τρόπο είτε γιατί η ουσία δεν μπορεί να έλθει σε επαφή με ξύλο ή οποιοδήποτε άλλο καύσιμο υλικό είτε ότι ολόκληρη επιφάνεια του δαπέδου και των τοιχωμάτων, αν καίγεται, έχει εφοδιαστεί με αδιάβροχη και άκαυστη επιφάνεια ή έχει γίνει επεξεργασία με ουσίες που καθιστούν το ξύλο άφλεκτο.

51 112

Μεταφορά σε κοντέηνερ -51 117

Εύθραυστες συσκευασίες με την έννοια του περιθωριακού 10 014 (1) και εκείνες που περείχουν υπεροξείδιο του υδρογόνου ή διαλύματα του υπεροξείδιου του υδρογόνου του 1° ή TETRANITROMETHANE του 2° δεν μπορούν να μεταφέρονται σε μικρά κοντέηνερ. 51 118

(2) Κοντέηνερ που προορίζονται για τη μεταφορά ουσιών του 4° και 5° θα είναι κατασκευασμένα από μέταλλο. Θα είναι στεγανά, θα είναι καλυμένα με καπάκι ή με αδιάβροχο φύλλο που θά αντέχει στην καύση, και θα είναι έτσι κατασκευασμένο ώστε οι ουσίες στο κοντέηνερ να μη μπορούν να έλθουν σε επαφή με ξύλο ή οποιοδήποτε άλλο καύσιμο υλικό.

(3) Κοντέηνερ που προορίζονται για τη μεταφορά ουσιών του 6°, 7°(α) και (β) θα είναι καλυμένα με καπάκι ή αδιάβροχο φύλλο που αντέχει στην καύση και θα είναι κατασκευασμένα κατά τρόπο ώστε η ουσία μέσα στο κοντέηνερ να μη μπορεί να έλθει σε επαφή με ξύλο ή οποιοδήποτε άλλο καύσιμο υλικό ή ότι ολόκληρη η επιφάνεια του δαπέδου και των τοιχωμάτων, αν είναι κατασκευασμένα από ξύλο, έχουν επικαλυφθεί με αδιάβροχη επιφάνεια που αντέχει στην καύση ή έχει επιχριστεί με SODIUM SILICATE ή παρόμοια ουσία.

Επικόλληση ετικεττών σε δεξαμενο – κοντέηνερ

Δεξάμενο κοντέηνερ που περιέχουν ή περιείχαν ουσίες αυτής της Κατηγορίας θα φέρουν και στις δύο πλευρές ετικέττες σύμφωνα με το υπόδειγμα No. 5. Εκείνες που περιέχουν ή περιείχαν υπερχλωρικό οξύ (PERCHLORIC ACID) (σε διάλυση) του 3°, θα φέρουν, επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 8. 51 130

15 131

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους. 51 199

51 200

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές. -51 219

Οι παρακάτω διατάξεις θα έχουν εφαρμογή για τη μεταφορά υγρών του 1°: 51 220

(1) Κουβούκλιο

(α) Εκτός αν το κουβούκλιο του οδηγού είναι κατασκευασμένο από πυρίμαχα υλικά, θα τοποθετείται στην πλάτη του κουβούκλιου του οδηγού μεταλλική ασπίδα του ίδιου πλάτους με τη δεξαμενή·

(β) Οποιαδήποτε παράθυρα στο πίσω μέρος του κουβούκλιου του οδηγού ή στη μεταλλική ασπίδα (παραπέτασμα) θα κλείνονται ερμητικά. Θα είναι κατασκευασμένα από πυρίμαχο γιαλί ασφαλείας και θα έχει πυρίμαχα πλαίσια·

(γ) θα υπάρχει ελεύθερο διάστημα όχι μικρότερο από 15 εκ. μεταξύ της δεξαμενής και του κουβούκλιου του οδηγού ή της ασπίδας (παραπετάσματος).

(2) Αμάξωμα Οχήματος

Δεν θα χρησιμοποιείται ξύλο (εκτός αν καλύπτεται με μέταλο ή κατάλληλο συνθετικό υλικό) για την κατασκευή οποιουδήποτε τμήματος του οχήματος που βρίσκεται στο εμπρός μέρος του πίσω τοιχώματος προστασίας (παραπετάσματος) που προβλέπεται στην παραπάνω παράγραφο (1).

(3) Κινητήρας

Ο κινητήρας και (εκτός όπου το όχημα κινείται με κινητήρα ντήζελ) η δεξαμενή καυσίμου θα είναι τοποθετημένα μπροστά από το πίσω τοίχωμα του κουβούκλιου του οδηγού ή του παραπετάσματος, ή αν είναι τοποθετημένα διαφορετικά θα προστατεύονται ειδικά.

(4) Ειδικός εξοπλισμός

Τα οχήματα θα έχουν πάνω σ' αυτά δεξαμενή χωρητικότητας περίπου 30 λίτρων νερού. Η δεξαμενή νερού θα είναι τοποθετημένη όσο το δυνατόν πιο εξασφαλισμένη, και θα έχει μέσα στο νερό που περιέχει αντιψυκτικό που δεν προσβάλει το δέρμα και τις βλενογόνους αδένες και δεν αντιδρά χημικά με το φορτίο.

51 221

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις) -51 299

51 300

Επίβλεψη οχημάτων -51 320

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις αναφερόμενες: Ουσίες του 1° μέχρι 3° και 9°(α): 10.000 κιλά 51 321

51 322

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό -51 399

51 400

Απαγόρευση μικτής φορτώσεως σε ένα όχημα -51 402

(1) Ουσίες της Κατηγορίας 5.1 που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα 5 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1. 51 403

(2) Ουσίες της Κατηγορίας 5.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 5 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες των Κατηγοριών 3, 4.1 ή 4.2 που περιέχονται σε συσκεασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα No 3, ή 4.1 ή 4.2·

(β) Ουσίες της Κατηγορίας 6.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υποδείγματα No. 6.1 ή 61α·

(γ) Ουσίες της Κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 8.

51 404

Προφυλάξεις σχετικά με είδη καταναλώσεως -51 409

Σε οχήματα και σε τόπους φορτώσεως, εκφορτώσεως ή μεταφορτώσεως TETRANITROMETHANE του 2°, BARIUM CHLORATE του 4° (α), BARIUM PERCHLORATE του 4° (β), BARIUM NITRATE και νιτρικό μόλυβδο του 7° (γ), ανόργανων νιτριτών του 8°, διοξείδιου του βαρίου του 9° (β) και BARIUM PERMANGANATE του 9° (γ) θα κρατούνται μακριά από τρόφιμα, άλλα είδη καταναλώσεως και ζωοτροφές. 51 410

51 411

Χειρισμός και στοιβασία -51 413

(1) Συσκευασίες που περιέχουν ουσίες της Κατηγορίας 5.1 θα τοποθετούνται επίπεδα επί των πυθμένων τους. Επί πλέον, δοχεία που περιέχουν υγρά της Κατηγορίας 5.1 θα σφηνώνονται ώστε να μη μπορούν να ανατραπούν. 51 414

(2) Η χρήση εύκολα ευφλέκτων υλικών για τη στοιβασία συσκευασιών σε οχήματα απαγορεύεται.

Καθαρισμός μετά την εκφόρτωση

Μετά την εκφόρτωση, τα οχήματα που μετέφεραν ουσίες του 4° μέχρι 6° και 7° (α) και (β) χύμα που θα καθορίζονται προσεκτικά με άφθονο νερό. 51 415

51 416
Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων -51 499

Σήμανση και χαρακτηρισμός οχημάτων
(1) Οι διατάξεις του περιθωριακού 10 500, παράγραφοι (1), (7) και (8), θα έχουν εφαρμογή μόνο στη μεταφορά ουσιών του 1°, 2°, 3°, χλωρικών αλάτων και ανόργα-χλωριούχων ζιζανιοκτόνων του 4° (α), BARIUM PERCHLORATE του 4° (β), ουσίες του 8° και 9° (β) και BARIUM PERMANGANATE του 9° (γ) 51 500

(2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν (κενές δεξαμενές, ακαθάριστες) ουσίες που αναφέρονται στο Παράρτημα B.5 Θα φέρουν και στις δύο πλευρές και πίσω ετικέττα που θα είναι σύμφωνη με το υπόδειγμα 5. Εκείνες που περιείχαν ή περιέχουν υπερχλωρικό οξύ (PERCHLORIC ACID) (σε διάλυση) του 3° ή AMMONIUM NITRATE (ζεστές συμπυκνωμένες υδάτινες διαλύσεις) του 6° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 8.

51 501
Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και ειδικές διατάξεις για οριαμένες χώρες -51 599

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

51 600
Κατηγορία 5.2: Οργανικά Υπεροξείδια -51 999

Γενικά
(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

52 000
-52 099

Παράγραφος 1: Τρόπος μεταφοράς 52 100

Μέθοδος αποστολής και περιορισμοί φορτώσεως -52 104

(1)Ουσίες της Ομάδας Ε θα φορτώνονται κατά τέτοιο τρόπο ώστε να μην υπερβαίνονται οι παρακάτω αναφερόμενες θερμοκρασίες περιβάλλοντος: 52 105

Ουσίες του 45°		Ανώτ. Θερμ.	+10°K
» » 46 (α)		» »	−10°K
» » 46° (β) και (γ)		» »	−10°K
» » 47° (α)		» »	−10°K
» » 47° (β)		» »	−10°K
» » 48°		» »	+ 2°K
» » 49° (α)		» »	−10°K
» » 49° (β)			
	με φλεγματαϊζερ	» »	+ 2°K
	με διαλυτικό	»	− 5°K
» » 50°		» »	0°K
» » 51°		» »	0°K
» » 52°		» »	+20°K
» » 53°		» »	−10°K
» » 54°		» »	+20°K
» » 55°		» »	+10°K

(2) Όπου ουσίες της Ομάδας Ε δεν μεταφέρονται σε μηχανικά ψυγόμενα οχήματα, η ποσότητα του ψυκτικού υγρού στην προστατευτική συσκευασία θα είναι σε τέτοια αναλογία ώστε οι θερμοκρασίες που ορίζονται στην παράγραφο (1) παραπάνω να μη υπερβαίνονται οποτεδήποτε στη διάρκεια της μεταφοράς, περιλαμβανομένης της φορτώσεως και εκφορτώσεως.

(3) Η χρησιμοποίηση υγρού αέρα ή υγρού οξυγόνου σαν ψυκτικό υλικό απαγορεύεται.

(4) Η θερμοκρασία ψύξεως θα επιλέγεται κατά τέτοιο τρόπο ώστε να αποφεύγεται ο κίνδυνος που μπορεί να προκύψει από το διαχωρισμό των φάσεων.

52 106
Μεταφορά σε κοντέηνερ -52117

Εύθραστες συσκευασίες με την έννοια του περιθωριακού 10 014 (1) δεν θα μεταφέρονται σε μικρά κοντέηνερ. 52 118

52 119
Χαρακτηρισμός δεξαμενο-κοντέηνερ -52 129

Δεξεμενο-κοντέηνερ που περιέχουν ή περιείχαν ουσίες του 10°, 14° ή 15° θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No 5. 52 130

52 131
Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους -52 199

52 200
Τύποι οχήματος 52 203

(1) Ουσίες του 1° μέχρι 22°, 30° και 31° θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Ουσίες του 45° μέχρι 55° που περιέχονται σε προστατευτικές συσκευασίες γεμάτες με ψυκτικό υλικό θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Αν τα οχήματα που χρησιμοποιούνται είναι κλειστά θα αερίζονται κατάλληλα. Τα επενδυμένα οχήματα θα είναι εξοπλισμένα με πλευρικά φύλλα και οπίσθιο φύλλο. Τα φύλλα αυτών των οχημάτων θα είναι από αδιάβροχο υλικό που δεν αναφλέγεται εύκολα. 52 204

(2) Όπου, σύμφωνα με τις διατάξεις του περιθωριακού 52 105, οι ουσίες χρειάζεται να μεταφέρονται σε μεμονωμένα, ψυχόμενα ή μηχανικά ψυχόμενα οχήματα, εκείνα τα οχήματα θα ανταποκρίνονται στις απαιτήσεις του περιθωριακού 52 248.

52 205
-52 247

Μονωμένα, ψυχόμενα και μηχανικά ψυχόμενα οχήματα

Τα μονωμένα, ψυχόμενα και μηχανικά - ψυχόμενα οχήματα που χρησιμοποιούνται εξ αιτίας των απαιτήσεων του περιθωριακού 52 105 θα είναι σύμφωνα με τις παρακάτω διατάξεις: 52 264

(α) Τα χρησιμοποιούμενα οχήματα θα είναι τέτοια και θα είναι έτσι εξοπλισμένα όσον αφορά τη μόνωση και πηγή ψύχους ώστε η προβλεπόμενη ανώτατη θερμοκρασία στο περιθωριακό 52 105 να μην υπερβαίνεται όποιες και αν είναι οι ατμοσφαιρικές συνθήκες·

(β) Το όχημα θα είναι έτσι εξοπλισμένο ώστε οι ατμοί από τις μεταφερόμενες ουσίες να μη διεισδύουν στο κουβούκλιο·

(γ) Θα υπάρχει κατάλληλη συσκευή που θα καθιστά δυνατό τον καθορισμό της θερμοκρασίας που υπάρχει στο χώρο φορτώσεως ανά πάσα στιγμή από το κουβούκλιο του οδηγού·

(δ) Ο χώρος φορτώσεως θα είναι εφοδιασμένος με εξαεριστήρες ή βαλβίδες εξαερισμού αν υπάρχει οποιοσδήποτε κίνδυνος επικίνδυνης αυξημένης πιέσεως εντός αυτού. Θα λαμβάνεται μέριμνα όπου χρειάζεται για να εξασφαλιστεί ότι δεν εμποδίζεται η ψύξη εξ αιτίας των εξαεριστήρων ή των βαλβίδων εξαερισμού·

(ε) Το χρησιμοποιούμενο ψυκτικό υλικό δεν θα είναι εύφλεκτο·

(στ) Η συσκευή ψύξεως μηχανικά ψυχόμενου οχήματος θα είναι σε θέση να λειτουργήσει ανεξάρτητα από τον κινητήρα που χρησιμοποιείται για την κίνηση του οχήματος

52 249
-52 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις)

52 300
Επίβλεψη οχημάτων -52 320

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις αναφερόμενες: 52 321

Ομάδα Α. Ουσίες του 4°, 8°(α), 9°(α), 13°(α) και 17°(α) : 1 000 KG

Ομάδα Γ. Ουσίες του 35° : 1 000 KG

Ομάδα Ε. Ουσίες του 46°(α), 47°(α) και 49°(α) : 100 KG

Ουσίες του 45°, 46°(β) και (γ), 47°(β), 48°, 49°(β), 50° μέχρι 55° 2 000 KG

Επί πλέον, οχήματα που μεταφέρουν ουσίες του 46°(α), 47°(α) ή 49°(α) θα υπόκεινται πάντα σε επίβλεψη για να προληφθεί οποιαδήποτε κακόβουλη πράξη και για να ειδοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση διαφυγής ή φωτιάς.

52 32
-52 39

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

52 400

Περιορισμός των μεταφερόμενων ποσοτήτων

Μία μεταφορική μονάδα δεν θα μεταφέρει περισσότερα από 750 κιλά ουσιών του 46°(α), 47°(α) και 49°(α) ούτε περισσότερα από 5,000 κιλά ουσιών του 45°, 46°(β) και (γ), 47°(β), 48°, 49°(β), 50° μέχρι 53° και 55°, ούτε περισσότερα των 10,000 κιλών ουσιών του 54°. 52 401

52 402

Απαγόρευση μικτής φορτώσεως σε ένα όχημα

Ουσίες της κατηγορίας 5.2 δεν θα φορτώνονται μαζί σε ένα όχημα με: 52 403

(α) Ουσίες ή αντικείμενα της Κατηγορίας Ια, Ιβ ή Ιγ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1.

(β) Ουσίες των Κατηγοριών 3, 4.1 ή 4.2 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα No. 3, 4.1 ή 4.2.

(γ) Ουσίες της Κατηγορίας 6.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα No. 6.1 ή 6.1Α·

(δ) Ουσίες της Κατηγορίας 6.2, 9° ή 10°.

(ε) Ουσίες της κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα 8.

52 404
-52 412

Καθαρισμός πριν από τη φόρτωση

Οχήματα για τη μεταφορά συσκευασιών που περιέχουν ουσίες της Κατηγορίας 5.2 θα καθορίζονται προσεκτικά. 52 413

Χειρισμός και στοιβασία

(1) Συσκευασίες που περιέχουν ουσίες της Κατηγορίας 5.2 θα φορτώνονται κατά τέτοιο τρόπο ώστε να μπορούν να εκφορτωθούν χωριστά στο σημείο προορισμού χωρίς να χρειάζεται διευθέτηση εκ νέου του φορτίου. 52 414

(2) Συσκευασίες που περιέχουν ουσίες της Κατηγορίας 5.2 διατηρούνται κατακόρυφες και θα είναι κατά τέτοιο τρόπο εξασφαλισμένες ώστε να μην μπορούν να ανατραπούν ή να πέσουν. Θα προστατεύονται για κάθε βλάβη που μπορεί να προκληθεί από άλλα δέματα.

(3) Η χρήση εύκολα εύφλεκτων υλικών για τη στοιβασία συσκευασιών στο όχημα απαγορεύεται.

(4) Συσκευασίες που περιέχουν ουσίες της Ομάδας Ε δεν θα τοποθετούνται πάνω σε άλλα εμπορεύματα· επί πλέον, θα στοιβάζωνται κατά τρόπον ώστε να μπορεί εύκολα να τα φθάσει κανείς.

(5) Ουσίες της Ομάδας Ε θα φορτώνονται και θα εκφορτώνονται χωρίς ενδιάμεση αποθήκευση, και σε περίπτωση μεταφορτώσεως θα μεταφέρονται απ' ευθείας από το ένα όχημα στο άλλο. Οι προβλεπόμενες ανώτατες θερμοκρασίες δεν θα υπερβαίνονται κατά την διάρκεια αυτού του χειρισμού (βλέπε περιθωριακό 52 105 (1)).

52 415
-52 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός των οχημάτων

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν (κενές δεξαμενές, ακαθάριστες) ουσίες που αναφέρονται στο Παράρτημα Β.5 θα φέρουν επί πλέον και στις δύο πλευρές και πίσω ετικέττες σύμφωνα με το υπόδειγμα 5. 52 500

52 501
-52 508

Στάσεις περιωρισμένης διάρκειας για ανάγκες σέρβις

Στη διάρκεια της μεταφοράς ουσιών του 46°(α), 47°(α) και 49°(α), οι στάσεις για ανάγκες σέρβις δεν θα γίνονται, όσο αυτό είναι δυνατό, κοντά σε κατοικημένες περιοχές ή περιοχές αναψυχής. Η στάση πλησίον σε τέτοια περιοχή δεν μπορεί να παραταθεί παρά μόνο με την έγκριση των αρμόδιων αρχών. Ο ίδιος κανόνας θα έχει εφαρμογή όταν μια μεταφορική μονάδα είναι φορτωμένη με περισσότερα από 2,000 κιλά ουσιών του 45°, 46(β) και (γ) 48°, 49°(β) και 50° μέχρι 55°. 52 509

52 510
-52 599

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

52 600
-60 999

Κατηγορία 6.1: Ταξικές ουσίες

Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

61 000
-61 099

Παράγραφος Ι: Τρόπος μεταφοράς

61 100
-61 110

Μεταφορά χύμα

(1) Ουσίες του 44°(β), 60°(γ) και 63°(γ) μπορούν να μεταφέρονται χύμα σαν πλήρες φορτίο. 61 111

(2) Ουσίες του 44°(β), σ' αυτή την περίπτωση θα μεταφέρονται σε κλειστά ή επενδυμένα οχήματα· εκείνες του 60°(γ) ή 63(γ) σε επενδυμένα ανοικτά οχήματα.

61 112

Χαρακτηρισμός των δεξαμενο – κοντέηνερ 61 129
-61 130

Δεξαμενο – κοντέηνερ που περιέχουν ή περιείχαν ουσίες του 2° ή 3° ή ουσίες άλλων ειδών ταξινομημένες με (α) ή (β) θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No. 6.1.

Εκείνα που περιέχουν ή περιείχαν ουσίες οποιουδήποτε άλλου είδους ταξινομημένες με (γ) θα φέρουν ετικέττες σύμφωνα με το υπόδειγμα No. 6.1Α.

Εκείνα που περιέχουν ή περιείχαν ουσίες που έχουν σημείο αναφλέξεως 55°Κ ή χαμηλότερο θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 3.

Εκείνα που περιέχουν ή περιείχαν άλατα του χλωροφορμίου του 16° ή 17° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 8.

61 131
-61 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

61 200

Πυροσβεστικές συσκευές 61 239

Οι διατάξεις του περιθωριακού 10 240(1)(β) και (3) θα έχουν εφαρμογή μόνο για τη μεταφορά υγρών που έχουν σημείο αναφλέξεως 55°Κ ή λιγότερο. 61 240

61 241

Ειδικός Εξοπλισμός 61 259

Όποτε μεταφέρονται αλκύλια του μολύβδου του 31°(α) ή δοχεία που τα περιείχαν, ο οδηγός, όταν του παραδίνεται το έγγραφο μεταφοράς, θα του παραδίδεται συγχρόνως φορητό κιβώτιο εξοπλισμού με χειρολαβή και περιέχον: 61 260

Τρία αντίγραφα των γραπτών οδηγιών που καθορίζουν τις ενέργειες που πρέπει να γίνουν σε περίπτωση ατυχήματος ή συμβάντος στη διάρκεια της μεταφοράς (βλέπε περιθωριακό 61 385)·

Δύο ζεύγη γάντια και δύο ζεύγη μπότες κατασκευασμένα από ελαστικό ή κάποιο κατάλληλο πλαστικό υλικό·

Δύο αναπνευστήρες με φυσίγγιο ενεργού άνθρακα ικανότητας 500 κυβ. εκ.

Φιάλη (κατασκευασμένη για παράδειγμα από βακελίτη) περιέχουσα 2 κιλά POTASSIUM PARMANGANATE και φέρουσα την ένδειξη «διαλύσατε σε νερό πριν από τη χρήση»· Έξη προειδοποιήσεις με την ένδειξη «ΚΙΝΔΥΝΟΣ – χυμένο πτητικό δηλητήριο. Μη πλησιάζετε χωρίς αναπνευστήρα» στη γλώσσα ή γλώσσες κάθε χώρας στο έδαφος των οποίων λαμβάνει χώρα η μεταφορά.

Αυτό το κιβώτιο θα φυλλάσσεται στο κουβούκλιο (καμπίνα) του οδηγού σε μέρος όπου μπορεί να βρεθεί εύκολα από την ομάδα απολύμανσης.

61 261
Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις) -61 299

61 300
Ενέργειες που πρέπει να γίνου σε περίπτωση ατυχήματος 61 301
(Βλέπε περιθωριακό 61 385) 61 302
Προφυλάξεις σε σχέση με είδη καταναλώσεως
(Βλέπε περιθωριακό 61 410) 61 303
61 304
Επίβλεψη οχημάτων -61 320
Οι διατάξεις της παραγράφου 10 321 θα έχουν εφαρμογή 61 321
στα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες:
Ουσίες του 1° μέχρι 3° και ουσίες ταξινομημένες με (α) όλων των ειδών: 1,000 KG
Ουσίες ταξινομημένες με (β) όλων των ειδών: 5,000 KG.

61 322
Φορητές φωτιστικές συσκευές -61 352

Δεν θα έχουν εφαρμογή οι διατάξεις του περιθωριακού 10 61 353
374.

61 375
Γραπτές οδηγίες -61 384

Όποτε μεταφέρονται αλκύλια μολύβδου του 31°(α), ή δο- 61 385
χεία που περιείχαν αυτά, το κείμενο των γραπτών οδηγιών θα καθορίζει, μεταξύ άλλων, τα παρακάτω:

(Α) Προφυλάξεις προς τήρηση

Η ουσία είναι εξαιρετικά τοξική. Σε περίπτωση διαφυγής από ένα από τα δοχεία πρέπει να παρθούν οι παρακάτω προφυλάξεις:

1. Αποφεύγετε:
(α) Επαφή με το δέρμα·
(β) Εισπνοή ατμών·
(γ) Εισαγωγή του υγρού στο στόμα.

2. Όταν γίνεται χειρισμός βαρελιών που έχουν σπάσει ή υποστεί βλάβη ή υγρανθεί με υγρό, είναι υποχρεωτική η χρήση των παρακάτω:
(α) Αναπνευστήρων (μασκών)
(β) Γαντιών από ελαστικό ή κάποιο κατάλληλο πλαστικό
(γ) Ελαστικών μποτών ή από κατάλληλο πλαστικό.

Σε περίπτωση σοβαρού ατυχήματος με συνέπεια το κλείσιμο της εθνικής οδού, είναι απαραίτητο να ειδοποιηθούν για τον κίνδυνο που υπάρχει τα πρόσωπα που έρχονται για να ελευθερώσουν το χώρο.

(Β) Ενέργειες που πρέπει να γίνουν

Όλες οι πρακτικές ενέργειες, περιλαμβανομένης της χρήσεως των ειδοποιήσεων που αναφέρονται στο περιθωριακό 61 260, θα γίνουν για να κρατηθούν τα πρόσωπα σε απόσταση όχι μικρότερη των 15 μέτρων από την τοποθεσία του ατυχήματος· οι προειδοποιήσεις που περιέχονται στο κιβώτιο εξοπλισμού θα τοποθετηθούν πέριξ της περιφράξεως και οι περίεργοι θα κρατούνται μακριά.

Οι αναπνευστήρες (μάσκες), γάντια και μπότες θα καταστήσουν δυνατό σε ένα πρόσωπο να πλησιάσει το φορτίο και να ελέγξει την κατάστασή του.

Αν κανένα βαρέλι σπάσει και ανοίξει, πρέπει να γίνουν τα παρακάτω:

(α) Πρέπει να γίνει άμεση προμήθεια πρόσθετων αναπνευστήρων, γαντιών και μποτών με τα οποία να εφοδιαστούν οι εργάτες·

(β) Τα βαρέλια που είναι άθικτα να παραμεριστούν·

(γ) Το χυμένο υγρό πάνω στο όχημα ή στο έδαφος πρέπει να εξουδετερωθεί με άφθονο ξέπλυμα με υδάτινο διάλυμα POTASSIUM PERMANGANATE (εξουδετερωτικός παράγων, μια φιάλη από τον οποίο φυλλάσσεται στο κιβώτιο εξοπλισμού)· το διάλυμα ετοιμάζεται εύκολα ανακατεύοντας 0.5 κιλό PERMANGANATE με 15 λίτρα νερό σε γκουβά· το ξέπλυμα πρέπει να γίνει πολλές φορές διότι χρειάζονται δύο κιλά από το POTASSIUM PERMANGANATE (για να εξουδετερωθεί πλήρως 1 κιλό από τη μεταφερόμενη ουσία.

Όπου είαι πρακτικά δυνατό, ο καλύτερος τρόπος για να απολυμανθεί ο χώρος είναι να χυθεί πάνω σ' αυτόν πετρέλαιο και να ανάψει να καεί.

(Γ) Σημαντική προειδοποίηση

Σε περίπτωση ατυχήματος, μια από τις πρώτες ενέργειες που πρέπει να γίνουν είναι να ειδοποιηθεί τηλεγραφικώς ή τηλεφωνικώς . . . . . (γράψτε εδώ τις διευθύνσεις και τους αριθμούς τηλεφώνου των ιδρυμάτων που πρέπει να ειδοποιηθούν σε κάθε μία από τις χώρες στην επικράτεια των οποίων θα λάβει χώραν η μεταφορά).

Όχημα το οποίο έχει μολυνθεί με την ουσία που μεταφέρει δεν θα τίθεται πάλι σε υπηρεσία μέχρις ότου απολυμανθεί με την επίβλεψη αρμόδιου προσώπου. Οποιαδήποτε ξύλινα μέρη του οχήματος τα οποία έχουν προσβληθεί από την ουσία που μεταφέρεται θα αφαιρούνται και θα καίγονται.

61 386
61 399
Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

61 400
Απαγόρευση μικτής φορτώσεως σε ένα όχημα -61 402
(1) Ουσίες της κατηγορίας 6.1 που περιέχονται σε συ- 61 403
σκευασίες που φέρουν ετικέττα ή δύο ετικέττες σύμφωνα με το υπόδειγμα 6.1 ή 6.1Α δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β ή 1γ που περιέχονται σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1.

(2) Ουσίες της κατηγορίας 6.1 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No 6.1 ή 6.1Α δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες των Κατηγοριών 3, 4.1 ή 4.2 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 3, 4.1 ή 4.2·

(β) Ουσίες των Κατηγοριών 5.1 ή 5.2 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 5·

(γ) Ουσίες της Κατηγορίας 8 που περιέχονται σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 8.

61 404
Προφυλάξεις σε σχέση με είδη καταναλώσεως -61 409
Ουσίες της Κατηγορίας 6.1 θα κρατούνται μακριά από τρό- 61 410
φιμα άλλα είδη καταναλώσεως και ζωοτροφές σε οχήματα και σε χώρους φορτώσεως, εκφορτώσεως ή μεταφορτώσεως
Τόποι φορτώσεως και εκφορτώσεως 61 411
(1) Οι παρακάτω εργασίες απαγορεύονται: 61 412
(α) Φόρτωση ή εκφόρτωση ουσιών του 1° μέχρι 3° και οποιαδήποτε ουσία ταξινομημένη με (α) άλλων ειδών σε δημόσιο χώρο σε κατοικημένη περιοχή χωρίς ειδική έγκριση από τις αρμόδιες αρχές·

(β) Φόρτωση ή εκφόρτωση των προαναφερόμενων ουσιών σε δημόσιο χώρο αλλαχού από κατοικημένη περιοχή χωρίς προηγούμενη ειδοποίηση των αρμόδιων αρχών, εκτός αν οι προαναφερόμενες εργασίες είναι δικαιολογημένες για λόγους ασφαλείας

(2) Αν για οποιοδήποτε λόγο, οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, τότε οι ουσίες και τα αντικείμενα διαφόρων ειδών θα χωρίζονται σύμφωνα με τις ετικέττες

61 413
Καθορισμός μετά την εκφόρτωση -61 414
(1) Μετά την εκφόρτωση, οχήματα και κοντέηνερ που με- 61 415
τέφεραν ουσίες του 44°(β), 60°(γ) και 63°(γ) χύμα θα ξεπλένονται με άφθονο νερό.

(2) Όχημα το οποίο έχει μολυνθεί σε ουσίες του 31°(α) ή με μίγμα αυτών δεν θα τίθεται πάλι σε υπηρεσία μέχρις ότου απολυμανθεί υπό την επίβλεψη αρμόδιου προσώπου. Οποιαδήποτε ξύλινα μέρη του οχήματος που έχουν προσβληθεί από ουσίες του 31°(α) θα αφαιρούνται και θα καίγονται.

(3) Αν ουσίες αυτής της Κατηγορίας έχουν διαφύγει και χυθεί σε όχημα, δεν μπορεί να ξαναχρησιμοποιηθεί μέχρις ότου καθαριστεί με επιμέλεια και, αν χρειαστεί να απολυμανθεί. Όλα τα άλλα εμπορεύματα και αντικείμενα που μεταφέ-

ρονται στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση.

61 416
-61 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός οχημάτων

(1) Όποτε μεταφέρονται ουσίες του 31°(α), το όχημα θα έχει σε κάθε πλευρά προειδοποίηση ότι, αν διαφύγει οποιοδήποτε υγρό πρέπει να λαμβάνονται οι μεγαλύτερες προφυλάξεις και ότι το όχημα δεν πρέπει να το πλησιάζουν χωρίς αναπνευστήρα, γάντια και μπότες από ελαστικό ή κάποιο κατάλληλο πλαστικό υλικό. 61 500

(2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν ουσίες του 2° ή 3° ή ουσίες ταξινομημένες με (α) ή (β) άλλων ειδών θα φέρουν και στις δύο πλευρές και πίσω ετικέττες σύμφωνα με το υπόδειγμα No. 6.1

Εκείνα που περιέχουν ή περιείχαν ουσίες ταξηνομημένες με (γ) κάθε είδους θα φέρουν ετικέττες σύμφωνα με το υπόδειγμα 6.1Α.

Εκείνα που περιέχουν ή περιείχαν ουσίες με σημείο αναφλέξεως μέχρι και 55°Κ θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No.3.

Εκείνα που περιέχουν ή περιείχαν CHLOROFORMATES του 16° ή 17° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 8.

61 501
Στάσεις περιωρισμένου χρόνου για ανάγκες σέρβις -61 508

Στάσεις για ανάγκες εξυπηρετήσεως (σέρβις) δεν θα γίνονται 61 509
όσο είναι δυνατό σε κατοικημένες ή αστικές περιοχές. Στάση κοντά σε τέτοια τοποθεσία δεν μπορεί να παραταθεί παρά μόνο με τη σύμφωνη γνώμη των αρμόδιων αρχών.

61 510
Προστασία κατά της ηλιακής ενέργειας -61 514

Στη διάρκεια της περιόδου Απριλίου μέχρι Οκτωβρίου περιλαμβανόμενου, όταν ένα όχημα που μεταφέρει υδροκυανικό οξύ (1°) στέκεται η συσκευασία, αν το απαιτεί η νομοθεσία της χώρας στην οποία έχει σταθεί το όχημα, θα προστατεύεται αποτελεσματικά εναντίον της ενέργειας του ηλίου π.χ. με φύλλα τοποθετούμενα όχι λιγότερο από 20 εκ. πάνω από το φορτίο. 61 515

61 516
Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες -61 599
(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους 1)

61 600
Κατηγορία 6.2: Αποχρουστικές ουσίες και ουσίες που μπορεί να προκαλέσουν μόλυνση -61 699

Γενικά

62 000
Εφαρμογή του Μέρους του παρόντος Προσαρτήματος -62 009

Οι μόνες διατάξεις του παρόντος Προσαρτήματος εκτός εκείνων των Παραγράφων 1 μέχρι 6 παρακάτω που έχουν εφαρμογή στη μεταφορά επικίνδυνων ουσιών της Κατηγορίας 6.2 είναι εκείνες των περιθωριακών 10 001, 10 010 μέχρι 10 014, 10 111, 10 118, 10 381 (1) (α), 10 404, 10 405, 10 413 μέχρι 10 415 και 10 419. 62 010

62 011
Παράγραφος 1: Τρόπος μεταφοράς -62 099

62 100
Μεταφορά χύμα -62 110

(1) Ουσίες 1°, 2°, 3° και 5° μπορεί να μεταφέρονται χύμα. Ουσίες του 9° δεν μπορεί να μεταφέρονται διαφορετικά παρά μόνο χύμα. 62 111

(2) Όταν είναι χύμα

(α) Ουσίες του 1° (α) και (γ) και 2° θα μεταφέρονται σε ειδικά εξοπλισμένα καλυμένα οχήματα έχοντα εγκαταστάσεις εξαερισμού. Κατά τη διάρκεια των μηνών από Νοέμβριο μέχρι Φεβρουάριο οι ουσίες αυτές μπορεί επίσης να μεταφέρονται σε ανοικτά οχήματα με τον όρον ότι θα έχουν ψεκασθεί με κατάλληλα απολυμαντικά για την αφαίρεση της κακοσμίας τους·

(β) Τα παρακάτω θα μεταφέρονται σε ανοικτά οχήματα:

Ουσίες του 1° (β), αφού ψεκασθούν με κατάλληλα απολυμαντικά για την αφαίρεση της κακοσμίας·

Ουσίες του 3°·

Ουσίες του 5° αφού ψεκασθούν με ασβέστη σε τρόπο ώστε να μη διακρίνεται δυσοσμία· και

Ουσίες του 9°.

(3) Επί πλέον όταν μεταφέρονται σε ανοικτά οχήματα, τα παρακάτω θα καλύπτονται με:

(α) Φύλλο εμποτισμένο με κατάλληλα απολυμαντικά και το ίδιο καλυμένο με δεύτερο φύλλο: ουσίες του 1° (α) και (γ) και 2°·

(β) Φύλλο πισωμένου κόντρα πλακέ (ψεκασμένου με κατάλληλα απολυμαντικά): νωπά κέρατα, οπλές, νύχια ή κόκκαλα (1° (β))·

(γ) Ένα φύλλο: Ουσίες του 3°, εκτός αν ψεκασθούν με κατάλληλο απολυμαντικό για να εμποδιστεί η κακοσμία· και

(δ) ένα φύλλο: ουσίες του 9°

62 112
Μεταφορά σε κοντέηνερ -62 117

Η μεταφορά ουσιών του 9° σε μικρά κοντέηνερ απαγορεύεται. 62 118

62 119
-62 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

(Δεν υπάρχουν γενικές ή ειδικές προϋποθέσεις)

62 200
-62 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις)

62 300
Προφυλάξεις σε σχέση με τα είδη καταναλώσεως -62 302
(Βλέπε περιθωριακό 62 410) 62 303
62 304
-62 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

62 400
Απαγόρευση μικτής φορτώσεως σε ένα όχημα -62 402
Ουσίες του 9° και 10° δεν θα φορτώνονται μαζί σε ένα όχημα με επικίνδυνες ουσίες της Κατηγορίας 5.2 62 403

62 404
Προφυλάξεις σε σχέση με είδη καταναλώσεως -62 409

Σε οχήματα και σε τόπους φορτώσεως, εκφορτώσεως και μεταφορτώσεως, επικίνδυνες ουσίες της Κατηγορίας 6.2 εκτός από ουσίες του 7° ή ουσίες του 8° συσκευασμένες σύμφωνα με τις διατάξεις του Προσαρτήματος Α, περιθωριακό 2659 (2) (α) ή (β), θα κρατούνται μακριά από τρόφιμα, άλλα είδη καταναλώσεως και ζωοτροφές. 62 410

62 411
Καθορισμός μετά την εκφόρτωση -62 414

Μετά την εκφόρτωση, τα οχήματα που μετέφεραν ουσίες της κατηγορίας 6.2 χύμα θα ξεπλένονται άφθονα και επεξεργάζονται με κατάλληλα απολυμαντικά. 62 415

62 416
Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων -62 499

(Δεν υπάρχουν γενικές ή ειδικές διατάξεις)

62 500
Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες -62 599

(Δεν υπάρχουν γενικές ή ειδικές διατάξεις)

62 600
Κατηγορία 7: Ραδιενεργές ουσίες -70 999

Γενικά

Μεταφορά

Για λεπτομέρειες βλέπε το σχετικό πίνακα στο περιθωριακό 2703 71 000

71 001
-71 099

Παράγραφος 1: Τρόπος μεταφοράς

Διατάξεις

Για λεπτομέρειες βλέπε σχετικό πίνακα στο περιθωριακό No. 2703 — 71 100

71 101
-71 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

Διατάξεις

Για λεπτομέρειες βλέπε σχετικό πίνακα στο περιθωριακό 2703 — 71 200

71 201
-71 299

Παράγραφος 3: Γενικές διατάξεις εξυπηρετήσεως (σέρβις)

Διατάξεις

Για λεπτομέρειες βλέπε το σχετικό πίνακα στο περιθωριακό 2703
Βλέπε επίσης παρακάτω: — 71 300

71 301

Επίβλεψη οχημάτων — -71 320

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για όλες τις ουσίες για οποιαδήποτε ποσότητα. — 71 321

Εν τούτοις, οι διατάξεις του περιθωριακού 10 321 δεν χρειάζεται να εφαρμοστούν όπου:

(α) Το φορτωμένο διαμέρισμα είναι κλειδωμένο και οι μεταφερόμενες συσκευασίες προστατεύονται διαφορετικά κατά κάθε παράνομης εκφόρτωσης· και

(β) Ο βαθμός της δόσεως δεν υπερβαίνει το 0.5 MR/H σε οποιοδήποτε προσιτό σημείο πάνω στην επιφάνεια του οχήματος.

Επί πλέον, τα εμπορεύματα αυτά θα υπόκεινται πάντα σε επίβλεψη για να παρεμποδιστεί κακόβουλη ενέργεια και για να ειδοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απώλειας ή πυρκαϊάς.

71 322

Απαγόρευση καπνίσματος — -71 373

Οι διατάξεις του περιθωριακού 10 374 δεν έχουν εφαρμογή. — 71 374

71 375
-71 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

Διατάξεις

Για λεπτομέρειες βλέπε σχετικό πίνακα σε περιθωριακό 2703 — 71 400

71 401
-71 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός οχημάτων

(1) Το περιθωριακό 10 500 δεν θα έχει εφαρμογή. — 71 500

(2) Κάθε οδικό όχημα που μεταφέρει ραδιενεργές ουσίες θα φέρει στο εξωτερικό κάθε πλευράς και πίσω ετικέττα σύμφωνα με το υπόδειγμα No 7D που εμφανίζεται στο Παράρτημα B.4, περιθωριακό 240 010. Αν η φόρτωση γίνεται από τον αποστολέα, θα αποτελεί καθήκον του να τοποθετήσει αυτές τις ετικέττες στα οχήματα.

Εν τούτοις, αυτή η προϋπόθεση δεν θα έχει εφαρμογή σε οχήματα που μεταφέρουν τις συσκευασίες που αναφέρονται στο περιθωριακό 2703, πίνακες 1 μέχρι 4

71 501

Στάθμευση αυτοκινήτου που αποτελεί ειδικό κίνδυνο — -71 506

(Εκτός από το περιθωριακό 10 507, βλέπε το Παράρτημα A.6, περιθωριακό 3695) — 71 507

71 508
-71 599

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις και ειδικές διατάξεις για ορισμένες χώρες

(Έχουν εφαρμογή οι γενικές διατάξεις του Μέρους 1) — 71 600
-80 999

Κατηγορία 8: Διαβρωτικές ουσίες

Γενικά

(Έχουν εφαρμογή μόνο οι γεν. διατάξεις του Μέρους 1) — 81 000
-81 099

Παράγραφος 1: Τρόπος μεταφοράς

81 100
-81 110

Μεταφορά χύμα

Ουσίες του 23° ή απόβλυτα μολύβδου που περιέχουν θειϊκό οξύ του 1° (β) μπορούν να μεταφέρονται χύμα σαν πλήρες φορτίο. Τα αμάξωμα του οχήματος θα είναι εξοπλισμένο με κατάλληλη και αρκετά χονδρή εσωτερική επένδυση. Αν το όχημα είναι επενδυμένο με φύλλα, το φύλλο θα είναι τοποθετημένο κατά τέτοιο τρόπο ώστε να μη μπορεί να αγγίξει το φορτίο. — 81 111

81 112
-81 117

Μεταφορά σε κοντέηνερ

Μικρά κοντέηνερ που χρησιμοποιούνται για τη μεταφορά ουσιών του 23° ή απόβλητα μολύβδου που περιέχουν θειϊκό οξύ του 1°(β) χύμα, θα έχουν πλήρη τοιχώματα και κατάλληλη επένδυση — 81 118

81 119

Χαρακτηρισμός δεξαμενο-κοντέηνερ — -81 129

Δεξαμενο-κοντέηνερ που περιέχουν ή περιείχαν ουσίες της παρούσας Κατηγορίας θα φέρουν και στις δύο πλευρές ετικέττα σύμφωνα με το υπόδειγμα No. 8. — 81 130

Εκείνα που περιέχουν ή περιείχαν ουσίες της παρούσας Κατηγορίας που έχουν σημείο αναφλέξεως 55°K ή χαμηλότερο θα φέρουν επί πλέον ετικέττα σύμφωνα με το υπόδειγμα No. 3.

Εκείνα που περιέχουν ή περιείχαν πυροθειϊκό οξύ (αναθυμιάζον θειϊκό οξύ) του 1°(α) ή ουσίες του 6°, 7°, 24°, 26° ή 44° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 6.1.

Εκείνα που περιέχουν ή περιείχαν ουσίες του 62° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα 5.

81 131
-81 199

Παράγραφος 2: Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

81 200

Πυροαβεστικές συσκευές — -81 239

Οι διατάξεις του περιθωριακού 10 240 (1) (β) και (3) θα έχουν εφαρμογή μόνο για τη μεταφορά υγρών που έχουν σημείο αναφλέξεως 55°K ή χαμηλότερο, ή για ουσίες του 2°(α) και 3°(α). — 81 240

81 241

Επίβλεψη οχημάτων — -81 299

Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν τις αναφερόμενες: — 81 321

Ουσίες ταξινομημένες με (α) όλων των ειδών: 10,000KG

Βρώμιο του 24°: 1,000KG

81 322

Φορητές φωτιαιτικές συσκευές — -81 352

Δεν θα έχουν εφαρμογή οι διατάξεις του περιθωριακού 10 353. — 81 353

81 354

Απαγόρευση καπνίσματος — -81 373

Δεν θα έχουν εφαρμογή οι διατάξεις του περιθωριακού 10 374. — 81 374

81 375
-81 399

Παράγραφος 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

81 400

Απαγόρευση μικτής φορτώσεως σε ένα όχημα — -81 402

(1) Ουσίες της Κατηγορίας 8 κλεισμένες σε συσκευασίες που φέρουν μία ή δύο ετικέττες που είναι σύμφωνες με το — 81 403

υπόδειγμα No. 8 δεν θα φορτώνονται μαζί σε ένα όχημα με ουσίες ή αντικείμενα των Κατηγοριών 1α, 1β, 1γ μέσα σε συσκευασίες που φέρουν μία ή δύο ετικέττες σύμφωνα με το υπόδειγμα No. 1.

(2) Ουσίες της Κατηγορίας 8 μέσα σε συσκευασίες που φέρουν ετικέττες δύο σύμφωνα με το υπόδειγμα No. 8 δεν θα φορτώνονται μαζί σε ένα όχημα με:

(α) Ουσίες της Κατηγορίας 3, Κατηγορίας 4.1 ή Κατηγορίας 4.2 μέσα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 3, 4.1 ή 4.2·

(β) Ουσίες της Κατηγορίας 5.1 ή Κατηγορίας 5.2 μέσα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με το υπόδειγμα No. 5·

(γ) Ουσίες της Κατηγορίας 6.1 μέσα σε συσκευασίες που φέρουν δύο ετικέττες σύμφωνα με τα υποδείγματα No. 6.1 ή 6.1Α.

81 404

Καθαρισμός πριν από τη φόρτωση -81 412

Οχήματα τα οποία πρόκειται να μεταφέρουν συσκευασίες που περιέχουν ουσίες του 2°(α) ή 3°(α) θα καθαρίζονται προσεκτικά και ειδικά να είναι χωρίς καύσιμα απορρίμματα (άχυρα, χόρτα, χαρτιά, κ.λπ.). 81 413

Χειρισμός και στοιβασία

Συσκευασίες που περιέχουν ουσίες του 2°(α), 3°(α), 61° ή 62° θα τοποθετούνται σε γερό δάπεδο και θα είναι με τα ανοίγματά τους προς τα πάνω. Η χρήση εύκολα εύφλεκτων υλικών όπως άχυρο για στοιβασία αυτών των συσκευασιών απαγορεύεται. 81 414

81 415
-81 499

Παράγραφος 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Σήμανση και χαρακτηρισμός των οχημάτων

Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν ουσίες της παρούσας Κατηγορίας θα φέρουν και στις δύο πλευρές και πίσω ετικέττα σύμφωνα με το υπόδειγμα No. 8. 81 500

Εκείνα που περιέχουν ή περιείχαν ουσίες της παρούσας Κατηγορίας με σημείο αναφλέξεως 55°Κ ή χαμηλότερο θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 3.

Εκείνα που περιέχουν ή περιείχαν πυροθεϊκό οξύ (αναθυμιάζον θειϊκό οξύ) του 1°(α) ή ουσίες του 6°, 7°, 24°, 26° ή 44° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 6.1.

Εκείνα που περιέχουν ή περιείχαν ουσίες του 62° θα φέρουν επί πλέον ετικέττες σύμφωνα με το υπόδειγμα No. 5.

81 501
-81 599

Παράγραφος 6: Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ορισμένες χώρες

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

81 600
199999

ΠΑΡΑΡΤΗΜΑΤΑ

ΠΑΡΑΡΤΗΜΑΤΑ Β.1 Διατάξεις που αφορούν τις δεξαμενές

ΚΟΙΝΕΣ ΔΙΑΤΑΞΕΙΣ ΤΩΝ ΠΑΡΑΡΤΗΜΑΤΩΝ Β.1

(1) Το πλαίσιο εφαρμογής των διαφόρων Παραρτημάτων Β.1 έχει όπως παρακάτω: 200 000

(α) Παράρτημα Β.1α έχει εφαρμογή σε δεξαμενές εκτός από τα δεξαμενο-κοντέηνερ·

(β) Παράρτημα Β.1β αφορά τα δεξαμενο-κοντέηνερ·

(γ) Παράρτημα Β.1γ αφορά τις δεξαμενές, εκτός από τις συστοιχίες δοχείων και τα δεξαμενοκοντέηνερ, από ενισχυμένο πλαστικό·

(δ) Παράρτημα Β.1δ αφορά τα υλικά και την κατασκευή των σταθερών δεξαμενών, των αποσυναρμολογούμενων δεξαμενών και των περιβλημάτων των δεξαμενο-κοντέηνερ, που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθειάς καταψύξεως της Κατηγορίας 2.

ΣΗΜΕΙΩΣΗ: Για δοχεία, βλέπε τις σχετικές απαιτήσεις του Προσαρτήματος Α (Συσκευασίες).

(2) Με παρέκκλιση από τον ορισμό που δίνεται στο περιθωριακό 10 014, ο όρος «δεξαμενή» όταν χρησιμοποιείται μόνος στο Παράρτημα Β.1α και το Παράρτημα Β.1γ δεν καλύπτει τα δεξαμενο-κοντέηνερ. Εντούτοις, μερικές από τις απαιτήσεις του Παραρτήματος Β.1α μπορεί να έχουν εφαρμογή για τις δεξαμενές κοντέηνερ από τις διατάξεις του Προσαρτήματος Β και του Παραρτήματος Β.1β.

(3) Υπενθυμίζεται ότι το περιθωριακό 10 121 (1) απαγορεύει τη μεταφορά επικίνδυνων ουσιών σε δεξαμενές εκτός όπου αυτή η μεταφορά επιτρέπεται ρητώς σύμφωνα με κάθε Παράγραφο 1 του Μέρους ΙΙ των Παραρτημάτων Β.1α ή Β.1β και Παράγραφο 1 του Παραρτήματος Β.1γ.

200 001
210 999

Παράρτημα Β.1α

ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ (ΔΕΞΑΜΕΝΟΑΥΤΟΚΙΝΗΤΑ) ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΙ ΣΥΣΤΟΙΧΙΕΣ ΔΟΧΕΙΩΝ

ΣΗΜΕΙΩΣΗ: Το Μέρος Ι εκθέτει τις απαιτήσεις που έχουν εφαρμογή στις σταθερές δεξαμενές (δεξαμενοαυτοκίνητα), αποσυναρμολογούμενες δεξαμενές και δοχεία προσδιζόμενα για τη μεταφορά ουσιών οποιασδήποτε Κατηγορίας. Το Μέρος ΙΙ περιέχει ειδικές προϋποθέσεις που συμπληρώνουν ή τροποποιούν τις προϋποθέσεις του Μέρους Ι.

ΜΕΡΟΣ Ι: ΠΡΟΫΠΟΘΕΣΕΙΣ ΟΛΩΝ ΤΩΝ ΚΑΤΗΓΟΡΙΩΝ

211 000
211 099

Παράγραφος 1: Γενικά· πλαίσιο (Χρήση δεξαμενών)· ορισμοί.

ΣΗΜΕΙΩΣΗ: Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (1), η μεταφορά επικίνδυνων ουσιών σε δεξαμενές (σταθερές ή αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων) επιτρέπεται μόνο όπου αυτός ο τρόπος μεταφοράς επιτρέπεται ρητά γι' αυτές τις ουσίες σε κάθε Παράγραφο 1 του Μέρους ΙΙ του παρόντος Παραρτήματος.

Αυτές οι προϋποθέσεις θα έχουν εφαρμογή για σταθερές δεξαμενές (δεξαμενο–οχήματα) αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που χρησιμοποιούνται για τη μεταφορά, υγρών, αεριωδών, κονιωδών ή κοκκοειδών ουσιών 211 100

(1) Πέραν από το ίδιο το όχημα, ή τις πλατφόρμες που χρησιμοποιούνται αντ' αυτού, ένα δεξαμενο-αυτοκίνητο περιλαμβάνει ένα ή περισσότερα περιβλήματα, τα είδη του εξοπλισμού τους και τα εξαρτήματα για την πρόσδεσή τους στο όχημα ή στις πλατφόρμες. 211 101

(2) Όταν είναι προσδεμένη στο φέρον όχημα, η αποσυναρμολογούμενη δεξαμενή ή η συστοιχία δοχείων θα ανταποκρίνεται στις απαιτήσεις που προβλέπονται για τα δεξαμενοαυτοκίνητα

Στις παρακάτω απαιτήσεις: 211 102

(1) (α) «Περίβλημα» σημαίνει την ίδια τη δεξαμενή (περιλαμβανόμενων των στομίων και των πωμάτων αυτών)·

(β) «εξοπλισμός εξυπηρετήσεως του περιβλήματος» σημαίνει τις συσκευές πληρώσεως, εκφορτώσεως, αερισμού, ασφαλείας, θερμάνσεως και μονώσεως κατά της θερμότητας και τα όργανα μετρήσεως·

(2) (α) «πίεση υπολογισμού» σημαίνει θεωρητική πίεση που χρησιμοποιείται για τον υπολογισμό του πάχους των τοιχωμάτων του περιβλήματος. Είναι ίση με την πίεση δοκιμής εκτός σε σχέση με ορισμένα επικίνδυνα εμπορεύματα για τα οποία ορίζεται ειδική, υψηλότερη πίεση υπολογισμού. Εξωτερικές ή εσωτερικές συσκευές ενισχύσεως δεν θα λαμβάνονται υπόψη σ' αυτό τον υπολογισμό·

(β) «Ανώτατη πίεση εργασίας» (πίεση μετρητή) σημαίνει την υψηλότερη από τις παρακάτω τρεις πιέσεις:

(ι) η υψηλότερη πραγματική πίεση που επιτρέπεται στο περίβλημα κατά τη διάρκεια της πληρώσεως («επιτρεπόμενη ανώτατη πίεση πληρώσεως»)·

(ιι) η υψηλότερη πραγματική πίεση που επιτρέπεται στο περίβλημα κατά την εκφόρτωση («ανώτατη επιτρεπόμενη πίεση εκφορτώσεως, και

(ιιι) η πραγματική πίεση μετρητή στην οποία υποβάλλεται το περίβλημα από το περιεχόμενό του (περιλαμβανόμενων όποιων εξωτερικών αερίων μπορεί να περιέχει) στην ανώτατη θερμοκρασία εργασίας.

Εκτός όπου οι ειδικές προϋποθέσεις για κάθε Κατηγορία προβλέπουν διαφορετικά, η αριθμητική αξία αυτής της πιέσεως εργασίας (πίεσης μετρητή) δεν θα είναι χαμηλότερη από την πίεση εξατμίσεως (απόλυτη πίεση) της ουσίας πληρώσεως στους 50°Κ.

Για περιβλήματα που είναι εξοπλισμένα με βαλβίδες ασφαλείας (με ή χωρίς δίσκο εκρήξεως), η ανώτατη πίεση εργασίας (πίεση μετρητή), θα είναι εντοῦτοις ίση με την προβλεπόμενη πίεση ανοίγματος αυτών των βαλβίδων ασφαλείας.

Για περιβλήματα εξοπλισμένα με σύστημα εξαερισμού και συσκευή ασφαλείας που εμποδίζει το περιεχόμενο να χυθεί αν το περίβλημα αναποδογυρίσει, η ανώτατη πίεση εργασίας (πίεση μετρητή) θα είναι ίση με τη στατική πίεση της ουσίας πληρώσεως).

(γ) "πίεση δοκιμής" σημαίνει την ανώτατη πραγματική πίεση που εφαρμόζεται στη διάρκεια της δοκιμής πιέσεως του περιβλήματος·

(δ) "πίεση πληρώσεως" σημαίνει την ανώτατη πίεση που επιφέρεται στο περίβλημα όταν γεμίζει υπό πίεση·

(ε) "πίεση εκφορτώσεως" σημαίνει την ανώτατη πίεση που πραγματικά επιφέρεται πάνω στο περίβλημα όταν εκφορτώνεται υπό πίεση.

(3) "Δοκιμή διαρροής" ή "δοκιμή στεγανότητα" σημαίνει τη δοκιμή που συνίσταται από την υποβολή του περιβλήματος σε πραγματική εσωτερική πίεση ίση με την ανώτατη πίεση εργασίας, αλλά όχι λιγότερο από 20 KPa (0.2 μπάρ) (πίεση μετρητή), με διαδικασία που έχει εγκριθεί από την αρμόδια αρχή.

211 103
-211 119

Παράγραφος 2: Κατασκευή

Τα περιβλήματα θα σχεδιάζονται και θα κατασκευάζονται 211 120
σύμφωνα με τις διατάξεις του τεχνικού κώδικα που αναγνωρίζεται από τις αρμόδιες αρχές, αλλά θα καλύπτονται οι παρακάτω προϋποθέσεις:

(1) Τα περιβλήματα θα είναι κατασκευασμένα από κατάλληλα μεταλλικά υλικά τα οποία εκτός αν προβλέπονται άλλες κλιμακώσεις θερμοκασίας στις διάφορες Κατηγορίες, θα αντέχουν στη θραύση, σχίσιμο και διάβρωση υπό πίεση τάσεως μεταξύ -20°Κ και +50°Κ.

(2) Για τα συγκολλημένα περιβλήματα θα χρησιμοποιούνται μόνο υλικά άψογης ικανότητας συγκολλήσεως και των οποίων η αντοχή προσκρούσεως σε θερμοκρασία περιβάλλοντος -20°Κ μπορεί να εγγυηθούν, ειδικά στα σημεία συγκολλήσεως και τα σημεία που βρίσκονται κοντά σ' αυτές.

(3) Οι συγκολλήσεις θα έχουν γίνει επιδέξια και θα παρέχουν την πλήρη ασφάλεια.

Σχετικά με την εκτέλεση και τον έλεγχο των σημείων συγκολλήσεως, βλέπε επίσης το περιθωριακό 211 127(7).

Περιβλήματα των οποίων το ανώτατο πάχος τοιχωμάτων έχει προσδιοριστεί σύμφωνα με το περιθωριακό 211 127 (3) μέχρι (6) θα ελέγχονται με τις μεθόδους που περιγράφονται στον ορισμό του συντελεστή συγκολλήσεως 0.8.

(4) Τα υλικά των περιβλημάτων ή οι προστατευτικές επενδύσεις τους που έρχονται σε επαφή με το περιεχόμενο, δεν θα περιέχουν ουσίες που μπορεί να αντιδράσουν επικίνδυνα με το περιεχόμενο, για το σχηματισμό επικίνδυνων ενώσεων, ή να αδυνατίσουν ουσιαστικά το υλικό.

(5) Η προστατευτική επένδυση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε η στεγανότητά της να παραμένει άθικτη όποια παραμόρφωση μπορεί να γίνει σε κανονική μεταφορά (211 127 (1)).

(6) Αν η επαφή μεταξύ της μεταφερόμενης ουσίας και του υλικού που χρησιμοποιήθηκε για την κατασκευή του περιβλήματος συνεπάγεται προοδευτική μείωση του πάχους των τοιχωμάτων, το πάχος θα αυξάνεται κατά την κατασκευή καταλλήλως. Το πρόσθετο αυτό πάχος σαν ανοχή για τη οξείδωση δεν θα λαμβάνεται υπόψη κατά τον υπολογισμό του πάχους των τοιχωμάτων του περιβλήματος.

(1) Τα περιβλήματα, προσαρτήματα και εξοπλισμός εξυ- 211 121
πηρετήσεως και δομής θα είναι σχεδιασμένα να αντέχουν χωρίς απώλεια περιεχομένου (εκτός από ποσότητες του αερίου που διαφεύγουν από τους εξαεριστήρας):

-στατικές και δυναμικές εντάσεις σε κανονική μεταφορά·

-προβλεπόμενες ελάχιστες εντάσεις όπως καθορίζονται στα περιθωριακά 211 125 και 211 127.

(2) Στην περίπτωση οχημάτων στα οποία το περίβλημα αποτελεί πιεσμένο αυτοστηριζόμενο μέλος, το περίβλημα θα είναι σχεδιασμένο να αντέχει τις εντάσεις που επιβάλλονται από αυτό το λόγο πέραν από εντάσεις που προέρχονται από άλλες πηγές.

Η πίεση πάνω στην οποία βασίζεται το πάχος τοιχωμά- 211 122
των του περιβλήματος δεν θα είναι λιγότερο από την πίεση υπολογισμού, αλλά οι εντάσεις που αναφέρονται στο περιθωριακό 211 121 θα λαμβάνονται επίσης υπόψη.

Εκτός αν προβλέπεται ειδικά διαφορετικά στις διάφορες 211 123
κατηγορίες, τα παρακάτω στοιχεία θα λαμβάνονται υπόψη στο σχεδιασμό των περιβλημάτων:

(1) Περιβλήματα εκφορτώσεως με τη βαρύτητα που προορίζονται για τη μεταφορά ουσιών που έχουν πίεση αερίων που δεν υπερβαίνει τα 100 KPa (1.1 μπάρ) (απόλυτη πίεση) στους 50°Κ θα είναι σχεδιασμένα για πίεση υπολογισμού διπλή από εκείνη της στατικής πιέσεως της ουσίας που πρόκειται να μεταφερθεί αλλά όχι λιγότερο από τη στατική πίεση του νερού.

(2) Περιβλήματα γεμιζόμενα με πίεση ή εκφορτωνόμενα με πίεση που προορίζονται για τη μεταφορά ουσιών που έχουν πίεση ατμού που δεν υπερβαίνει τα 110 KPa (1.1 μπάρ) (απόλυτη πίεση) στους 50°Κ θα είναι σχεδιασμένα για πίεση υπολογισμού ίση με 1.3 φορές την πίεση πληρώσεως ή εκφορτώσεως.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που έχουν πίεση ατμών πάνω από 110 KPa (1.1 μπάρ) αλλά όχι περισσότερο από 175 KPa (1.75 μπάρ) (απόλυτη πίεση) στους 50°Κ, οποιοδήποτε και αν είναι το σύστημα πληρώσεως ή εκφορτώσεως αυτών, θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 0.15 MPa (1.5 μπάρ) πίεση μετρητή ή 1.3 φορές την πίεση πληρώσεως ή εκφορτώσεως, όποια είναι η υψηλότερη.

(4) Περιβλήματα που προορίζονται για τη μεταφορά ουσιών που έχουν πίεση ατμού μεγαλύτερη από 175 KPa (1.75 μπάρ) (απόλυτη πίεση) στους 50°Κ, όποιο και αν είναι το σύστημα πληρώσεως ή κενώσεως αυτών, θα είναι σχεδιασμένα για πίεση υπολογισμού ίση προς 1.3 φορές την πίεση πληρώσεως ή κενώσεως αλλά όχι λιγότερο από 0.4 MPa (4 μπάρ) πίεση μετρητή.

Δεξαμενές που προορίζονται να περιλάβουν ορισμένες επι- 211 124
κίνδυνες ουσίες θα είναι εφοδιασμένες με ειδική προστασία που θα καθοριστεί για τις διάφορες κατηγορίες.

Στην πίεση δοκιμής, η ένταση σ (σίγμα) στο πιο βαρειά 211 125
πιεζόμενο σημείο που περιβλήματος δεν θα υπερβαίνει τα εξαρτόμενα από τα υλικά όρια που περιγράφονται παρακάτω. Θα υπολογίζεται ανοχή για οποιοδήποτε αδυνάτισμα οφειλόμενο στις συγκολλήσεις. Επί πλέον, στην επιλογή του υλικού και τον προσδιορισμό του πάχους του τοιχώματος, θα λαμβάνονται υπόψη η ανώτατη και κατώτατη θερμοκρασία εργασίας.

(1) Για μέταλλα και μίγματα που παρουσιάζουν καθαρά καθοριζόμενο σημείο κάμψεως ή χαρακτηριζόμενα από εγγυημένη συμβατική τάση κάμψεως (Re) (γενικά 0.2 στα εκατό της υπολειμματικής επιμηκύνσεως και στην περίπτωση ωστενιτικών χαλύβων, 1 στα εκατό της ανώτατης επιμηκύνσεως):

(α) όπου η σχέση Re/RM δεν είναι περισσότερο από 0.66:

Re/ = φαινόμενη τάση κάμψεως, ή 0.2 στα εκατό τάση δοκιμής στην περίπτωση ωστενιτικών χαλύβων

RM = εγγυημένη ελάχιστο αντοχή έλξεως):

$$\sigma \leqslant 0.75\ Re$$

(β) όπου η σχέση Re/RM υπερβαίνει το 0.66:

$$\sigma \leqslant 0.5\ RM$$

(2) Για μέταλλα και μίγματα που δεν εμφανίζουν καθαρά καθοριζόμενη φαινόμενη τάση κάμψεως και χαρακτηριζόμενα από εγγυημένη ελάχιστη αντοχή έλξεως RM:

$$\sigma \leqslant 0.43\ RM$$

(3) Για το χάλυβα, η επιμήκυνση στη θραύση δεν θα είναι λιγότερο από:

$$\frac{100}{\text{καθορισμένη αντοχή έλξεως σε } N/MM^2}$$

αλλά σε κάθε περίπτωση δεν θα είναι λιγότερο από 16 στα εκατό για λεπτόκοκκους χάλυβες και όχι λιγότερο από 20 στα εκατό για άλλους χάλυβες. Για μίγματα αλουμινίου η επιμήκυνση στη θράυση δεν θα είναι λιγότερο από 12 στα εκατό.[1])

Δεξαμενές προοριζόμενες για τη μεταφορά υγρών που έχουν σημείο αναφλέξεως 55 °K ή παρακάτω και για τη μεταφορά εύφλεκτων αερίων θα συνδέονται με όλα τα μέρη του σχήματος με ισοδυναμική σύνδεση και θα είναι σε θέση να γειώνονται ηλεκτρικά. Κάθε μεταλλική επαφή ικανή να προκαλέσει ηλεκτροχημική διάβρωση θα αποφεύγεται. 211 126

Περιβλήματα και οι προσδέσεις τους θα αντέχουν τις εντάσεις που καθορίζονται στην παράγραφο (1), και το πάχος τοιχωμάτων των περιβλημάτων θα είναι τουλάχιστον όπως καθορίζεται σύμφωνα με τις παραγράφους (2) μέχρι (6) παρακάτω. 211 127

(1) Τα περιβλήματα και οι προσδέσεις τους θα είναι σε θέση απορροφήσεως, κάτω από το ανώτατο επιτρεπτό φορτίο, τις δυνάμεις που ασκούνται από:

– προς την κατεύθυνση της πορείας: δύο φορές τη συνολική μάζα·

– σε ορθές γωνίες προς την κατεύθυνση της πορείας η συνολική μάζα·

– κάθετα προς τα πάνω: η συνολική μάζα

– κάθετα προς τα κάτω: δύο φορές τη συνολική μάζα.

Κάτω από τις τάσεις που καθορίζονται παραπάνω, η τάση στο περισσότερο πιεζόμενο σημείο του περιβλήματος και των προσδέσεων αυτού δεν θα υπερβαίνει την τιμή σ που καθορίζεται στο περιθωριακό 211 125.

(2) Το πάχος του κυλινδρικού τοιχώματος του περιβλήματος και των άκρων των πλακών καλύμματος θα είναι τουλάχιστον ίσο με εκείνο που λαμβάνεται με τον παρακάτω τύπο:

$$\varepsilon = \frac{P_{MPa} \times D}{2 \times \sigma \times \lambda} \qquad \varepsilon = \frac{P_{BAR} \times D}{20 \times \sigma \times \lambda}$$

όπου P_{MPa} = πίεση υπολογισμού σε MPa·

P_{BAR} = πίεση υπολογισμού σε μπαρ

D = εσωτερική διάμετρος περιβλήματος σε χιλ.

σ = επιτρεπόμενη τάση, όπως καθορίζεται στο περιθωριακό 211 125 (1), (α) και (β) και (2), σε N/MM^2· και

λ = συντελεστής, που δεν υπερβαίνει το 1, λαμβάνοντας υπόψη οποιαδήποτε εξασθένιση λόγω των συγκολλήσεων.

Το πάχος σε καμμιά περίπτωση δεν θα είναι λιγότερο από το καθοριζόμενο στις παρακάτω παραγράφους (3) μέχρι (5).

(3) Τα τοιχώματα, τα άκρα και οι πλάκες επικαλύψεως των περιβλημάτων κυκλικής διατομής όχι πάνω από 1.80μ. σε διάμετρο[2]) εκτός εκείνων που αναφέρονται στην παράγραφο (5), δεν θα είναι πάχους μικρότερου των 5 χιλ. αν είναι από μαλακό χάλυβα,[3]) ή ισότιμου πάχους αν είναι από άλλο μέταλο. Αν η διάμετρος υπερβαίνει το 1.80 $μ^2$ το πάχος αυτό θα αυξάνεται σε 6 χιλ. αν το περίβλημα είναι από μαλακό χάλυβα,[3]) ή σε ισότιμο πάχος αν το περίβλημα είναι από άλλο μέταλο. «Ισότιμο πάχος» σημαίνει το πάχος που λαμβάνεται με τον παρακάτω τύπο:

$$\varepsilon = \frac{21.4 \times \varepsilon_0}{\sqrt[3]{RM_1 \times A_1}} \quad [4])$$

(4) Όπου προβλέπεται προστασία του περιβλήματος κατά βλάβης από πλευρική πρόσκρουση ή ανατροπή, η αρμόδια αρχή μπορεί να επιτρέψει όπως το προαναφερόμενο ελάχιστο πάχος μειωθεί κατ' αναλογία προς τον παρεχόμενο βαθμό προστασίας· εντούτοις το προαναφερόμενο πάχος δεν θα είναι λιγότερο από 3 χιλ. στην περίπτωση μαλακού χάλυβα.[3]) ή από ισότιμο πάχος στην περίπτωση άλλων υλικών, για περιβλήματα διαμέτρου όχι μεγαλύτερης από 1.80 $μ^2$. Για περιβλήματα με διάμετρο που υπερβαίνει το 1.80 $μ^2$ το προαναφερόμενο ελάχιστο πάχος θα αυξάνεται σε 4 χιλ. στην περίπτωση μαλακού χάλυβα,[3]) και σε ισότιμο πάχος στην περίπτωση άλλου μετάλλου. «Ισότιμο πάχος» σημαίνει το πάχος που λαμβάνεται με τον παρακάτω τύπο:

$$\varepsilon_1 = \frac{21.4 \times \varepsilon_0}{\sqrt[3]{RM_1 \times A_1}} \quad [4])$$

ΣΗΜΕΙΩΣΗ: Τα παρακάτω μέτρα ή ισότιμα μέτρα μπορεί να υιοθετηθούν για να προστατευθεί το περίβλημα από βλάβη:

(α) Το περίβλημα μπορεί να εφοδιαστεί και στις δύο πλευρές, σε ύψος ευρισκόμενο μεταξύ της κεντρικής του γραμμής και του κάτω ημίσεος αυτού, με προστασία εναντίον πλευρικής προσκρούσεως αποτελούμενη από στρογγυλή μεταλλική δοκό επεκτεινόμενη τουλάχιστο 25 χιλ. πέρα από το ακραίο εξωτερικό σημείο του περιβλήματος. Η δοκός αυτή θα έχει τέτοια διατομή ώστε αν είναι από μαλακό χάλυβα[3]) ή από ισχυρότερο μέταλλο να έχει συντελεστή διατομής τουλάχιστο 5 CM^3, της δυνάμεως κατευθυνόμενης οριζόντια και σε ορθές γωνίες προς την κατεύθυνση της πορείας. Αν χρησιμοποιηθούν πιο αδύνατα υλικά, ο συντελεστής διατομή θα αυξάνεται αναλογικά προς τα όρια της επιμηκύνσεως. Η προστασία εναντίον της ανατροπής μπορεί να λάβει τη μορφή ενισχυτικών δακτυλίων, προστατευτικών καλυμμάτων, ή εγκάρσιων ή κατά μήκος μελών τέτοιου σχήματος ώστε σε περίπτωση ανατροπής να μη προκληθεί βλάβη στα εξαρτήματα που είναι τοποθετημένα στο πάνω μέρος του περιβλήματος.

(β) Υπάρχει επίσης προστασία:

1. όπου τα περιβλήματα είναι κατασκευασμένα με διπλα τοιχώματα, του χώρου μεταξύ αυτών έχοντος κενό αέρος. Το συνολικό πάχος του εξωτερικού μεταλλικού τοιχώματος και του τοιχώματος του περιβλήματος θα αντιστοιχεί στο ελάχιστο πάχος τοιχώματος που προβλέπεται στην παράγραφο (3). και το ελάχιστο πάχος του τοιχώματος του περιβλήματος δεν θα είναι λιγότερο από το ελάχιστο πάχος που προβλέπεται στην παράγραφο (4)·

---

[1]) Στην περίπτωση μεταλλικού φύλλου ο άξονας του τεμαχίου δοκιμής έλξεως θα είναι σε ορθές γωνίες προς την κατεύθυνση της ελάσεως. Η μόνιμη επιμήκυνση κατά τη θραύση (1-5D) θα μετράται σε τεμάχιο δοκιμής κυκλικής διατομής στο οποίο το μήκος πάχους l είναι ίσο με 5 φορές τη διάμετρο D· αν χρησιμοποιηθούν τεμάχια δοκιμής ορθογώνιας τομής, το μήκος πάχους θα υπολογίζεται με τον τύπο $l = 5.65 \sqrt{F_0}$, όπου το F_0 είναι η αρχική εγκάρσια επιφάνεια του τεμαχίου δοκιμής

[2]) Για περιβλήματα που δεν είναι κυκλικής διατομής, για παράδειγμα σχήματος κυτίου ή ελειπτικά περιβλήματα, οι εν δεικνυόμενες διάμετροι θα αντιστοιχούν με εκείνες που υπολογίζονται με βάση κυκλική διατομή της ίδιας περιοχής. Γι' αυτά τα σχήματα διατομής η ακτίνα κυρτότητας του περιβλήματος δεν θα υπερβαίνει τα 2.000 χιλ. στις πλευρές ή 3.000 χιλ. στην κορυφή και τον πυθμένα.

[3]) «Μαλακός χάλυβας» σημαίνει χάλυβα που έχει ελάχιστη αντοχή θραύσεως μεταξύ 360 και 440 N/MM^2.

[4]) Ο τύπος αυτός προέρχεται από το γενικό τύπο

$$\varepsilon_1 = \varepsilon_0 \sqrt[3]{\frac{RM_0 \times A_0}{RM_1 \times A_1}}$$

όπου RM_0 = 360

A_0 = 27 για το μαλακό χάλυβα αναφοράς·

RM_1 = ελάχιστη τάση έλξεως του επιλεγέντος μετάλλου, σε N/MM^2· και

A_1 = ελάχιστη επιμήκυνση του επιλεγέντος μετάλλου κατά τη θραύση υπό τάση έλξεως σε ποσοστά επί τοις εκατό.

2. όπου τα περιβλήματα είναι κατασκευασμένα με διπλά τοιχώματα με ενδιάμεσο στρώμα στερεών υλικών πάχους τουλάχιστον 50 χιλ., του εξωτερικού τοιχώματος έχοντος πάχος τουλάχιστο 0.5 χιλ. αν είναι κατασκευασμένο από μαλακό χάλυβα[3]/ και τουλάχιστο 2 χιλ. αν είναι κατασκευασμένο από πλαστικό υλικό ενισχυμένο με υαλοβάμβακα. Μπορεί να χρησιμοποιηθεί στερεός αφρός (αφρολέξ) με απορρόφηση προσκρούσεως ίδια για παράδειγμα με εκείνη της πολυουρεθάνης) σαν ενδιάμεσο στρώμα στερεού υλικού.

(γ) Δια την πίσω προστασία οχημάτων που μεταφέρουν σταθερές ή αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων, βλέπε το περιθωριακό 10 220.

(5) Το πάχος των περιβλημάτων των δεξαμενών που είναι σχεδιασμένες σύμφωνα με το περιθωριακό 211 123 (1) οι οποίες είτε δεν έχουν χωρητικότητα μεγαλύτερη από τα 5,000 λίτρα είτε είναι χωρισμένες σε στεγανά διαμερίσματα όχι πάνω από 5,000 λίτρα χωρητικότητας μονάδας μπορούν να προσαρμοστούν σε ένα επίπεδο το οποίο εκτός αν προβλέπεται διαφορετικά στις διάφορες Κατηγορίες, δεν θα είναι εντούτοις μικρότερη από την κατάλληλη τιμή που εμφανίζεται στον παρακάτω πίνακα:

Ανώτατη ακτίνα καμπύλης του περιβλήματος (μ) (μ)	Χωρητικότητα Περιβλήματος ή διαμερίσματος περιβλήματος ($μ^3$)	Ελάχιστο πάχος (χιλ.)
⩽2	⩽5.0	3
2-3	⩽3.5	3
	⩾3.5 αλλά ⩽5.0	4

Όπου χρησιμοποιείται μέταλλο άλλο εκτός από το μαλακό χάλυβα, το πάχος θα καθορίζεται από τον τύπο ισοτιμίας που δίνεται στην παράγραφο (3). Το πάχος των χωρισμάτων και των πλακών διακυμάνσεως σε καμμία περίπτωση δεν θα είναι μικρότερο από εκείνο του περιβλήματος.

(6) Οι πλάκες διακυμάνσεως και τα χωρίσματα θα είναι κυρτωμένα, με βάθος κυρτώματος όχι μικρότερου από 10 εκ., ή θα είναι αυλακωτά, φρεζαρισμένα ή διαφορετικά ενισχυμένα για να παρέχουν ανάλογη αντοχή. Ο χώρος της πλάκας διακυμάνσεως θα είναι τουλάχιστο 70 στα εκατό της εγκάρσιας περιοχής της δεξαμενής στην οποία είναι τοποθετημένη η πλάκα διακυμάνσεως.

(7) Η ικανότητα του κατασκευαστή για τη διενέργεια εργασιών συγκολλήσεως θα είναι αναγνωρισμένη από την αρμόδια αρχή. Η συγκόλληση θα γίνεται από έμπειρους και ικανούς συγκολλητές που χρησιμοποιούν διαδικασία συγκολλήσεως της οποίας η αποτελεσματικότητα (περιλαμβανομένων οποιωνδήποτε θερμάνσεων) έχει επιδειχθεί με δοκιμή. Θα διεξαχθούν μη καταστρεπτικές δοκιμές με ραδιογραφία ή με υπερήχους και πρέπει να επιβεβαιώσουν ότι η ποιότητα της συγκολλήσεως είναι η ενδεικνυόμενη για τις πιέσεις.

Για τον καθορισμό του πάχους του περιβλήματος σύμφωνα με την παράγραφο (2), πρέπει να υιοθετηθούν για τις συγκολλήσεις οι παρακάτω τιμές του συντελεστή λάμβδα (λ):
όπου οι λωρίδες συγκολλήσεως φαίνονται όσο είναι δυνατόν οπτικά και από τις δύο πλευρές και υποβάλλονται σε μη καταστρεπτικό έλεγχο με ειδική προσοχή στις ενώσεις· 0.8
όπου όλες οι κατά μήκος λωρίδες σε όλο το μήκος τους, όλες οι ενώσεις, 25 στα εκατό των κυκλικών λωρίδων, και οι κολλήσεις για τη συναρμολόγηση ειδών εξοπλισμού μεγάλης διαμέτρου υποβάλλονται σε μη καταστρεπτικούς ελέγχους. Οι λωρίδες θα ελέγχονται οπτικά και από τις δύο πλευρές όσο αυτό είναι δυνατό· 0.9
όπου όλες οι λωρίδες θα υποβάλλονται σε μη καταστρεπτικούς ελέγχους και ελέγχονται όσο αυτό ειναι δυνατόν οπτικά και από τις δύο πλευρές. Θα αφαιρεθεί ένα τεμάχιο δοκιμής συγκολλήσεως. 1.0

Όπου η αρμόδια αρχή έχει αμφιβολίες σχετικά με την ποιότητα των λωρίδων συγκολλήσεως, μπορεί να απαιτήσεις πρόσθετους ελέγχους.

(8) Θα λαμβάνονται μέτρα για την προστασία των περιβλημάτων κατά του κινδύνου παραμορφώσεως σαν αποτέλεσμα αρνητικής εσωτερικής πιέσεως.

(9) Η θερμική μόνωση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε να μη εμποδίζει την πρόσβαση ή τη λειτουργία πληρώσεως και κενώσεως των αντίστοιχων συσκευών και βαλβίδων ασφαλείας.

Ευστάθεια

Το συνολικό πλάτος της επιφανείας του εδάφους (η απόσταση μεταξύ των εξωτερικών σημείων επαφής με το έδαφος του δεξιού τροχού και του αριστερού τροχού του ίδιου άξονα) θα είναι τουλάχιστο ίσο με το 90 στα εκατό του ύψους του κέντρου βαρύτητας του φορτωμένου δεξαμενο-οχήματος. Σε αρθρωτό όχημα το βάρος πάνω στους άξονες της μεταφέρουσας το φορτίο μονάδας του φορτωμένου ημισυρόμενου οχήματος δεν θα υπερβαίνει το 60 στα εκατό του ονομαστικού συνολικού φορτωμένου βάρους ολόκληρου του αρθρωτού οχήματος. 211 128

Παράγραφος 3: Είδη του εξοπλισμού

Τα είδη του εξοπλισμού, όπου και αν βρίσκονται, θα είναι τακτοποιημένα κατά τρόπο ώστε να προστατεύονται κατά του κινδύνου βίαιης αποστάσεως ή να υποστούν βλάβη στη διάρκεια της μεταφοράς ή του χειρισμού. Θα έχουν ένα βαθμό ασφαλείας προσαρμοσμένο και συγκρινόμενο με εκείνο των ίδιων των περιβλημάτων και ειδικότερα: 211 130

– Θα ταιριάζουν με τις μεταφερόμενες ουσίες· και

– Θα ανταποκρίνονται στις απαιτήσεις του περιθωριακού 211 121.

Όσο το δυνατό περισσότερα μέρη θα εξυπηρετούνται από το μικρότερο δυνατό αριθμό ανοιγμάτων στο τοίχωμα του περιβλήματος.

Η στεγανότητα των ειδών του εξοπλισμού θα εξασφαλίζεται ακόμη και στην περίπτωση ανατροπής του οχήματος.

Τα παρεμβύσματα (φλάντζες) θα είναι κατασκευασμένα από υλικό που ταιριάζει στη μεταφερόμενη ουσία και θα αντικαθίστανται μόλις η αποτελεσματικότητά τους μειωθεί, για παράδειγμα σαν αποτέλεσμα γηρασμού.

Τα παρεμβύσματα που εξασφαλίζουν τη στεγανότητα των λειτουργούντων μερών που χρειάζεται χειρισμού στη διάρκεια της κανονικής χρήσεως του οχήματος θα είναι σχεδιασμένα κατά τέτοιο τρόπο και τοποθετημένα ώστε ο χειρισμός του λειτουργούντος μέρους στο οποίο είναι ενσωματωμένα να μη τους προκαλεί βλάβη.

Κάθε περίβλημα που κενώνεται από τον πυθμένα και στην περίπτωση περιβλημάτων με διαμερίσματα που κενώνονται από τον πυθμένα κάθε διαμέρισμα, θα είναι εφοδιασμένα με δύο αμοιβαία ανεξάρτητες δικλείδες, η πρώτη από τις οποίες θα είναι εσωτερική βαλβίδα κλεισίματος[5]/ στερεωμένη απευθείας στη δεξαμενή και η δεύτερη θα είναι βαλβίδα εκροής ή άλλη ισότιμη συσκευή, τοποθετημένη σε σειρά, σε κάθε άκρο του σωλήνα κενώσεως. Επί πλεόν, τα ανοίγματα των περιβλημάτων θα είναι σε θέση να κλείνονται με πώματα βιδωτά, τυφλές φλάντζες ή άλλες εξίσου αποτελεσματικές συσκευές. Η εσωτερική δικλείδα θα κινείται από πάνω ή από κάτω. Αν είναι δυνατό, η ρύθμιση – ανοικτή ή κλειστή– της εσωτερικής δικλείδα θα μπορεί να ελεγχθεί από το έδαφος και στις δύο περιπτώσεις. Τα συστήματα χειρισμού της εσωτερικής δικλείδας θα είναι σχεδιασμένα κατά τέτοιο τρόπο ώστε να αποφεύγεται οποιοδήποτε ακούσιο άνοιγμα λόγω προσκρούσεως ή ανεπάντεχης ενέργειας. Η εσωτερική δικλείδα κλεισίματος πρέπει να εξακολουθεί να είναι αποτελεσματική σε περίπτωση βλάβης του εξωτερικού συστήματος χειρισμού. 211 131

Η θέση ή/ και η κατεύθυνση κλεισίματος των δικλείδων πρέπει να φαίνονται καθαρά.

Για να αποφευχθεί οποιαδήποτε απώλεια περιεχόμενου στην περίπτωση βλάβης των εξωτερικών εξαρτημάτων πλη-

[5]/ Εκτός όπως μπορεί να προβλεφθεί διαφορετικά στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά ορισμένων κρυσταλοποιούμενων ή παχύρευστων ουσιών, βαθείας καταψύξεως υγροποιημένα αέρια ή ουσιών σε μορφή σκόνης ή κόκκων.

ρώσεως και κενώσεως (σωλήνων, πλευρικών συσκευών κλεισίματος), η εσωτερική βαλβίδα κλεισίματος και η έδρα της θα προστατεύονται από τον κίνδυνο βίαιης απόσπασης από εξωτερικές πιέσεις ήθα είναι σχεδιασμένες κατά τρόπο ώστε να τις αντέχουν. Οι συσκευές πληρώσεως και κενώσεως (περιλαμβανομένων των παρενθεμάτων ή των ασφαλιστικών βυσμάτων με σπείρωμα) και τα προστατευτικά πώματα (αν υπάρχουν) θα είναι σε θέση να ασφαλίζονται κατά του κινδύνου αιφνίδιου ανοίγματος.

Το περίβλημα ή κάθε ένα από τα διαμερίσματά του θα έχουν άνοιγμα αρκετά μεγάλο ώστε να μπορεί να γίνει επιθεώρηση.

211 132 Περιβλήματα που προορίζονται για τη μεταφορά υγρών ουσιών για τις οποίες όλα τα ανοίγματα βρίσκονται πάνω από τη στάθμη του υγρού μπορεί να είναι εφοδιασμένα, στο κάτω τμήμα του αμαξώματος, με άνοιγμα καθαρισμού. Το άνοιγμα αυτό πρέπει να μπορεί να σφραγίζεται με φλάντζα τόσο κλειστή ώστε να είναι στεγανή και το σχέδιο της οποίας πρέπει να εγκριθεί από την αρμόδια αρχή ή από υπηρεσία υποδεικνυόμενη από αυτή την αρχή.

211 133 Περιβλήματα προοριζόμενα για τη μεταφορά υγρών που έχουν πίεση αερίων όχι πάνω από 11 KPa (1.1 μπαρ) (απόλυτη) στους 50°K θα έχουν σύστημα αερισμού και συσκευή ασφαλείας για να εμποδίζουν το χύσιμο του περιεχόμενου αν το περίβλημα ανατραπεί· διαφορετικά πρέπει να είναι σύμφωνα με τις απαιτήσεις των περιθωριακών 211 134 ή 211 135.

211 134 Περιβλήματα προοριζόμενα για τη μεταφορά υγρών που έχουν πίεση αερίων όχι μικρότερη από 110 KPa (1.1 μπαρ) και όχι μεγαλύτερη από 175 KPa (1.75 μπαρ) (απόλυτη) στους 50°K θα έχουν βαλβίδα ασφαλείας ρυθμισμένη σε όχι λιγότερο από 0.15 MPa (1.5 μπαρ) πίεση μετρητή και η οποία πρέπει να είναι τελείως ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής· διαφορετικά πρέπει να είναι σύμφωνα με τις απαιτήσεις του περιθωριακού 211 135.

211 135 Περιβλήματα προοριζόμενα για τη μεταφορά υγρών που έχουν πίεση ατμών όχι μικρότερη από 175 KPa (1.75 μπαρ) και όχι πάνω από 300 KPa (3 μπαρ) (απόλυτη) στους 50°K θα έχουν βαλβίδα ρυθμισμένη σε πίεση μετρητή όχι μικρότερη από 0.3 ΜΠα (3 μπαρ) και η οποία πρέπει να είναι τελείως ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής· διαφορετικά πρέπει να είναι ερμητικά κλεισμένα.[6]/

211 136 Κανένα κινούμενο μέρος όπως καλύμματα, πώματα κ.λπ., τα οποία μπορεί να έλθουν σε τριβική ή κρουστική επαφή με περιβλήματα από αλουμίνιο που προορίζονται για τη μεταφορά εύφλεκτων υγρών που έχουν σημείο αναφλέξεως τους 55°K ή λιγότερο ή για τη μεταφορά εύφλεκτων αερίων δεν μπορεί να είναι κατασκευασμένο από απροστάτευτο οξειδούμενο χάλυβα.

211 137
Παράγραφος 4: Έγκριση τύπου 211 139

211 140 Η αρμόδια αρχή ή υπηρεσία υποδεικνυόμενη από αυτή την αρμόδια αρχή θα εκδίδει σε σχέση με κάθε νέο τύπο δεξαμενής πιστοποιητικό που θα πιστοποιεί ότι η πρότυπη δεξαμενή, περιλαμβανόμενων των προσδέσεων του περιβλήματος που επιθεώρησε, είναι κατάλληλη για το σκοπό για τον οποίο προορίζεται και ανταποκρίνεται στις κατασκευαστικές απαιτήσεις της Παραγράφου 2, τις περί εξοπλισμού απαιτήσεις της Παραγράφου 3 και τους ειδικούς όρους για τις Κατηγορίες των μεταφερόμενων ουσιών.

Τα αποτελέσματα των δοκιμών, οι ουσίες ή/και οι ομάδες ουσιών για τη μεταφορά των οποίων έχει εγκριθεί η δεξαμενή και ο αριθμός εγκρίσεως τύπου θα καταχωρούνται σε έκθεση δοκιμής. Οι ουσίες ομάδας ουσιών θα είναι παρόμοιου είδους και εξίσου συμπίπτουσες με τα χαρακτηριστικά του περιβλήματος. Οι επιτρεπόμενες ουσίες ή ομάδες ουσιών θα καθορίζονται στην έκθεση δοκιμής, με τα χημικά τους ονόματα ή με την αντίστοιχη συλλογική επικεφαλίδα στον πίνακα ουσιών και ο αριθμός Κατηγορίας και είδους αυτών.

Η έγκριση αυτή θα ισχύει για δεξαμενές που κατασκευάζονται σύμφωνα με αυτό το πρότυπο χωρίς τροποποίηση.

211 141
Παράγραφος 5: Δοκιμές 211 149

211 150 Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται είτε μαζί είτε χωριστά σε αρχική επιθεώρηση πριν τεθούν σε υπηρεσία. Η επιθεώρηση αυτή θα περιλαμβάνει έλεγχο συμφωνίας προς το εγκριμένο πρότυπο, έλεγχο των χαρακτηριστικών σχεδίου,[7]/ εξωτερική και εσωτερική εξέταση, δοκιμή υδραυλικής πιέσεως[8]/ στην πίεση δοκιμής που αναφέρεται στην πινακίδα στοιχείων και έλεγχο ικανοποιητικής λειτουργίας του εξοπλισμού.

Το τεστ υδραυλικής πιέσεως θα γίνεται πριν από την εγκατάσταση της αναγκαίας θερμικής μονώσεως. Αν τα περιβλήματα και ο εξοπλισμός τους δοκιμαστούν χωριστά θα υποβληθούν από κοινού σε τεστ στεγανότητας μετά τη συναρμολόγηση.

211 151 Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται σε περιοδικές επιθεωρήσεις σε τακτά χρονικά διαστήματα. Οι περιοδικές επιθεωρήσεις θα περιλαμβάνουν: εξωτερική και εσωτερική εξέταση και, σαν γενικό κανόνα, τέστ υδραυλικής πιέσεως.[8]/ Η επένδυση για θερμική ή άλλη μόνωση θα αφαιρείται μόνο στην έκταση που απαιτείται για αξιόπιστη εκτίμηση των χαρακτηριστικών του περιβλήματος.

Στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά κονιωδών ή κοκκωδών ουσιών και με το σύμφωνο αρχή, οι περιοδικές δοκιμές υδραυλικής πιέσεως μπορούν να παραλειφθούν και να αντικατασταθούν από δοκιμές στεγανότητας σύμφωνα με το περιθωριακό αριθ. 211 202 (3)

Τα ανώτατα διαστήματα για επιθεωρήσεις θα είναι τα έξη χρόνια.

211 152 Επί πλέον, δοκιμή στεγανότητας του περιβλήματος με τον εξοπλισμό του και έλεγχος της ικανοποιητικής λειτουργίας όλου του εξοπλισμού θα γίνονται τουλάχιστον κάθε τρία χρόνια.

211 153 Όταν η ασφάλεια του περιβλήματος ή του εξοπλισμού του μπορεί να έχει μειωθεί σαν αποτέλεσμα επισκευών, μετατροπών ή ατυχήματος, θα διενεργείται ένας εξαιρετικός έλεγχος.

211 154 Οι δοκιμές, επιθεωρήσεις και έλεγχοι σύμφωνα με τα περιθωριακά 211 150 μέχρι 211 153 θα διενεργούνται από τον ειδικό που έχει εγκριθεί από την αρμόδια αρχή. Θα εκδίδονται πιστοποιητικά που θα δείχνουν τα αποτελέσματα αυτών των ενεργειών.

211 155
-211 159

Παράγραφος 6: Σήμανση

211 160 Κάθε περίβλημα θα είναι εφοδιασμένο με μεταλλική πλάκα ανθεκτική στην οξείδωση σε θέση τέτοια ώστε να μπορεί εύκολα να γίνει η επιθεώρησή της. Τουλάχιστο τα παρακάτω στοιχεία θα είναι γραμμένα πάνω στην πινακίδα αυτή με σφραγίδα ή με οποιοδήποτε άλλη μέθοδος. Τα στοιχεία αυτά μπορεί να χαραχθούν απευθείας πάνω στο ίδιο το περίβλημα, αν τα τοιχώματα είναι ενισχυμένα κατά τρόπο ώστε να μη μειώνεται η αντοχή του περιβλήματος:

- αριθμός εγκρίσεως·
- επωνυμία ή σήμα του κατασκευαστή·
- αύξ. αριθμός του κατασκευαστή·

---

[6]/ «Ερμητικά κλεισμένα περιβλήματα» σημαίνει περιβλήματα των οποίων τα ανοίγματα είναι ερμητικά κλεισμένα και τα οποία δεν είναι εφοδιασμένα με βαλβίδες ασφαλείας, εύθραυστο δίσκο ή άλλες παρόμοιες συσκευές ασφαλείας. Περιβλήματα που προ της βαλβίδας ασφαλείας έχουν εύθραυστο δίσκο θα θεωρούνται σαν ερμητικά κλεισμένα.

[7]/ Ο έλεγχος των χαρακτηριστικών σχεδίου θα περιλαμβάνει επίσης, για περιβλήματα που απαιτούν δοκιμή πιέσεως 1 MPa (10 μπαρ) ή μεγαλύτερης, έλεγχο δειγμάτων τεμαχίων συγκολλήσεως και τις δοκιμές που προβλέπονται στο Παράρτημα β. 18.

[8]/ Σε ειδικές περιπτώσεις και με τη σύμφωνη γνώμη του ειδικού που έχει εγκριθεί από την αρμόδια αρχή, η δοκιμή υδραυλικής πιέσεως μπορεί να αντικατασταθεί από τεστ πιέσεως χρησιμοποιώντας άλλο υγρό ή αέριο, όπου μια τέτοια εργασία δεν παρουσιάζει οποιονδήποτε κίνδυνο.

– έτος κατασκευής·
– πίεση δοκιμής σε MPa ή μπαρ (πίεση μετρητή)
– χωρητικότητα σε λίτρα – σε περίπτωση περιβλημάτων με πολλαπλά στοιχεία, η χωρητικότητα κάθε στοιχείου·
– θερμοκρασία σχεδιασμού (μόνο αν είναι πάνω από +50°K ή κάτω από –20°K).
– την ημερομηνία (μήνα και έτος) της αρχικής δοκιμής και της πλέον πρόσφατης περιοδικής δοκιμής σύμφωνα με τα περιθωριακά 211 150 και 211 151, και
– σφραγίδα του ειδικού που έκανε τις δοκιμές.

Επί πλέον, η ανώτατη επιτρεπόμενη πίεση λειτουργίας θα αναγράφεται σε περιβλήματα που γεμίζονται ή κενώνονται με πίεση.

Στο ίδιο το δεξαμενο-αυτοκίνητο θα αναγράφονται τα παρακάτω στοιχεία ή πάνω σε πινακίδα. Αυτά τα στοιχεία δεν θα χρειάζονται σε περίπτωση οχήματος που φέρει αποσυναρμολογούμενες δεξαμενές: 211 161

– όνομα του οδηγού·
– απόβαρο· και
– επιτρεπόμενο ανώτατο βάρος.

Επί πλέον, τα δεξαμενο-αυτοκίνητα θα φέρουν τις προβλεπόμενες ετικέττες κινδύνου

211 162
211 169

Παράγραφος 7: Λειτουργία

Το πάχος των τοιχωμάτων του περιβλήματος, σε όλη της διάρκειας της χρήσεώς του, δεν πέφτουν κάτω από τον κατώτερο αριθμό που προβλέπεται στο περιθωριακό 211 127 (2). 211 170

Τα περιβλήματα δεν θα φορτώνονται με οποιεσδήποτε επικίνδυνες ουσίες εκτός από εκείνες για τις οποίες έχουν εγκριθεί. Τρόφιμα δεν μπορεί να μεταφερθούν σ' αυτά τα περιβλήματα εκτός αν έχουν ληφθεί όλα τα αναγκαία μέτρα για να αποτραπεί οποιοσδήποτε κίνδυνος για τη δημόσια υγεία 211 171

(1) Οι παρακάτω βαθμοί πληρώσεως δεν θα υπερβαίνονται σε περιβλήματα που προορίζονται για τη μεταφορά υγρών σε θερμοκρασίες περιβάλλοντος: 211 172

(α) για εύφλεκτες ουσίες χωρίς πρόσθετους κινδύνους (π.χ. τοξικές ή οξειδωτικές), σε περιβλήματα με σύστημα αερισμού και με ή χωρίς βαλβίδες ασφαλείας ακόμη και όταν προηγούνται από ασφαλιστικό δίσκο:

$$\text{βαθμός πληρώσεως} = \frac{100}{1 + \alpha(50\text{-}\tau_f)} \text{ ή } \frac{100}{1 + 35\alpha} - 0/0$$

της χωρητικότητας·

(β) για τοξικές ή οξειδωτικές ουσίες, εύφλεκτες ή όχι, σε περιβλήματα με σύστημα αερισμού και με ή χωρίς βαλβίδας ασφαλείας ακόμη και όταν προηγείται ασφαλιστικός δίσκος:

$$\text{βαθμός πληρώσεως} = \frac{98}{1 + \alpha(50\text{-}\tau_f)} \text{ ή } \frac{98}{1 + 35\alpha} 0/0$$

της χωρητικότητας·

(γ) για εύφλεκτες, βλαβερές και ελαφρά οξειδωτικές ουσίες σε ερμητικά κλειστά περιβλήματα, Γ:

$$\text{βαθμός πληρώσεως} = \frac{97}{1 + \alpha(50\text{-}\tau_f)} \text{ ή } \frac{97}{1 + 35\alpha} 0/0$$

της χωρητικότητας·

(δ) για πολύ τοξικές, τοξικές, πολύ οξειδωτικές ή οξειδωτικές ουσίες σε ερμητικά κλειστά περιβλήματα: 6:

$$\text{βαθμός πληρώσεως} = \frac{95}{1 + \alpha(50\text{-}\tau_f)} \text{ ή } \frac{95}{1 + 35\alpha} - 0/0$$

της χωρητικότητας·

(2) Σ' αυτούς τους τύπους, το α' αντιπροσωπεύει το μέσο συντελεστή κυβικής διαστολής του υγρού μεταξύ 15° και 50° K, δηλ. για ανώτατη μεταβολή θερμοκρασίας 35°K.

το α υπολογίζεται με τον τύπο $\alpha = \frac{D_{15} - D_{50}}{35 \times D_{50}}$

όπου το D_{15} και το D_{50} είναι οι σχετικές πυκνότητες του υγρού στους 15°K και τους 50°K αντίστοιχα και το τ_f είναι η μέση θερμοκρασία του υγρού κατά τον χρόνο της πληρώσεως.

(3) Οι διατάξεις της παραγράφου (1) παραπάνω δεν θα έχουν εφαρμογή για περιβλήματα των οποίων το περιεχόμενο, μέσον θερμαντικής συσκευής, διατηρείται σε θερμοκρασία πάνω από 50°K κατά τη διάρκεια της μεταφοράς. Στην περίπτωση αυτή ο βαθμός πληρώσεως κατ' αρχήν θα είναι τέτοιος, η δε θερμοκρασία ρυθμισμένη κατά τέτοιο τρόπο ώστε το περίβλημα να μην είναι γεμάτο περισσότερο από 95 στα εκατό της χωρητικότητάς του σε οποιαδήποτε στιγμή στη διάρκεια της μεταφοράς, και να μην υπάρχει υπέρβαση της θερμοκρασίας πληρώσεως.

(4) Όπου φορτώνονται θερμές ουσίες, η θερμοκρασία της εξωτερικής επιφανείας του περιβλήματος ή της θερμικής μονώσεως δεν θα υπερβαίνει τους 70° στη διάρκεια της μεταφοράς.

Όπου τα περιβλήματα που προορίζονται για τη μεταφορά υγρών 9) δεν χωρίζονται με χωρίσματα ή πλάκες διακυμάνσεως σε διαμερίσματα όχι μεγαλύτερα των 7.500 λίτρων, θα γεμίζονται με όχι (περισσότερο..... διαγράφεται μία λέξη) λιγότερο του 80 στα εκατό της χωρητικότητάς τους εκτός αν είναι ουσιαστικά κενά. 211 173

Τα περιβλήματα θα κλείνονται με τέτοιο τρόπο ώστε το περιεχόμενο να μη μπορεί να χυθεί ανεξέλεγκτα. Το άνοιγμα των περιβλημάτων κενώσεως από τον πυθμένα θα κλείνονται με βύσματα με βίδα, παρεμβάσματα ή άλλες εξίσου αποτελεσματικές συσκευές. Η στεγανότητα των συστημάτων κλεισίματος του περιβλήματος, ειδικότερα στο πάνω μέρος του σίφωνα, θα ελέγχονται από τον αποστολέα μετά την πλήρωση του περιβλήματος. 211 174

Όπου υπάρχουν σε σειρά πολλά συστήματα κλεισίματος εκείνο που είναι πιο κοντά στη μεταφερόμενη ουσία θα κλείνεται πρώτο. 211 175

Θα καταβάλλεται φροντίδα ώστε να μην υπάρχει κολλημένο κατάλοιπο επικίνδυνης ουσίας στο εξωτερικό των περιβλημάτων στη διάρκεια της μεταφοράς, είτε είναι γεμάτα είτε άδεια. 211 176

Για να γίνουν αποδεκτά για μεταφορά, τα κενά περιβλήματα, ακαθάριστα, πρέπει να είναι κλειστά κατά τον ίδιο τρόπο και στεγανά στον ίδιο βαθμό σαν να ήταν γεμάτα. 211 177

Οι σωληνώσεις συνδέσεως μεταξύ ανεξάρτητων αλλά διασυνδεμένων περιβλημάτων μιας μεταφορικής μονάδας θα είναι άδειες στη διάρκεια της μεταφοράς. Οι εύκαμπτοι σωλήνες πληρώσεως και εκφορτώσεως που δεν είναι μόνιμα συνδεμένοι με το περίβλημα θα είναι άδειοι κατά τη διάρκεια της μεταφοράς. 211 178

211 179

Παράγραφος 8: Μεταβατικά μέτρα

Σταθερές δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που έχουν κατασκευαστεί πριν από την 1η Οκτωβρίου 1978 και δεν ανταποκρίνονται στις απαιτήσεις του παρόντος Παραρτήματος μπορούν, αν είχαν κατασκευαστεί σύμφων με τις απαιτήσεις του ADR, να χρησιμοποιηθούν επί χρονικό διάστημα έξι ετών από την 1η Οκτωβρίου 1978. Σταθερές δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που προορίζονται για τη μεταφορά αερίων της Κατηγορίας 2 μπορούν εντούτοις να χρησιμοποιηθούν επί 12 χρόνια από την ίδια ημερομηνία αν καλύπτονται οι απαιτήσεις των περιοδικών δοκιμών. 211 180

Στη λήξη αυτής της περιόδου οι παραπάνω μονάδες μπορούν να διατηρηθούν σε υπηρεσία αν ο εξοπλισμός του περιβλήματος καλύπτει τις παρούσες προϋποθέσεις. Το πάχος του τοιχώματος του περιβλήματος, εκτός από την περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά αερίων των κατηγοριών 2, 7° και 8°, θα είναι κατάλληλο για 211 181

9/ Σύμφωνα με την παρούσα διάταξη, ουσίες των οποίων το κινηματικό ιξώδες στους 20°K είναι κάτω από 25 CM^2/S θα θεωρούνται ότι είναι υγρά.

πίεση υπολογισμού όχι μικρότερη από 0,4 MPa (4 μπάρ) (πίεση μετρητή) στην περίπτωση μαλακού χάλυβα και όχι μικρότερη από 0.2 MPa (2 μπάρ) (πίεση μετρητή) στην περίπτωση αλουμινίου και μιγμάτων αλουμινίου. Για άλλες εκτός από κυκλικές διατομές των δεξαμενών, η διάμετρος που θα χρησιμοποιηθεί σαν βάση υπολογισμού θα είναι εκείνη κύκλου του οποίου η επιφάνεια είναι ίση με εκείνη της πραγματικής διατομής της δεξαμενής.

Οι περιοδικές δοκιμές για σταθερές δεξαμενές, (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που διατηρούνται σε υπηρεσία κάτω από αυτές τις μεταβατικές διατάξεις θα διεξάγονται σύμφωνα με τις διατάξεις της Παραγράφου 5 και με τις σχετικές ειδικές διατάξεις για τις διάφορες Κατηγορίες. Εκτός αν προηγούμενες διατάξεις προέβλεπαν μεγαλύτερη πίεση δοκιμής, μια πίεση δοκιμής 0.2 MPa (2 μπάρ) (πίεση μετρητή) θα είναι αρκετή για περιβλήματα από αλουμίνιο ή από μίγματα από αλουμίνιο. 211 182

Σταθερές δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που ανταποκρίνονται στις μεταβατικές διατάξεις μπορούν να χρησιμοποιηθούν για ένα χρονικό διάστημα 15 ετών από την 1η Οκτωβρίου 1978 για τη μεταφορά των επικίνδυνων εμπορευμάτων για τα οποία έχουν εγκριθεί. 211 183

Η μεταβατική αυτή περίοδος δεν θα έχει εφαρμογή για σταθερές δεξαμενές και συστοιχίες δοχείων που προορίζονται για τη μεταφορά ουσιών της Κατηγορίας 2, ή σταθερές δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων των οποίων το πάχος του τοιχώματος και τα είδη του εξοπλισμού ανταποκρίνονται στις απαιτήσεις του παρόντος Παραρτήματος

Σταθερές δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που κατασκευάστηκαν πριν από την 1η Μαΐου 1985 σύμφωνα με τις απαιτήσεις του ADR που ίσχυε μεταξύ 1ης Οκτωβρίου 1978 και 30ης Απριλίου 1985 αλλά δεν είναι σύμφωνες με τις διατάξεις που έχουν εφαρμογή από την1η Μαΐου 1985 μπορεί να συνεχίσουν να χρησιμοποιούνται μετά από εκείνη την ημερομηνία. 211 184

211 185
Παράρτημα Β.1α -211 199

ΜΕΡΟΣ ΙΙ: ΕΙΔΙΚΕΣ ΑΠΑΙΤΗΣΕΙΣ ΠΟΥ ΣΥΜΠΛΗΡΩΝΟΥΝ Η ΤΡΟΠΟΠΟΙΗΣΗ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΤΟΥ ΜΕΡΟΥΣ Ι

Κατηγορία 2: Αέρια, συμπιεσμένα, υγροποιημένα ή λυωμένα υπό πίεση

211 200
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενών) ορισμοί -211 209

Χρήση

Αέρια της Κατηγορίας 2 εκτός από εκείνα που αναγράφονται παρακάτω μπορεί να μεταφέρονται σε σταθερές δεξαμενές, σε αποσυναρμολογούμενες δεξαμενές ή σε συστοιχίες δοχείων: FLUORIDE και SILICON TETRAFLUORIDE του 1° (ατ)· νιτρικό οξύ του 1° (CT)· μίγματα υδρογόνου με όχι περισσότερο από 10 στα εκατό HYDROGEN SELENIDE ή PHOSPHINE ή SILANE ή GERMANE κατ' όγκο ή με όχι περισσότερο από 15 στα εκατό ARSINE κατ' όγκο· μίγματα αζώτου ή σπανίων αερίων (που περιέχουν όχι περισσότερο από 10 στα εκατό ξένον κατ' όγκο) με όχι περισσότερο από 10 στα εκατό HYDROGEN SELENIDE ή PHOSPHINE ή SILANE ή GERMANE κατ' όγκο ή με όχι περισσότερο από 15 στα εκατό ARSINE κατ' όγκο του 2° (BT)· μίγματα υδρογόνου με όχι περισσότερο από 10 στα εκατό DIBORANE κατ' όγκο· μίγματα αζώτου ή σπανίων αερίων (που περιέχουν όχι περισσότερο από 10 στα εκατό ξένον κατ' όγκο) με όχι περισσότερο από 10 στα εκατό DIBORANE κατ' όγκο του 2° (CT), BORON CHLORIDE, CHLORINE TRIFLUORIDE, NITROSYL CHLORIDE, SULPHURYL FLUORIDE και TUNGSTEN HEXAFLUORIDE του 3° (AT)· METHYLSILANE του 3° του 3° (β)· ARSINE, DICHLOROSILANE, DIMETHYLSILANE, HYDROGEN SELENIDE και TRIMETHYLSILANE του 3° (BT) CYANOGEN, CYANOGEN CHLORIDE και ETHYLENE OXIDE του 3° (CT) μίγματα METHYLSILANES του 4° (BT) ETHYLENE OXIDE που περιέχει όχι περισσότερο από 50 στα εκατό METHYL FORMATE κατά μάζα του 4° (CT) SILLANE του 5°(β)· ουσίες του 5° (BT) και (CT)· διαλυμένη ασετυλίνη του 9°(γ)· αέρια του 12° και 13°. 211 182

211 211
211 219

Παράγραφος 2: Κατασκευή

Περιβλήματα που προορίζονται για τη μεταφορά ουσιών του 1° μέχρι 6° και του 9° θα είναι κατασκευασμένα από χάλυβα. Κατά παρέκκλιση από το περιθωριακό 211 125 (3), μπορεί να γίνει αποδεκτή ελάχιστη επιμήκυνση στη θραύση 14 στην περίπτωση περιβλημάτων χωρίς συγκόλληση. 211 220

Οι προϋποθέσεις του Παραρτήματος Β.1δ θα έχουν εφαρμογή στα υλικά και την κατασκευή των συγκολλημένων περιβλημάτων. 211 221

Περιβλήματα προοριζόμενα για τη μεταφορά χλωρίνης και φωσγένιου του 3° (ατ) θα είναι σχεδιασμένα για πίεση τουλάχιστον 2.2 MPa (22 μπάρ) (πίεση μετρητή).

211 222
Παράγραφος 3: Είδη εξοπλισμού -211 229

Οι σωλήνες κενώσεως των περιβλημάτων θα είναι σε θέση να κλείνονται όχι μόνο με τις συσκευές που προβλέπονται στο περιθωριακό 211 131 αλλά επί πλέον με κλειστή φλάντζα ή κάποια άλλη το ίδιο αξιόπιστη συσκευή. 211 230

Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων μπορεί, εκτός από τα ανοίγματα που περιγράφονται στο περιθωριακό 211 131, να είναι εφοδιασμένα με ανοίγματα για την τοποθέτηση μετρητών, περιλαμβανόμενων των μετρητών πιέσεως, και θερμομέτρων και ανοιγμάτων αποστραγγίσεως, όπως απαιτείται για τη λειτουργία και την ασφάλεια αυτών. 211 231

Οι συσκευές ασφαλείας θα καλύπτουν τις παρακάτω απαιτήσεις: 211 232

(1) Τα ανοίγματα πληρώσεως και κενώσεως των περιβλημάτων που προορίζονται για τη μεταφορά υγροποιημένων εύφλεκτων ή και τοξικών αερίων θα είναι εφοδιασμένα με εσωτερική συσκευή ασφαλείας αμέσου λειτουργίας κλεισίματος που κλείνει αυτόματα σε περίπτωση αρπόσεκτης κινήσεως της δεξαμενής. Πρέπει να είναι δυνατό να κλείσει η συσκευή από απόσταση.

(2) Όλα τα ανοίγματα, εκτός από εκείνα που υποδέχονται βαλβίδες ασφαλείας και κλειστές οπές αποστραγγίσεως, των περιβλημάτων που προρίζονται για τη μεταφορά υγροποιημένων εύφλεκτων ή/και τοξικών αερίων αν η ονομαστική διάμετρος αυτών είναι πάνω από 1,5 χιλ., θα είναι εφοδιασμένα με εσωτερική συσκευή κλεισίματος (δικλείδα).

(3) Κατά παρέκκλιση από τις διατάξεις των παραγράφων (1) και (2), περιβλήματα που προορίζονται για τη μεταφορά βαθειά καταψυγμένων εύφλεκτων ή και τοξικών υγροποιημένων αερίων μπορεί να είναι εφοδιασμένα με εξωτερικές συσκευές αντί των εσωτερικών συσκευών αν οι εξωτερικές συσκευές αντί των εσωτερικών συσκευών αν οι εξωτερικές συσκευές παρέχουν προστασία τουλάχιστον ισότιμη με εκείνη που παρέχεται από το τοίχωμα του περιβλήματος.

(4) Αν τα περιβλήματα είναι εξοπλισμένων με μετρητές, οι τελευταίοι δεν θα είναι κατασκεασμένοι από διαφανές υλικό σε απευθείας επαφή με τη μεταφερόμενη ουσία. Αν είναι θερμόμετρα, δεν θα εξέχουν άμεσα μεσα στο αέρριο ή το υγρό μέσον του τοιχώματος του περιβλήματος.

(5) Περιβλήματα που προορίζονται για τη μεταφορά χλωρίνης ή διοξείδιου του θείου του 3° (ατ) ή METHYL MERCAPTAN ή HYDROGEN SULPHIDE του 3° (βτ) δεν θα έχουν οποιοδήποτε άνοιγμα κάτω από το ύψος της επιφάνειας του υγρού. Επί πλέον, δεν θα επιτρέπονται θυρίδες καθαρισμού όπως αναγέρονται στο περιθωριακό 211 132.

(6) Ανοίγματα πληρώσεως και εκφορτώσεως (κενώσεως) που βρισκονται στο πάνω μέρος των περιβλημάτων θα είναι εξοπλισμένα όχι μόνο με ότι περιγράφεται στην παράγραφο (1), αλλά επί πλέον με δεύτερη, εξωτερική συσκευή κλεισίματος. Αυτή η συσκευή θα μπορεί να κλειστεί με άτρυπη φλάντζα ή κάποια άλλη εξίσου αποτελεσματική συσκευή.

Οι βαλβίδες ασφαλείας θα καλύπτουν τις παρακάτω απαιτήσεις: 211 233

(1) Περιβλήματα που προορίζονται για τη μεταφορά αερίων του 1° μέχρι 6° και του 9° μπορεί να είναι εφοδιασμένα με όχι περισσότερο από δύο βαλβίδες ασφαλείας των οποίων η συνολική καθαρή εγκάρσια επιφάνεια διελεύσεως στη βάση ή βάσεις δεν θα είναι λιγότερο από 20 cm^2 ανά 30 μ^3 ή μέρους αυτών της χωρητικότητας των δοχείων. Αυτές οι βαλβίδες θα είναι σε θέση να ανοίγουν αυτόματα σε πίεση μεταξύ 0.9 και 1.0 φορές την πίεση δοκιμής του περιβλήματος στο οποίο είναι τοποθετημένες. Θα είναι τέτοιου τύπου ώστε να ανθίστανται σε δυναμικές πιέσεις, περιλαμβανόμενης της απότομης μετακινήσεως υγρού. Η χρησιμοποίηση βαλβίδων με αντίβαρο απαγορεύεται. Περιβλήματα που προορίζονται για τη μεταφορά αερίων του 1° μέχρι 9° επιβλαβών για το αναπνευστικό σύστημα ή συνεπαγόμενα κίνδυνο δηλητηριάσεως[10]/ δεν θα έχουν βαλβίδες ασφαλείας εκτός αν προηγείται των βαλβίδων ασφαλείας εύθραυστος δίσκος. Στην τελευταία αυτή περίπτωση η διευθέτηση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα πρέπει να είναι ικανοποιητική για την αρμόδια αρχή.

Όπου τα δεξαμενο-οχήματα προορίζονται για μεταφορά δια θαλάσσης, οι διατάξεις της παρούσας παραγράφου δεν θα απαγορεύουν την τοποθέτηση βαλβίδων ασφαλείας που είναι σύμφωνες με τις διατάξεις που διέπουν αυτό τον τρόπο μεταφοράς.

(2) Περιβλήματα που προορίζονται για τη μεταφορά αερίων του 7° και του 8° θα είναι εφοδιασμένα με δύο ανεξάρτητες βαλβίδες ασφαλείας, κάθε μία σχεδιασμένη κατά τρόπο ώστε να επιτρέπει στα αέρια που σχηματίζονται με εξάτμιση στη διάρκεια της κανονικής λειτουργίας να διαφεύγουν από το περίβλημα κατά τέτοιο τρόπο ώστε η πίεση οποτεδήποτε να μην υπερβαίνει περισσότερο από 10 στα εκατό την πίεση εργασίας που αναγράφεται στο περίβλημα. Μία από τις δύο βαλβίδες ασφαλείας μπορεί να αντικατασταθεί από εύθραυστο δίσκο που θα είναι τέτοιος ώστε να απάσει στην πίεση δοκιμής. Σε περίπτωση απωλείας του κενού σε περίβλημα με διπλά τοιχώματα, ή καταστροφής του 20 στα εκατό της μονώσεως ενός περιβλήματος με μονά τοιχώματα, η βαλβίδα ασφαλείας και ο εύθραυστος δίσκος θα επιτρέπουν την εκροή κατά τρόπο ώστε η πίεση στο περίβλημα να μην υπερβαίνει την πίεση δοκιμής.

(3) Οι βαλβίδες ασφαλείας των περιβλημάτων που προορίζονται για τη μεταφορά αερίων του 7° και 8° θα είναι σε θέση να ανοίγουν στην πίεση λειτουργίας που αναγράφεται πάνω στο περίβλημα. Θα είναι σχεδιασμένες κατά τέτοιο τρόπο ώστε να λειτουργούν χωρίς σφάλμα στη χαμηλότερη θερμοκρασία λειτουργίας τους. Η αξιοπιστία της λειτουργίας τους σ' αυτή τη θερμοκρασία θα διαπιστώνεται και ελέγχεται είτε με δοκιμή κάθε βαλβίδας είτε με δοκιμή υποδείγματος βαλβίδας κάθε τύπου.

Θερμική μόνωση 211 234

(1) Αν περιβλήματα που προορίζονται για τη μεταφορά υγροποιημένων αερίων του 3° και 4° είναι εφοδιασμένα με θερμική μόνωση, αυτή η μόνωση θα συνίσταται από είτε:

– αντιηλιακή ασπίδα καλύπτουσα όχι λιγότερο από το πάνω μισό της επιφανείας του περιβλήματος και θα χωρίζεται από το περίβλημα με χώρο αέρα τουλάχιστο 4 εκ., είτε

– με πλήρη επένδυση, αρκετού πάχους από μονωτικά υλικά.

(2) Περιβλήματα που προορίζονται για τη μεταφορά αερίων του 7° και 8° θα είναι θερμικά μονωμένα. Η θερμική μόνωση θα εξασφαλίζεται με συνεχή επένδυση. Αν ο χώρος μεταξύ του περιβλήματος και της επενδύσεως είναι χωρίς αέρα (μόνωση κενού), η προστατευτική επένδυση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε να αντέχει χωρίς παραμόρφωση εξωτερική πίεση τουλάχιστον 0.1 MPa (1 μπαρ) (πίεση μετρητή). Κατά παρέκκλιση από το περιθωριακό 211 102 (2), οι εξωτερικές και εσωτερικές ενισχυτικές συσκευές μπορεί να λαμβάνονται υπόψη στους υπολογισμούς. Αν η επένδυση είναι τόσο κλειστή ώστε να είναι αεροστεγής, θα υπάρχει συσκευή που θα εμποδίζει την ανάπτυξη οποιασδήποτε επικίνδυνης πιέσεως στο μονωτικό στρώμα σε περίπτωση ανεπαρκούς αεροστεγανότητας του περιβλήματος ή των ειδών του εξοπλισμού του. Η συσκευή θα εμποδίζει τη διείσδυση υγρασίας μέσα στη θερμομονωτική επένδυση.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων που έχουν σημείο βρασμού κάτω από -182°K σε ατμοσφαιρική πίεση δεν θα περιλαμβάνουν οποιοδήποτε καύσιμο υλικό είτε στη θερμική μόνωση είτε στα μέσα προσαρτήσεως στο πλαίσιο.

Τα μέσα προσαρτήσεως των περιβλημάτων που προορίζονται για τη μεταφορά αργού αζώτου, ήλιου ή νέου του 7° (α) ή υδρογόνου του 7° (β) μπορούν να περιλαμβάνουν, με τη συναίνεση της αρμόδιας αρχής, πλαστικές ουσίες μεταξύ της εσωτερικής και εξωτερικής επενδύσεως.

Για τις συστοιχίες δοχείων (βλέπε περιθωριακό 22 12 (1) (γ)[11]/ πρέπει να καλύπτονται οι παρακάτω όροι: 211 235

(1) Αν ένα από τα στοιχεία περιβλήματος πολλαπλών στοιχείων είναι εφοδιασμένο με βαλβίδα ασφαλείας και συσκευές διακοπής υπάρχουν μεταξύ των στοιχείων, κάθε στοιχείο θα είναι εξοπλισμένο κατ' αυτό τον τρόπο.

(2) Οι συσκευές πληρώσεως και κενώσεως μπορεί να είναι τοποθετημένες σε πολλαπλή.

(3) Κάθε στοιχείο περιβλήματος πολλαπλών στοιχείων που προορίζεται για τη μεταφορά συμπιεσμένων αερίων του 1° και 2° τα οποία είναι επιβλαβή για τα αναπνευστικά όργανα ή ενέχουν κίνδυνο δηλητηριάσεως[10]/, ή είναι εύφλεκτα, θα είναι δυνατόν να απομονώνεται με βαλβίδα (στρόφιγγα).

(4) Τα στοιχεία περιβλήματος πολλαπλών στοιχείων που προορίζεται για τη μεταφορά υγροποιημένων αερίων του 3° μέχρι 6° θα είναι σχεδιασμένα κατά τέτοιο τρόπο ώστε να μπορεί να γεμιστούν χωριστά και να διατηρούνται απομονωμένα με βαλβίδα ικανή να σφραγίζεται.

(5) Οι παρακάτω προϋποθέσεις θα έχουν εφαρμογή για αποσυναρμολογούμενες δεξαμενές:

(α) δεν θα αλληλοσυνδέονται με πολλαπλή· και

(β) αν οι αποσυναρμολογούμενες δεξαμενές μπορεί να κυλιστούν, οι βαλβίδες θα είναι εφοδιασμένες με προστατευτικά καλύμματα.

Κατά παρέκκλιση από τις διατάξεις του περιθωριακού 211 131, περιβλήματα που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθείας καταψύξεως δεν χρειάζεται να έχουν άνοιγμα επιθεωρήσεως. 211 236

211 237

Παράγραφος 4: Έγκριση τύπου 211 239

(Δεν υπάρχουν ειδικές προϋποθέσεις) 211 240

Παράγραφος 5: Δοκιμές -211 249

Τα υλικά κάθε συγκολλημένου περιβλήματος θα ελέγχονται με τη μέθοδο που περιγράφεται στο Παράρτημα Β. 1δ. 211 250

Τα επίπεδα πιέσεως δοκιμής θα έχουν όπως παρακάτω: 211 251

(1) Για περιβλήματα που προορίζονται για τη μεταφορά αερίων του 1° και 2°: τα επίπεδα που αναφέρονται στο περιθωριακό 2219 (1) και (3).

(2) Για περιβλήματα που προορίζονται για τη μεταφορά αερίων του 3° και 4°:

(α) αν τα περιβλήματα έχουν διάμετρο όχι πάνω από 1.5 μ., τα επίπεδα που αναγράφονται στο περιθωριακό 220(2)·

(β) αν τα περιβλήματα είναι με διάμετρο πάνω από 1.5 μ., τα επίπεδα[12]/ που αναφέρονται παρακάτω:

---

[10]/ Λέρια αναγνωριζόμενα με το γράμμα «τ» στον πίνακα των ουσιών θεωρούνται ότι είναι αέρια επιβλαβή για τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνο δηλητηριάσεως.

[11]/ Οι διατάξεις του παρόντος Παραρτήματος δεν έχουν εφαρμογή σε πλαίσια κυλίνδρων.

[12]/ 1. Οι προβλεπόμενες πιέσεις δοκιμής είναι:

(α) Αν το περίβλημα είναι εφοδιασμένο με θερμική μόνωση, τουλάχιστον ίσες προς την πίεση εξατμίσεως, μειωμένη κατά 100 KPA (1 Μπαρ), του υγρού στους 60°K, και όχι λιγότερο από 1 MPa (10 Μπαρ)·

(β) αν το περίβλημα δεν είναι εξοπλισμένο με θερμική μόνωση, τουλάχιστο ίση με την πίεση εξατμίσεως, μειωμένη κατά 100 KPa (1 Μπαρ), του υγρού στους 65°κ, και όχι μικρότερη από 1 MPa (10 Μπαρ).

2. Εν όψει της μεγάλης ταχύτητας του φωσγενίου του 3° (α), η ελάχιστη πίεση δοκιμής γι' αυτό το άεριο καθορίζεται σε 1.5 MPa (15 Μπαρ) αν το περίβλημα είναι εξοπλισμένο με θερμική μόνωση και σε 1.7 MPa (17 Μπαρ) αν δεν είναι εξοπλισμένο κατ' αυτό τον τρόπο.

3. Οι ανώτατες τιμές που προβλέπονται σε ΚΓ/λίτρο για το βαθμό πληρώσεως υπολογίζονται όπως παρακάτω: ανώτατο βάρος περιεχομένου ανά λίτρο χωρητικότητας = 0.95 × ειδικό βάρος της υγρής φάσης στους 50°K.

Περιγραφή ουσίας	Αριθμός Είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα με θερμική MPa	Ελάχιστη πίεση δοκιμής για περιβλήματα χωρίς μόνωση MPa	Ανώτατο βάρος περιεχομένου ανά λίτρο χωρητικότητας
BROMOCHLORODIFLUOROMETHANE (R 12 BI)	3°(α)	1.0	1.0	1.61
CHLORODIFLUOROMETHANE (R 22)	3°(α)	2.4	2.6	1.03
CHLOROPENTAFLUOROETHANE (R 115)	3°(α)	2.0	2.3	1.08
1-CHLORO-2,2,2-TRIFLUORO-ETHANE (R133α)	3°(α)	1.0	1.0	1.18
DICHLORODIFLUROMETHANE (R12)	3°(α)	1.5	1.6	1.15
DICHLOROFLUOROMETHANE (R 21)	3°(α)	1.0	1.0	1.23
1,2-DICHLORO-1,1,2,2- TETRAFLUOROETHANE (R 114)	3°(α)	1.0	1.0	1.30
OCTAFLUOROCYCLOBUTANE (RC318)	3°(α)	1.0	1.0	1.34
Αμμωνία	3°(ατ)	2.6	2.9	0.53
Χλώριο	3°(ατ)	1.7	1.9	1.25
HEXAFLUOROPROPYLENE (R1216)	3°(ατ)	1.7	1.9	1.11
Βρωμιούχο υδρογόνο	3°(ατ)	5.0	5.5	1.20
Βρωμιούχο μεθύλιο	3°(ατ)	1.0	1.0	1.51
Διοξείδιο του αζώτου NO2	3°(ατ)	1.0	1.0	1.30
Φωσγένιο	3°(ατ)	1.5	1.7	1.23
Διοξείδιο του θείου	3°(ατ)	1.0	1.2	1.23
Βουτάνιο	3°(β)	1.0	1.0	0.51
1-BUTENE	3°(β)	1.0	1.0	0.53
1-CHLORO-1, 1-DIFLUOROETHANE (R 142β)	3°(β)	1.0	1.0	0.99
CIS-2-BUTENE	3°(β)	1.0	1.0	0.55
Κυκλοπροπάνιο	3°(β)	1.6	1.8	0.53
1,1-DIFLUOROETHANE (R 152α)	3°(β)	1.4	1.6	0.79
DIMETHYL ETHER	3°(β)	1.4	1.6	0.58
Ισοβουτάνιο	3°(β)	1.0	1.0	0.49
Ισοβουτένιο	3°(β)	1.0	1.0	0.52
Προπάνιο	3°(β)	2.1	2.3	0.42
Προπυλένιο	3°(β)	2.5	2.7	0.43
TRANS-2-BUTENE	3°(β)	1.0	1.0	0.54
1,1,1-TRIFLUOROETHANE	3°(β)	2.8	3.2	0.79
Διμεθυλαμίνη	3°(βτ)	1.0	1.0	0.59
Εθυλαμίνη	3°(βτ)	1.0	1.0	0.61
ETHYL CHLORIDE	3°(βτ)	1.0	1.0	0.80
Υδρόθειο	3°(βτ)	4.5	5.0	0.67
Μεθυλαμίνη	3°(βτ)	1.0	1.1	0.58
METHYL CHLORIDE	3°(βτ)	1.3	1.5	0.81
METHYL MERCAPTAN	3°(βτ)	1.0	1.0	0.78
Τριμεθυλαμίνη	3°(βτ)	1.0	1.0	0.56
1,2-BUTADIENE	3°(γ)	1.0	1.0	0.59
1,3-BUTADIENE	3°(γ)	1.0	1.0	0.55
VINYL CHLORIDE	3°(γ)	1.0	1.1	0.81
METHYL VINYL ETHER	3°(CT)	1.0	1.0	0.67
TRIFLUOROCHLOROETHYLENE (R 1113)	3°(CT)	1.5	1.7	1.13
VINYL BROMIDE	3°(CT)	1.0	1.0	1.37
Μίγμα F 1	4°(α)	1.0	1.1	1.23
Μίγμα F 2	4°(α)	1.5	1.6	1.15
Μίγμα F 3	4°(α)	2.4	2.7	1.03
Μίγμα αερίωνR 500	4°(α)	1.8	2.0	1.01
Μίγμα αερίωνR 502	4°(α)	2.5	2.8	1.05
Μίγματα του 19 μέχρι 21 στα εκατό κατά μάζα DI-CHLORODIFLUOROMETHANE (R 12) και 79 μέχρι 81 στα εκατό κατά μάζα BROMOCHLORODIFLUO-ROMETHANE (R 12 BI)	4°(α)	1.0	1.1	1.50
Μίγματα METHYL BROMIDE και Χλωροπικρίνης	4°(ατ)	1.0	1.0	1.51
Μίγμα Α (εμπορικό όνομα: Βουτάνιο)	4°(β)	1.0	1.0	0.50
Μίγμα Α Ο (εμπορ. όνομα Βουτάνιο)	4°(β)	1.2	1.4	0.47
Μίγμα Α 1	4°(β)	1.6	1.8	0.46
Μίγμα Β	4°(β)	2.0	2.3	0.43
Μίγμα Γ (προπάνιο)	4°(β)	2.5	2.7	0.42
Μίγματα υδρογονανθράκων που περιέχουν μεθάνιο	4°(β)	–	22.5	0.187
			30.0	0.244
Μίγματα METHYL CHLORIDE και METHYLENE CHLORIDE	4°(βτ)	1.3	1.5	0.81
Μίγματα METHYL CHLORIDE και χλωροπικρίνης	4°(βτ)	1.3	1.5	0.81
Μίγματα METHYL BROMIDE και ETHYLENE BROMIDE	4°(βτ)	1.0	1.0	1.51
Μίγματα METHYLACETYLENE PROPADIENE και υδρογονάνδρακα				
Μίγμα P 1	4°(γ)	2.5	2.8	0.49

Περιγραφή ουσίας	Αριθμός Είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα με θερμική MPa	Ελάχιστη πίεση δοκιμής για περιβλήματα χωρίς μόνωση MPa	Ανώτατο βάρος περιεχομένου ανά λίτρο χωρητικότητας
Μίγμα P 2	4°(γ)	2.2	2.3	0.47
Μίγματα 1,3-BUTADIENE και υδρογονανθράκων του 3°(β)	4°(γ)	1.0	1.0	0.50
ETHYLENE OXIDE περιέχον όχι περισσότερο από 10 στα εκατό διοξείδιο του άνθρακα κατά μάζα	4°(CT)	2.4	2.6	0.73
ETHYLENE OXIDE με άζωτο μέχρι συνολική πίεση 1 MPa (10 μπάρ) στους 50°K	4°(CT)	1.5	1.5	0.78
DICHLORODIFLUOROMETHANE που περιέχει 12 στα εκατό ETHYLENE OXIDE κατά μάζα	4°(CT)	1.5	1.6	1.09

(3) Για περιβλήματα που προορίζονται για τη μεταφορά αερίων του 5° και 6°

(α) αν τα περιβλήματα δεν έχουν επένδυση για θερμική μόνωση: τα επίπεδα που αναφέρονται στο περιθωριακό 2220 (3) και (4)·

(β) αν τα περιβλήματα έχουν επένδυση για θερμική μόνωση όπως καθορίζεται στο περιθωριακό 211 234 (1): τα επίπεδα που αναφέρονται παρακάτω:

Περιγραφή ουσίας	Αριθμός είδους	Ανώτατη πίεση δοκιμής MPa	Ανώτατη μάζα περιεχόμενου ανά λίτρο χωρητικότητας KGS
BROMOTRIFLUOROMETHANE (R13 B 1)	5°(α)	12.0	1.5
Διοξείδιο του άνθρακα	5°(α)	19.0	0.73
CHLOROTRIFLUOROMETHANE (R 13)	5°(α)	12.0	0.96
		22.5	1.12
HEXAFLUOROETHANE (R 116)	5°(α)	16.0	1.28
		20.0	1.34
Πρωτοξείδιο του αζώτου (N_2O)	5°(α)	22.5	0.78
SULPHUR HESAFLUORIDE	5°(α)	12.0	1.34
TRIFLUOROMETHANE (R 23)	5°(α)	19.0	0.92
		25.0	0.99
Ξένο	5°(α)	12.0	1.30
HYDROGEN CHLORIDE	5°(ατ)	12.0	0.69
Αιθάνιο	5°(β)	12.0	0.32
Αιθυλένιο	5°(β)	12.0	0.25
		22.5	0.36
1,1-DIFLUOROETHYLENE	5°(γ)	12.0	0.66
		22.5	0.78
VINYL FLUORIDE	5°(γ)	12.0	0.58
		22.5	0.65
Μίγματα αερίων R 503	6°(α)	3.1	0.11
		4.2	0.21
		10.0	0.76
Διοξείδιο του άνθρακα που περιέχει όχι περισσότερο από 35 στα εκατό ETHYLENE OXIDE κατά βάρος	6°(γ)	19.0	0.73
		22.5	0.78
Οξείδιο του Αιθυλενίου που περιέχει πάνω από 10 στα εκατό αλλά όχι πάνω από 50 στα εκατό διοξείδιο του άνθρακα κατά βάρος	6°((CT)	19.0	0.66
		25.0	0.75

Όπου περιβλήματα επενδυμένα για θερμική μόνωση χρησιμοποιούνται, τα οποία έχουν υποβληθεί σε δοκιμή πιέσεως χαμηλότερη από εκείνη που αναφέρεται στον πίνακα, η ανώτατη μάζα του περιεχομένου ανά λίτρο χωρητικότητας θα είναι τέτοια ώστε η πίεση που επιτυγχάνεται στο περίβλημα από την εν λόγω ουσία στους 55°K δεν υπερβαίνει την πίεση δοκιμής που είναι αποτυπωμένη πάνω στο περίβλημα. Σε τέτοια περίπτωση το ανώτατο επιτρεπτό βάρος θα καθορίζεται από τον ειδικό που εγκρίνει τη αρμόδια αρχή.

(4) Για περιβλήματα προοριζόμενα για τη μεταφορά αμμωνίας διαλυμένη υπό πίεση του 9° (ατ):

Περιγραφή ουσίας	Αριθμός είδους	Ανώτατη πίεση δοκιμής MPa	Ανώτατη μάζα περιεχόμενου ανά λίτρο χωρητικότητας KG
Αμμωνία διαλυμένη υπό πίεση σε νερό			
– με περισσότερο από 35 στα εκατό αλλά όχι πάνω από 40 στα εκατό αμμωνία κατά μάζα	9°(ατ)	1.0	0.80
– με περισσότερο από 40 στα εκατό αλλά όχι περισσότερο από 50 στα εκατό αμμωνία αμμωνία κατά μάζα	9°(ατ)	1.0	0.77

(5) Για περιβλήματα που προορίζονται για τη μεταφορά αερίων του 7° και 8°: όχι λιγότερο από 1.3 φορές την ανώτατη επιτρεπόμενη πίεση εργασίας, όπως αναγράφεται πάνω στο περίβλημα, αλλά όχι λιγότερο από 0.3 MPa (3 μπάρ) (πίεση μετρητή)· για περιβλήματα με μόνωση κενού η πίεση δοκιμής δεν θα είναι λιγότερο από 1.3 φορές η ανώτατη επιτρεπόμενη πίεση εργασίας αυξημένη κατά 0.1 MPa (1 μπάρ).

Η πρώτη δοκιμή υδραυλικής πιέσεως θα γίνεται πριν το- 211 252
ποθετηθεί στη θέση της η θερμική μόνωση.

Η χωρητικότητα κάθε περιβλήματος που προορίζεται για 211 253
τη μεταφορά αερίων του 3° μέχρι 6° και 9° θα καθορίζεται υπό την επίβλεψη ειδικού εγκρινόμενου από την αρμόδια αρχή, με ζύγιση ή ογκομετρική μέτρηση της ποσότητας νερού η οποία γεμίζει το περίβλημα· οποιοδήποτε λάθος στη μέτρηση της χωρητικότητας του περιβλήματος θα είναι λιγότερο από ένα στα εκατό. Προσδιορισμός με υπολογισμό βασιζόμενο στις διαστάσεις του περιβλήματος δεν επιτρέπεται. Οι ανώτατες μάζες πληρώσεως που επιτρέπονται σύμφωνα με τα περιθωριακά 2220 (4) και 211 251 (3) θα ορίζονται από εγκρινόμενο ειδικό.

Ο έλεγχος των συγκολλήσεων θα γίνεται σύμφωνα με τις 211 254
απαιτήσεις του συντελεστή λάμδα 1.0 του περιθωριακού 211 127 (7)

Κατά παρέκκλιση των απαιτήσεων του περιθωριακού 211 211 255
151, οι περιοδικές δοκιμές θα γίνονται:

(1) κάθε τρία χρόνια

στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά BORON TRIFLUORIDE του 1° (ατ), φωταερίου του 2° (BT) HYDROGEN BROMIDE, χλωρίνης, διοξείδιου του αζώτου, διοξείδιου του θείου ή φωσγενίου του 3° (ατ), HYDROGEN SULPHIDE του 3° (BT), ή HYDROGEN CHLORIDE του 5° (ατ)·

(2) κάθε έξη χρόνια

στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά άλλων συμπιεσμένων και υγροποιημένων αερίων ή διαλυμένης υπό πίεσης αμμωνίας του 9° (ατ)· και

(3) μετά από εξαετή υπηρεσία και από εκεί και πέρα κάθε δώδεκα χρόνια.

στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά αερίων του 7° ή 8°. Έλεγχος στεγανότητας θα γίνεται από εγκριμένο ειδικό έξη χρόνια μετά από κάθε περιοδική δοκιμή.

Στην περίπτωση περιβλημάτων που έχουν μόνωση κατά 211 256
της θερμότητας με κενό, η δοκιμή υδραυλικής πιέσεως και ο έλεγχος της εσωτερικής καταστάσεως μπορεί, με τη συναίνεση του εγκριμένου ειδικού, να αντικατασταθούν από δοκιμή στεγανότητας και μέτρηση του κενού.

Αν έχουν γίνει ανοίγματα, με την ευκαιρία των περιοδικών 211 257
επιθεωρήσεων, σε περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° ή 8°, η μέθοδος με την οποία κλείνονται ερμητικά πριν τα περιβλήματα τεθούν εκ νέου σε υπηρεσία θα εγκρίνεται από τον εγκριμένο ειδικό και θα εξασφαλίζουν την ακεραιότητα του περιβλήματος.

Οι δοκιμές στεγανότητας περιβλημάτων που προορίζονται 211 258
για τη μεταφορά αερίων του 1° μέχρι 6° και 9° θα γίνονται με πίεση όχι μικρότερη των 0.4 MPa (4 μπάρ) και όχι μεγαλύτερη από πίεση μετρητή 0.8 MPa (8 μπάρ)

211 259

Παράγραφος 6: Σήμανση

Τα παρακάτω πρόσθετα στοιχεία θα αναγράφονται με 211 260
σφραγίδα ή με όποιον άλλο παρόμοιο τρόπο στη θέση που προβλέπεται από το περιθωριακό 211 160, ή απευθείας πάνω στα τοιχώματα του ίδιου του περιβλήματος αν τα τοιχώματα είναι ενισχυμένα ώστε να μη μειώνεται η αντοχή του περιβλήματος:

(1) πάνω σε περιβλήματα προοριζόμενα για τη μεταφορά μιας μόνο ουσίας:

-ολόκληρο το όνομα του αερίου

Αυτή η ένδειξη θα συμπληρώνεται στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά συμπυκνωμένων αερίων του 1° και 2° από ένδειξη της ανώτατης πίεσης πληρώσεως στους 15°K που επιτρέπεται για το περίβλημα και στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά υγροποιημένων αερίων του 3° μέχρι 8° ή αμμωνίας διαλυμένης υπό πίεση του 9° (ατ) από ένδειξη του επιτρεπόμενου ανώτατου φορτίου σε κιλά και της θερμοκρασίας πληρώσεως αν είναι κάτω από -20°K.

(2) πάνω σε περιβλήματα προοριζόμενα για πολλαπλούς σκοπούς:

-ολόκληρα τα ονόματα των αερίων για τη μεταφορά των οποίων έχει εγκριθεί το περίβλημα.

Τα στοιχεία αυτά θα συμπληρώνονται από ένδειξη του επιτρεπόμενου φορτίου σε κιλά για κάθε αέριο·

(3) πάνω σε περιβλήματα που προορίζονται για τη μεταφορά αερίων του 7° ή 8°:

-την πίεση εργασίας· και

(4) πάνω σε περιβλήματα εξοπλισμένα με θερμική μόνωση:

-την εγγραφή «θερμικά μονωμένο» ή «θερμικά μονωμένο με κενό».

Το πλαίσιο περιβλήματος με πολλά στοιχεία θα φέρει κο- 211 261
ντά στο σημείο πληρώσεως πλάκα που θα καθορίζει:

-την πίεση δοκιμής των στοιχείων·

-την ανώτατη πίεση πληρώσεως στους 15°K που επιτρέπεται για στοιχεία προοριζόμενα για συμπιεσμένα αέρια·

-τον αριθμό των στοιχείων·

-συνολική χωρητικότητα των στοιχείων σε λίτρα·

-ολόκληρο το όνομα του αερίου·

και στην περίπτωση υγροποιημένων αερίων:

-το επιτρεπόμενο ανώτατο φορτίο ανά στοιχείο σε κιλά.

Επί πλέον των στοιχείων που προβλέπονται στο περιθω- 211 262
ριακό 211 161, θα αναγράφονται τα παρακάτω είτε στο ίδιο το δεξαμενο-όχημα είτε πάνω σε πινακίδα:

(α) είτε: «κατώτατη επιτρεπτή θερμοκρασία πληρώσεως –20°K»,

είτε: «κατώτατη επιτρεπτή θερμοκρασία πληρώσεως .....»·

(β) όπου το περίβλημα προορίζεται για τη μεταφορά μόνο μιας ουσίας:

-ολόκληρο το όνομα του αερίου·

-για υγροποιημένα αέρια του 3° μέχρι 8° και για αμμωνία διαλυμένη υπό πίεση σε νερό του 9° (ατ), το επιτρεπόμενο φορτίο του KG.

(γ) όπου το περίβλημα είναι για πολλούς σκοπούς:

-ολόκληρο το όνομα όλων των αερίων για τη μεταφορά των οποίων προορίζεται το περίβλημα, με ένδειξη του επιτρεπόμενου ανώτατου φορτίου σε κιλά, για κάθε αέριο·

(δ) όπου το περίβλημα είναι εφοδιασμένο με θερμική μόνωση:

-την εγγραφή «θερμικά μονωμένο» ή «θερμικά μονωμένο με κενό», σε επίσημη γλώσσα της αποστέλουσας χώρας, επίσης δε στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν οι διεθνείς τιμοκατάλογοι οδικής μεταφοράς, αν υπάρχουν, ή οι συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερόμενων χωρών στην εργασία μεταφοράς προβλέπουν διαφορετικά.

Αυτά τα στοιχεία δεν θα χρειάζονται στην περίπτωση που 211 263
το όχημα φέρει αποσυναρμολογούμενες δεξαμενές.

211 264
-211 269

Παράγραφος 7: Λειτουργία

Περίβλημα που διατίθεται σε διάφορους χρόνους για τη 211 270
μεταφορά διάφορων υγροποιημένων αερίων του 3° μέχρι 8° (περίβλημα για πολλούς σκοπούς) δεν μπορεί να μεταφέρει ουσίες άλλες από εκείνες που αναφέρονται σε μία και μόνο μία, από τις παρακάτω ομάδες:

Ομάδα 1: αλογονημένοι υδρογονάνθρακες του 3° (α) και 4° (α)· 1,3 BUTADIENE του 3° (γ) και μίγματα του 1,3 BUTADIENE και υδρογονάνθρακες του 4° (γ)·

Ομάδα 2: υδρογονάνθρακες του 3° (β) και 4° (β)·

Ομάδα 3: αμμωνία του 3° (ατ)· DIMETHYL ETHER του 3° (β)· DIMETHYLAMINE, ETHYLAMINE, METHYLAMINE και TRIMETHYLAMINE του 3° (BT)· και VINYL CHLORIDE του 3° (γ).

Ομάδα 4: METHYL BROMIDE του 3° (ατ)· ETHYL CHLORIDE και METHYL CHLORIDE του 3° (BT).

Ομάδα 5: μίγματα του ETHYLENE OXIDE με διοξείδιο του άνθρακα, και του ETHYLENE OXIDE με άζωτο του 4° (CT).

Ομάδα 6: άζωτο, διοξείδιο του άνθρακα, σπάνια αέρια, πρωτοξείδιο του αζώτου N20, και οξυγόνο του 7° (α)· αέρα, μίγματα αζώτου με σπάνια αέρια και μίγματα οξυγόνου με άζωτο, επίσης όταν περιέχουν σπάνια αέρια του 8° (α).

Ομάδα 7: αιθάνιο, εθυλένιο και μεθάνιο του 7° (β)· και μίγματα μεθανίου με αιθάνιο, επίσης όταν περιέχουν προπάνιο και βουτάνιο του 8° (β).

Περιβλήματα που έχουν πληρωθεί με ουσία της ομάδας 1 ή της ομάδας 2 θα αδειάζονται από το υγροποιημένο αέριο πριν φορτωθούν με άλλη ουσία που ανήκει στην ίδια ομάδα. Περιβλήματα τα οποία έχουν πληρωθεί με ουσία των ομάδων 3 μέχρι 7 θα αδειάζονται τελείως από το υγροποιημένο αέριο και ύστερα θα διοχετεύεται αέρας πριν φορτωθούν με άλλη ουσία που ανήκει στην ίδια ομάδα. 211 271

Η πολλαπλή χρησιμοποίηση περιβλημάτων για τη μεταφορά υγροποιημένων αερίων της ίδιας ομάδας θα επιτρέπεται αν τηρηθούν όλες οι προϋποθέσεις που προβλέπονται για τα προς μεταφορά αέρια σε ένα και το αυτό περίβλημα. Αυτή η πολλαπλή χρήση θα υπόκειται σε έγκριση από εγκεκριμένο ειδικό. 211 272

Η πολλαπλή χρησιμοποίηση περιβλημάτων για τη μεταφορά αερίων διαφόρων ομάδων θα επιτρέπεται αν επιτραπεί από τον εγκεκριμένο ειδικό. 211 273

Όταν περιβλήματα διατίθενται πάλι για αέρια διαφορετικής ομάδας, τα περιβλήματα θα αδειάζονται τελείως από τα υγροποιημένα αέρια, ύστερα θα διοχετεύεται αέρας και τέλος θα γίνεται απαέρωση. Η απαέρωση των περιβλημάτων θα ελέγχεται και θα πιστοποιείται από τον εγκεκριμένο ειδικό·

Όταν φορτωμένες δεξαμενές ή κενές αλλά ακαθάριστες δεξαμενές παραδίδονται για μεταφορά θα είναι ορατά μόνο τα στοιχεία που καθορίζονται στο περιθωριακό 211 262 που έχουν εφαρμογή στο φορτωνόμενο ή εκφορτωνόμενο αέριο όλα τα στοιχεία που αφορούν άλλα αέρια θα είναι καλυμένα. 11 274

Όλα τα στοιχεία ενός περιβλήματος πολλαπλών στοιχείων θα περιέχουν μόνο ένα και το ίδιο αέριο. Στην περίπτωση περιβλήματος πολλαπλών στοιχείων που προορίζεται για τη μεταφορά υγροποιημένων αερίων, τα στοιχεία θα γεμίζονται χωριστά και θα παραμένουν απομονωμένα με σφραγισμένη βαλβίδα. 211 275

Η ανώτατη πίεση πληρώσεως για συμπιεσμένα αέρια του 1° και 2° εκτός από το BORON FLUORIDE δεν θα υπερβαίνει τις τιμές που προβλέπονται στο περιθωριακό 2219 (2). 211 276

Για το BORON FLUORIDE του 1° (α) η ανώτατη μάζα πληρώσεως ανά λίτρο χωρητικότητας δεν θα υπερβαίνει το 0.86 κιλού.

Η ανώτατη μάζα πληρώσεως ανά λίτρο χωρητικότητας σύμφωνα με τα περιθωριακά 2220, (2), (3) και (4), και 211 251, (2), (3) και (4) θα τηρείται απόλυτα.

Ο βαθμός πληρώσεων των περιβλημάτων που προορίζονται για τη μεταφορά αερίων του 7° (β) και 8° (β) θα παραμένει κάτω από τη στάθμη στην οποία, αν το περιεχόμενο ανήρχετο στη θερμοκρασία στην οποία η πίεση εξατμίσεως θα ήταν ίση με την πίεση ανοίγματος βαλβίδος, ο όγκος του υγρού θα έφθανε το 95 στα εκατό της χωρητικότητας του περιβλήματος σ' εκείνη τη θερμοκρασία. Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° (α) και 8° (α) μπορεί να γεμίζονται μέχρι το 98 στα εκατό στη θερμοκρασία φορτώσεως και στην πίεση φορτώσεως. 211 277

Σε περιβλήματα προοριζόμενα για τη μεταφορά πρωτοξείδιου του αζώτου και οξυγόνου του 7° (α), αέρα ή μιγμάτων που περιέχουν οξυγόνο του 8° (α), δεν θα χρησιμοποιούνται ουσίες που περιέχουν γράσο ή λάδι για να εξασφαλιστεί η στεγανότητα των συνδέσμων ή για τη συντήρηση των κλεισιμάτων. 211 278

Η απαίτηση του περιθωριακού 211 175 δεν θα έχει εφαρμογή για τα αέρια του 7° και 8°. 211 279

211 280
Κατηγορία 3: Εύφλεκτα υγρά - 211 299
211 300
- 211 309

Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενών)· ορισμοί

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 3 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές 211 310

(α) Ουσίες που αναφέρονται ονομαστικά στο 12°.

(β) ουσίες ταξινομημένες υπό (α) του 11°, 14° μέχρι 23°, 25° και 26° και παρόμοιες ουσίες προς ταξινόμηση υπό (α) εκείνων των σημείων, με εξαίρεση το ISOPROPYL CHLOROFORMATE του 25° (α)·

(γ) ουσίες ταξινομημένες υπό (β) του 11°, 14° μέχρι 20°, 22° και 24° μέχρι 26° και παρόμοιες ουσίες προς ταξινόμηση υπό (β) εκείνων των σημείων.

(δ) ουσίες του 1° μέχρι 6° και 31° μέχρι 34° και παρόμοιες ουσίες προς ταξινόμηση υπό τα σημεία εκείνα, με εξαίρεση της NITROMETHANE του 31° (γ).

211 311
Παράγραφος 2: Κατασκευή - 211 319

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 12° θα είναι σχεδιασμένα για πίεση υπολογισμού 13/ όχι μικρότερη από 1.5 MPa (15 μπαρ) πίεση μετρητή. 211 320

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που αναφέρονται στο περιθωριακό 211 310 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού 13/ όχι μικρότερης από 1.0 MPa (10 μπαρ) πίεσης μετρητή. 211 321

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (γ) θα είναι σχεδιασμένα για πίεση υπολογισμού 13/ η μικρότερη των 0.4 MPa (4 μπαρ) της πίεσης μετρητή. 211 322

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που αναφέρονται στο περιθωριακό 211 310 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος. 211 323

Παράγραφος 3: Είδη εξοπλισμού

Όλα τα ανοίγματα περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (α) και (β) θα είναι πάνω από την επιφάνεια του υγρού. Κάτω από την επιφάνεια του υγρού δεν θα περνούν τα τοιχώματα του περιβλήματος σωληνώσεις ή συνδέσεις σωληνώσεων. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά 6/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με πώματα που κλειδώνουν. 211 330

Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (γ) και (δ) μπορεί επίσης να είναι του τύπου κενώσεως από τον πυθμένα. Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 13/ Βλέπε περιθωριακό 211 127 (2). 211 331

(γ) θα είναι σε θέση να κλείνονται ερμητικά 6/.

Αν περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (α) και (β) ή το 11° ή το 14° μέχρι 20° του περιθωριακού 211 310 (γ) είναι εξοπλισμένα με βαλβίδες ασφαλείας, πριν από τη βαλβίδα θα τοποθετείται διαρρηγνυόμενος δίσκος. Η ρύθμιση του διαρρηγνυόμενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή. Αν περιβλήματα προοριζόμενα για τη μεταφορά του ουσιών που αναφέρονται στο περιθωριακό 211 310 (δ) έχουν βαλβίδες ασφαλείας ή σύστημα αερισμού, αυτά θα καλύπτουν τις προϋποθέσεις των περιθωριακών 211 133 μέχρι 211 135. Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (δ) που έχουν σημείο αναφλέξεως που δεν υπερβαίνει τους 55°K και είναι εξοπλισμένα με σύστημα αερισμού το οποίο δεν μπορεί να κλειστεί θα έχουν φλογοπαγίδα στο σύστημα αερισμού 211 332

211 333
- 211 339
Παράγραφος 4: Έγκριση τύπου

211 340
(Δεν υπάρχουν ειδικές προϋποθέσεις) - 211 349

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (α), (β) ή (γ) θα υπόκεινται στην αρχική και περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπάρ) 211 350

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (δ) θα υπόκεινται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού αυτών όπως ορίζεται στο περιθωριακό 211 123 211 351

211 352
-211 359

Παράγραφος 6: Σήμανση

211 360
(Δεν υπάρχουν ειδικές προϋποθέσεις) -211 369

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 310 (α), (β) ή (γ) θα είναι σύμφωνος με το περιθωριακό 211 172 (1) (δ). Τα περιβλήματα θα κλείνονται ερμητικά [6]/ στη διάρκεια της μεταφοράς. Τα κλεισίματα περιβλημάτων που προορίζονται για τη μεταφορά του ουσιών που αναφέρονται στο περιθωριακό 211 310 (α) και (β) θα προστατεύονται με πώματα που κλειδώνουν 211 370

Σταθερές δεξαμενές (οχήματα δεξαμενές) και αποσυναρμολογούμενες δεξαμενές εγκριμένες για τη μεταφορά ουσιών του 6°, 11°, 12° και 14° μέχρι 20° δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως ή ζωοτροφές. 211 371

Περίβλημα από κράμα αλουμινίου δεν θα χρησιμοποιείται για τη μεταφορά ακεταλδεΰδης του 1° (α) εκτός αν το περίβλημα χρησιμοποιείται αποκλειστικά για τη μεταφορά αυτή και η ακεταλδεΰδη είναι απαλλαγμένη από οξύ. 211 372

Από τον Οκτώβριο μέχρι το Μάρτιο μίγματα υδρογονανθράκων που έχουν πίεση εξατμίσεως πάνω από 110 KPa (1.1 μπάρ) αλλά δεν υπερβαίνει τα 150 KPa (1.5 μπάρ) (απόλυτη πίεση) στους 50°K, όπως ορισμένα ελαφρά αποστάγματα για διάσπαση, μπορεί να μεταφέρονται σε περιβλήματα του τύπου που περιγράφεται στο περιθωριακό 211 133 211 373

211 374
-211 399

Κατηγορία 4.1: Εύφλεκτα στερεά

Κατηγορία 4.2: Ουσίες που υπόκεινται σε αιφνίδια ανάφλεξη

Κατηγορία 4.3: Ουσίες που αναδίδουν εύφλεκτα αέρια σε επαφή με το νερό

211 400
Παράγραφος 1: Γενικά πλαίσιο (χρήση δεξαμενών)· ορισμοί -211 409
Χρήση

Ουσίες του 7°, 8° και 11° της κατηγορίας 4.2 και το νάτριο, κάλλιο, κράματα νατρίου και καλλίου (1° (α)), ουσίες του 2° (ε) και του 4° της κατηγορίας 4.3 μπορεί να μεταφέρονται σε στεθερές ή αποσυναρμολογούμενες δεξαμενές. 211 410

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα θείου του 2° (α), ναφθαλίνης του 11° (α) και (β), διαστελλόμενων πολυστερινών του 12° της Κατηγορίας 4.1, ουσιών του 5° σκόνης από φίλτρα υφικαμίνου (6° (α)) και ουσιών του 10° της κατηγορίας 4.2, και κόκκων μαγνησίας επιχρισμένων, του 1° (δ), CALCIUM CARBIDE (2° (α)) και CALCIUM SILICIDE σε βώλους (2° (δ)) της Κατηγορίας 4.3, βλέπε περιθωριακά 41 111, 42 111 & 43 111

211 411
Παράγραφος 2: Κατασκευή -211 419

Περιβλήματα που προορίζονται για τη μεταφορά λευκού ή κίτρινου φωσφόρου του περιθωριακού 2431, του 1° ή ουσιών του 2° (ε) και του 4° του περιθωριακού 2471 θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 1 MPa (10 μπάρ) της πιέσεως μετρητή. 211 420

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα είναι σχεδιασμένα για πίεση υπολογισμού όχι λιγότερο από 2.1 MPa (21 μπάρ) πιέσεως μετρητή. 211 421

211 422
-211 429

Παράγραφος 3: Είδη εξοπλισμού

Περιβλήματα προοριζόμενα για τη μεταφορά θείου του 2° (β) ή ναφθαλίνη του 11° (γ) του περιθωριακού 2401 θα είναι εξοπλισμένα με θερμική μόνωση κατασκευασμένη από υλικά που δεν αναφλέγονται αμέσως. Μπορεί να είναι εξοπλισμένα με βαλβίδες που ανοίγουν αυτόματα προς τα μέσα ή προς τα έξω υπό την επίδραση διαφοράς πιέσεως 20 KPa (0.2 μπάρ) μέχρι 30 KPa (0.3 μπάρ). Οι συσκευές εκφορτώσεως θα είναι σε θέση να προστατεύονται από μεταλλικό πώμα που κλειδώνει. 211 430

Περιβλήματα που προορίζονται για τη μεταφορά λευκού ή κίτρινου φωσφόρου του περιθωριακού 2431, 1° θα καλύπτουν τις παρακάτω προϋποθέσεις: 211 431

(1) Η συσκευή θερμάνσεως δεν θα εισχωρεί αλλά θα είναι εξωτερική του σώματος του περιβλήματος. Εν τούτοις, ένας σωλήνας χρησιμοποιούμενος για την εξαγωγή του φωσφόρου μπορεί να είναι εξοπλισμένος με θερμαντικό χιτώνιο. Η συσκευή θερμάνσεως του χιτωνίου θα είναι ρυθμισμένη κατά τρόπο ώστε να εμποδίζει τη θερμοκρασία του φωσφόρου να υπερβεί τη θερμοκρασία πληρώσεως του περιβλήματος. Άλλες σωληνώσεις θα εισέρχονται στο περίβλημα στο πάνω μέρος του· τα ανοίγματα θα βρίσκονται πάνω από υψηλότερο επιτρεπτό επίπεδο του φωσφόρου και να είναι σε θέση να κλείνεται τελείως με πώματα που κλειδώνουν. Επί πλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται.

(2) Το περίβλημα θα είναι εξοπλισμένο με σύστημα μετρητών για την εξακρίβωση του επιπέδου του φωσφόρου και αν χρησιμοποιείται νερό για προστασία, με σταθερό σημείο μετρήσεως που να δείχνει το ανώτατο επιτρεπόμενο επίπεδο του νερού.

Τα ανοίγματα και οπές (βαλβίδες, χιτώνια, ανθρωποθυρίδες, κ.λπ.) των περιβλημάτων που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2471, 1° (α), θα προστατεύονται με στεγανά πώματα που κλειδώνουν, αυτά δε τα περιβλήματα θα είναι εξοπλισμένα με θερμική μόνωση από υλικά τα οποία δεν είναι αμέσως εύφλεκτα. 211 432

Περιβλήματα που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2431, (2° (ε), δεν θα έχουν ανοίγματα... διαγράφονται 6 λέξεις), 3°, ή του περιθωριακού 2471, 2° (ε), δεν θα έχουν ανοίγματα ή συνδέσεις κάτω από τη στάθμη του υγρού, ακόμη και αν τα ανοίγματα ή συνδέσεις αυτές είναι σε θέση να κλείνονται. Επί πλέον, τα ανοίγματα καθαρισμού που προβλέπονται στο περιθωριακό 211 132 δεν θα επιτρέπονται. Τα ανοίγματα στο πάνω μέρος του περιβλήματος, περιλαμβανόμενων των εξαρτημάτων τους, θα είναι σε θέση να προστατεύονται με πώμα. 211 433

211 434
Παράγραφος 4: Έγκριση τύπου -211 439

(Δεν υπάρχουν ειδικές προϋποθέσεις) 211 440
Παράγραφος 5: Δοκιμές -211 449

Περιβλήματα προοριζόμενα για τη μεταφορά θείου στη λειωμένη κατάσταση του περιθωριακού 2401, 2° (β), ναφθαλίνης στη λυωμένη κατάσταση του περιθωριακού 2401, 11° (γ), λευκού και κίτρινου φωσφόρου του περιθωριακού 2431, 1°, νατρίου, καλλίου ή κραμάτων νατρίου ή καλλίου του περιθωριακού 2471, 1° (α), ουσίες του περιθωριακού 2471, 2° (ε), ουσίες του περιθωριακού 2471, 4°, θα υπόκεινται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή των τουλάχιστον 0.4 MPa (4 μπαρ). 211 450

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα υπόκεινται στην αρχική και περιοδικές δοκιμές με υγρό που δεν αντιδρά με την προς μεταφορά ουσία, σε πίεση δοκιμής 1 MPa (10 μπαρ) σε πίεση μετρητή. 211 451

Τα υλικά κάθε περιβλήματος που προορίζεται για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα δοκιμάζονται με τη μέθοδο που περιγράφεται στο Παράρτημα B. 16.

Περιβλήματα προοριζόμενα για τη μεταφορά θείου (περιλαμβανόμενων των ανθέων του θείου) του 2° (α), PHOSPHOROUS SESQUISULPHIDE και PHOSPHOROUS PENTASULPHIDE του 8°, ακατέργαστης ή καθαρής ναφθαλίνης του 11° (α) και (β) του περιθωριακού 2401, ή φρεσκοσβυσμένου ξυλάνθρακα του περιθωριακού 2431, 8°, θα υπόκεινται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού αυτών όπως ορίζεται στο περιθωριακό 211 123. 211 452

211 453
Παράγραφος 6: Σήμανση -211 459

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα φέρουν πέραν των στοιχείων που προβλέπονται στο περιθωριακό 211 161 τις λέξεις: «Μην ανοίγετε στη διάρκεια της μεταφοράς. Υπόκειται σε αιφνίδια ανάφλεξη». 211 460

Περιβλήματα που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2471, 2° (ε) θα φέρουν πέραν από τα στοιχεία που προβλέπονται στο περιθωριακό 211 161 τις λέξεις: «Μην ανοίγετε στη διάρκεια της μεταφοράς. Αναδίδει εύφλεκτα αέρια σε επαφή με το νερό».

Τα στοιχεία αυτά θα είναι σε επίσημη γλώσσα της χώρας εγκρίσεως, επίσης δε, αν η γλώσσα αυτή δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στα Αγγλικά, Γαλλικά ή Γερμανικά, εκτός αν στην προκείμενη μεταφορά οποιαδήποτε συμφωνία μεταξύ των ενδιαφερόμενων χωρών προβλέπει διαφορετικά.

211 461
Παράγραφος 7: Λειτουργία -211 469

Περιβλήματα προοριζόμενα για τη μεταφορά θείου του 2° (β) ή ναφθαλίνης του 11(γ) του περιθωριακού 2401 θα γεμίζονται μέχρι όχι περισσότερο του 98 στα εκατό της χωρητικότητάς τους. 211 470

Λευκός ή κίτρινος φωσφόρος του περιθωριακού 2431, 1°, αν χρησιμοποιείται νερό σαν προστατευτικός παράγων, θα καλύπτονται με βάθος όχι μικρότερο από 12 εκ. νερού κατά το χρόνο του γεμίσματος· ο βαθμός πληρώσεως σε θερμοκρασία 60°K δεν θα υπερβαίνει το 96 στα εκατό. 211 471

Ο απομένων χώρος θα γεμίζεται με άζωτο κατά τέτοιο τρόπο ώστε, ακόμη και μετά το κρύωμα, η πίεση σε καμμιά στιγμή δεν θα πέφτει κάτω από την ατμοσφαιρική πίεση. Το περίβλημα θα είναι ερμητικά κλεισμένο ώστε να μην παρουσιάζεται διαρροή αερίου.

Για τη μεταφορά ουσιών του περιθωριακού 2471, 1° (α), τα πώματα θα είναι κλειδωμένα σύμφωνα με το περιθωριακό 211 432. 211 472

Για την TRICHLOROSILANE (SILICOCHLOROFORM) του περιθωριακού 2471, 4° (α) ή για τη METHYLDICHLOROSILANE ή ETHYLDICHLOROSILANE του 4° (β), ο βαθμός πληρώσεως δεν θα υπερβαίνει το 1.14 ή 0.95 ή 0.93 KG ανά λίτρο χωρητικότητας αντίστοιχα. αν το γέμισμα γίνεται κατά μάζα ή 85 στα εκατό αν το γέμισμα γίνεται με όγκο. 211 473

Περιβλήματα τα οποία περιείχαν φώσφωρο του περιθωριακού 2431, 1°, όταν παραδίδονται για φόρτωση: 211 474

– είτε θα γεμίζονται με άζωτο· ο αποστολέας θα πιστοποιεί στο έγγραφο μεταφοράς ότι το περίβλημα, μετά το κλείσιμο, είναι αεροστεγές,

– είτε θα γεμίζεται με νερό μέχρι όχι λιγότερο από το 96 στα εκατό και όχι περισσότερο από το 98 στα εκατό της χωρητικότητάς τους· μεταξύ 1ης Οκτωβρίου και 31ης Μαρτίου αυτό το νερό θα περιέχει ένα ή περισσότερα αντιψυκτικά απαλλαγμένα από οξειδωτική ενέργειά, μη υποκείμενα σε αντίδραση με το φώσφορο και σε τέτοια συμπύκνωση ώστε να καθιστά αδύνατο το πάγωμα του νερού κατά τη μεταφορά.

Δεξαμενές που περιείχαν φώσφορο του περιθωριακού 2431, 1° πρέπει να θεωρούνται, όσον αφορά την εφαρμογή των διατάξεων του περιθωριακού 42 500 (1), ότι είναι «κενές δεξαμενές, ακαθάριστες».

Ο βαθμός πληρώσεως για περιβλήματα που περιέχουν ουσίες του περιθωριακού 2431, 3°, ή του περιθωριακού 2471, 2° (ε) δεν θα υπερβαίνει το 90 στα εκατό· χώρος 5 στα εκατό θα παραμένει κενός για ασφάλεια όταν το υγρό είναι σε μια μέση θερμοκρασία 50°K. Στη διάρκεια της μεταφοράς, οι ουσίες θα βρίσκονται κάτω από στρώμα αδρανούς αερίου, η πίεση μετρητή του οποίου δεν θα υπερβαίνει το 50 KPa (0.5 μπαρ). Τα περιβλήματα θα είναι ερμητικά κλειστά[6]/ και τα προστατευτικά πώματα σύμφωνα με το περιθωριακό 211 433 θα είναι κλειδωμένα. Τα κενά περιβλήματα, ακαθάριστα, όταν παραδίδονται για μεταφορά, θα είναι γεμάτα με αδρανές αέριο σε πίεση μετρητή μέχρι 50 KPa (0.5 μπαρ). 211 475

Κατηγορία 5.1: Οξειδωτικές ουσίες 211 476
Κατηγορία 5.2: Οργανικά υπεροξείδια -211 499

211 500
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενών)· Ορισμοί -211 509

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 5.1 μπορούν να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές: ουσίες του 1° μέχρι 3°, διαλύματα του 4° (επίσης SODIUM CHLORATE στην υγρή ή τη στερεή κατάσταση) και θερμά υδατώδη διαλύματα AMMONIUM NITRATE του 6° (α) σε συμπύκνωση πάνω από 80 στα εκατό αλλά όχι περισσότερο από 93 στα εκατό με τον όρο ότι: 211 510

(α) η τιμή του PH, μετρούμενη σε υδατώδες διάλυμα 10 στα εκατό της μεταφερόμενης ουσίας, είναι μεταξύ 5 και 7, και

(β) τα διαλύματα δεν περιέχουν οποιαδήποτε καύσιμη ουσία σε ποσότητα μεγαλύτερη από 0.2 στα εκατό ή οποιοδήποτε μίγμα χλωρίνης σε τέτοια ποσότητα ώστε το περιεχόμενο χλωρίνης υπερβαίνει το 0.02 στα εκατό.

Ουσίες του 1°, 10°, 14°, 15° και 18° της Κατηγορίας 5.2 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά σε χύμα ουσιών του 4° μέχρι 6° και του 7° (α) και (β) της Κατηγορίας 5.1 βλέπε το περιθωριακό 51 111.

211 511
Παράγραφος 2: Κατασκευή -211 519

Περιβλήματα προοριζόμενα για τη μεταφορά σε υγρή κατάσταση ουσιών που αναφέρονται στο περιθωριακό 211 510 θα είναι σχεδιασμένα για πίεση τουλάχιστο 0.4 MPa (4 μπαρ) (πίεση μετρητή). 211 520

Περιβλήματα, και τα είδη του εξοπλισμού τους, που προορίζονται για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατωδών διαλυμάτων υπεροξειδίου του υδρογόνου του περιθωριακού 2501, 1°, ή υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 1°, 10°, 14°, 15° και 18° θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι λιγότερο από 99,5 στα εκατό ή από κατάλληλο χάλυβα που δεν θα προκαλέσει αποσύνθεση του υπεροξειδίου του υδρογόνου ή των οργανικών υπεροξειδίων. 211 521

Περιβλήματα προοριζόμενα για τη μεταφορά συμπυκνωμένων και θερμών υδροδιαλυμάτων AMMONIUM NITRATE του περιθωριακού 2501, 6° (α), θα είναι κατασκευασμένα από ωστενιτικό χάλυβα. 211 522

211 523
Παράγραφος 3: Είδη εξοπλισμού -211 529

Περιβλήματα προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου και υδατοδιαλυμάτων του υπεροξειδίου του υδρογόνου που περιέχουν πάνω από 70 στα εκατό υπεροξείδιο του υδρογόνου του περιθωριακού 2501, 1°, θα έχουν τα ανοίγματά τους πάνω από την στάθμη του υγρού. Επί πλέον, τα ανοίγματα καθαρισμού όπως αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται. Στην περίπτωση διαλυμάτων που περιέχουν υπεροξείδιο του υδρογόνου πάνω από 60 στα εκατό αλλά όχι περισσότερο από 70 στα εκατό θα επιτρέπονται ανοίγματα κάτω από την επιφάνεια του υγρού. Στην περίπτωση αυτή το σύστημα κενώσεως του περιβλήματος θα είναι εξοπλισμένο με δύο αμοιβαία ανεξάρτητες συσκευές κλεισίματος τοποθετημένες σε σειρά, της πρώτης 211 530

λαμβάνουσας τη μορφή εσωτερικής βαλβίδας ταχείας λειτουργίας κλεισίματος εγκριμένου τύπου και της δεύτερης εκείνης της βαλβίδας εκροής σε κάθε άκρο του σωλήνα κενώσεως. Επίσης θα υπάρχει τοποθετημένη λευκή φλάντζα ή άλλη συσκευή παρέχουσα το ίδιο μέτρο ασφαλείας στην έξοδο κάθε εξωτερικής βαλβίδας ταχείας κενώσεως. Η εσωτερική βαλβίδα κλεισίματος θα είναι τέτοια ώστε, αν ο σωλήνας ξεβιδωθεί η βαλβίδα να παραμείνει ακέραιη με το περίβλημα και σε κλειστή θέση.

Οι συνδέσεις προς τους εξωτερικούς σωλήνες κενώσεως των περιβλημάτων θα κατασκευάζονται από υλικά τα οποία δεν πρόκειται να προκαλέσουν αποσύνθεση του υπεροξειδίου του υδρογόνου. 211 531

Περιβλήματα που προορίζονται για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατοδιαλυμάτων υπεροξειδίου του 1°, ή συμπυκνωμένων και θερμών υδατοδιαλυμάτων AMMONIUM NITRATE του 6° (α), του περιθωριακού 2501 θα είναι εξοπλισμένα στο πάνω μέρος τους με συσκευή διακοπής παροχής που εμποδίζει τη δημιουργία υπερβολικής πιέσεως μέσα στο δοχείο, οποιαδήποτε διαρροή υγρού και οποιαδήποτε είσοδο ξένων ουσιών μέσα στο δυχείο. Οι συσκευές διακοπής παροχής περιβλημάτων που προορίζονται για τη μεταφορά συμπυκνωμένων και θερμών υδατοδιαλυμάτων AMMONIUM NITRATE θα είναι σχεδιασμένες κατά τέτοιο τρόπο ώστε να αποκλείουν απόφραξη των συσκευών από στερεοποιημένο AMMONIUM NITRATE κατά τη διάρκεια της μεταφοράς. 211 532

Όπου περιβλήματα προοριζόμενα για τη μεταφορά συμπυκνωμένων και θερμών διαλυμάτων AMMONIUM NITRATE του περιθωριακού 2501, 6° (α), έχουν επένδυση με υλικό θερμικής μονώσεως, το υλικό θα είναι ανόργανης φύσεως και τελείως απαλλαγμένο από καύσιμο ύλη. 211 533

Περιβλήματα που προορίζονται για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 1°, 10°, 14°, 15° και 18°, θα είναι εξοπλισμένα με συσκευή αερισμού εφοδιασμένη με φλογοπαγίδα και θα ακολουθείται σε σειρά από βαλβίδα ασφαλείας που θα ανοίγει σε πίεση μετρητή 0.18 μέχρι 0.22 MPa (1.8 μέχρι 2.2 μπαρ) 211 534

Περιβλήματα προοριζόμενα για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 1°, 10°, 14°, 15° και 18° θα είναι εξοπλισμένα με αλεξήλιο ανταποκρινόμενο στις απαιτήσεις του περιθωριακού 211 234 (1). Το αλεξήλιο και το ακάλυπτο τμήμα του περιβλήματος θα είναι χρωματισμένα λευκά και το χρώμα θα καθαρίζεται πριν από κάθε μεταφορικό ταξείδι και θα ανανεώνεται σε περίπτωση κιτρινίσματος ή φθοράς. Τα αλεξήλια θα είναι απαλλαγμένα από καύσιμη ύλη. 211 535

211 536
Παράγραφος4: Έγκριση τύπου -211 539

(Δεν υπάρχουν ειδικές προϋποθέσεις) 211 540
Παράγραφος 5: Δοκιμές -211 549

Περιβλήματα προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου του 1°, ή συμπυκνωμένων και θερμών διαλυμάτων AMMONIUM NITRATE του 6° (α), του περιθωριακού 2501 ή υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 1°, 10°, 14°, 15° και 18°, θα υποβάλλονται σε δοκιμή σε πίεση 0.4 MPa (4 μπαρ) 211 550

211 551
Παράγραφος 6: Σήμανση -211 559

211 560
(Δεν υπάρχουν ειδικές προϋποθέσεις) -211 569
Παράγραφος 7: Λειτουργία

Το εσωτερικό του περιβλήματος και όλα τα μέρη που έρχονται σε επαφή με ουσίες που αναφέρονται στο περιθωριακό 211 510, θα διατηρούνται καθαρά. Δεν θα χρησιμοποιείται για τις αντλίες, βαλβίδες και άλλες συσκευές λιπαντικό που μπορεί να συνδυαστεί επικίνδυνα με τη μεταφερόμενη ουσία. 211 570

Περιβλήματα προοριζόμενα για τη μεταφορά υγρών του περιθωριακού 2501, 1° μέχρι 3°, θα γεμίζονται μέχρι όχι περισσότερο από 95 στα εκατό της χωρητικότητάς τους σε ενδεικτική θερμοκρασία 15°K. 211 571

Περιβλήματα προοριζόμενα για τη μεταφορά θερμών υδατοδιαλυμάτων AMMONIUM NITRATE του περιθωριακού 2501, 6° (α), θα γεμίζονται μέχρι όχι περισσότερο από το 97 στα εκατό της χωρητικότητάς τους και η ανώτατη θερμοκρασία μετά το γέμισμα δεν θα υπερβαίνει τους 140°K.

Δεξαμενές χρησιμοποιούμενες για τη μεταφορά θερμών υδατοδιαλυμάτων AMMONIUM NITRATE του περιθωριακού 2501, 6° (α), δεν θα χρησιμοποιούνται για τη μεταφορά άλλων ουσιών χωρίς πρώτα να καθαριστούν προσεκτικά από οποιαδήποτε κατάλοιπα. 211 572

211 573
-211 599
Κατηγορία 6.1: Τοξικές ουσίες

211 600
-211 609
Παράγραφος Ι: Γενικά· πλαίσιο (χρήση δεξαμενών)· ορισμοί

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 6.1 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές: 211 610

(α) πολύ τοξικές ουσίες αναφερόμενες ονομαστικά στο 2° και 3°·

(β) πολύ τοξικές ουσίες ταξινομημένες με (α) στο 11° μέχρι 24°, 31°, 41°, 51°, 55° και 71° μέχρι 88°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη με (α) αυτών των ειδών·

(γ) τοξικές ή επιβλαβείς ουσίες ταξινομημένες με (β) ή (γ) του 11°, 24°, 51° μέχρι 55°, 57° μέχρι 68° και 71° μέχρι 88°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπο (β) ή (γ) αυτών των ειδών·

(δ) Τοξικές ή επιβλαβείς ουσίες σε σκόνη ή κόκκους ταξινομημένες υπό (β) ή (γ) του 12°, 14°, 17°, 19°, 21°, 23°, 24°, 51° μέχρι 55°, 57° μέχρι 68° και 71° μέχρι 88° και παρόμοιες ουσίες σε σκόνη ή κόκκους προς κατάταξη υπό (β) ή (γ) αυτών των ειδών.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα ουσιών του 44° (β), 60° (γ) και 63° (γ) βλέπε περιθωριακό 61 111.

211 611
Παράγραφος 2: Κατασκευή -211 619

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που αναγράφονται ονομαστικά στο 2° και 3° θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 1.5 MPa (15 μπαρ) πίεση μετρητή. 211 620

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 1.0 MPa (10 μπαρ) πίεση μετρητή. 211 621

Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (γ) θα είναι σχεδιασμένα για πίεση μετρητή [13]/ όχι μικρότερη από 0.4 MPa (4 μπαρ) σε πίεση μετρητή. 211 622

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών σε σκόνη ή κόκκους που αναφέρονται στο περιθωριακό 211 610 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος. 211 623

211 624
-211 629
Παράγραφος 3: Είδη εξοπλισμού

Όλα τα ανοίγματα των περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (α) και (β) θα βρίσκονται πάνω από τη στάθμη του υγρού. Μέσω των τοιχωμάτων δεν θα περνούν σωλήνες ή συνδέσεις σωλήνων κάτω από την επιφάνεια του υγρού. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά [6]/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με πώματα που κλειδώνουν. Τα ανοίγματα καθαρισμού που προβλέπονται στο περιθωριακό 211 132 δεν θα επιτρέπονται εντούτοις για περιβλήματα που προορίζονται για τη μεταφορά διαλυμάτων υδροκυανικού οξέος του 2°. 211 630

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (γ) και (δ) μπορεί να είναι επίσης του τύπου κενώσεως από τον πυθμένα. Τα περιβλήματα θα είναι σε θέση να κλείνουν ερμητικά [6]/. 211 631

Αν τα περιβλήματα είναι εφοδιασμένα με βαλβίδες ασφαλείας, θα τοποθετούνται πριν από τη βαλβίδα δίσκος διαρρηγνυόμενος η δε βαλβίδα ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή. 211 632

211 633
-211 639

Παράγραφος 4: Έγκριση τύπου

211 640
(Δεν υπάρχουν ειδικές προϋποθέσεις) -211 649

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (α), (β) και (γ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ). Για περιβλήματα που προορίζονται για τη μεταφορά ουσιών του 31° (α), οι περιοδικές δοκιμές θα γίνονται σε διαστήματα όχι μεγαλύτερα των τριών ετών και θα περιλαμβάνουν τη δοκιμή υδραυλικής πίεσεως. 211 650

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (δ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές στην πίεσή τους υπολογισμού όπως ορίζεται στο περιθωριακό 211 123. 211 651

211 652
Παράγραφος 6: Σήμανση -211 659

211 660
(Δεν υπάρχουν ειδικές προϋποθέσεις -211 669

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 (α), (β) και (γ) θα είναι σύμφωνος με το περιθωριακό 211 172 (1) (δ). 211 670

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 3° δεν θα γεμίζονται σε περισσότερο απο 1 κιλό ανά λίτρο χωρητικότητας. 211 671

Τα περιβλήματα θα κλείνονται ερμητικά 2/ στη διάρκεια της μεταφοράς. Τα κλεισίματα των περιβλημάτων που προορίζονται για τη μεταφορά ουσιών που αναφέρονται στο περιθωριακό 211 610 (α) και (β) θα προστατεύονται με πώματα που κλειδώνουν. 211 672

Οχήματα δεξαμενές και αποσυναρμολογούμενες δεξαμενές εγκριμένες για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 610 δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως και ζωοτροφών. 211 673

211 674
Κατηγορία 7: Ραδιενεργές ουσίες -211 699

211 700
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενών)· ορισμοί -211 709

Χρήση

Σύμφωνα με το ισχύον πρόγραμμα του περιθωριακού 211 710 2703.

ΣΗΜΕΙΩΣΗ: Υγρές ή στερεές ουσίες με χαμηλό ειδικό βάρος, LSA (1), του περιθωριακού 2703, πίνακας 5, εκτός από URANIUM HEXAFLUORIDE και ουσίες που υπόκεινται σε αιφνίδια ανάφλεξη, μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές.

211 711
Παράγραφος 2: Κατασκευή -211 719

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 2703, Πίνακας 5, παράγραφος 11, θα είναι σχεδιασμένα για πίεση μετρητή τουλάχιστον 0.4 MPa (4 μπαρ). 211 720

Όπου οι ραδιενεργές ουσίες βρίσκονται σε διάλυση ή αιώρηση σε ουσίες άλλων κατηγοριών και οι πιέσεις υπολογισμού που προβλέπονται για τα περιβλήματα ή τις δεξαμενές που προορίζονται για τη μεταφορά των τελευταίων αυτών ουσιών είναι μεγαλύτερες, θα εφαρμόζονται οι τελευταίες αυτές πιέσεις. 211 721

Παράγραφος 3: Είδη εξοπλισμού

Περιβλήματα προοριζόμενα για τη μεταφορά υγρών ραδιενεργών ουσιών 2/ θα έχουν τα ανοίγματά τους πάνω από τη στάθμη του υγρού. Κανένας σωλήνας ή σύνδεση σωλήνα δεν θα διαπερνά τα τοιχώματα του περιβλήματος κάτω από τη στάθμη του υγρού. 211 730

211 731
-211 739

Παράγραφος 4: Έγκριση τύπου

Δεξαμενές εγκριμένες για τη μεταφορά ραδιενεργών ουσιών δεν θα εγκρίνονται για τη μεταφορά τροφίμων, ειδών καταναλώσεως, ζωοτροφών, καλλυντικών ή φαρμάκων, ή ουσιών που χρησιμοποιούνται για την παρασκευή αυτών των προϊόντων. 211 740

211 741
-211 749

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 2703, Πίνακας 5, παράγραφος 11, θα δοκιμάζονται αρχικά και περιοδικά σε πίεση μετρητή 0.4 MPa (4 μπαρ). 211 750

Κατά παρέκκλιση από τις απαιτήσεις του περιθωριακού 211 151, η περιοδική εσωτερική επιθεώρηση μπορεί να αντικατασταθεί από έλεγχο του πάχους του τοιχώματος με υπερήχους, που θα γίνεται κάθε τρία έτη. 211 751

211 752
Παράγραφος 6: Σήμανση -211 759

211 760
(Δεν υπάρχουν ειδικές προϋποθέσεις) -211 769

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως στη θερμοκρασία αναφοράς των 15°K δεν θα υπερβαίνει το 93 στα εκατό της συνολικής χωρητικότητας του περιβλήματος. 211 770

Δεξαμενές που έχουν χρησιμοποιηθεί για τη μεταφορά ραδιενεργών ουσιών δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως, ζωοτροφών, καλλυντικών ή φαρμάκων, ή ουσιών που χρησιμοποιούνται για την παρασκευή αυτών των προϊόντων 211 771

211 772
Κατηγορία 8: Οξειδωτικές ουσίες –211 799

211 800
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενών)· ορισμοί -211 809

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 8 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές: 211 810

(α) ουσίες αναφερόμενες ονομαστικά στο 6°, 7° και 24° και ουσίες παρόμοιες με εκείνες του 7°·

(β) πολύ οξειδωτικές ουσίες ταξινομημένες με (α) του 1°, 2°, 3°, 10°, 11°, 21°, 26°, 27°, 32°, 33°, 36°, 37°, 64°, 65° και 66°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη με (α) αυτών των ειδών.

(γ) Οξειδωτικές ή ελαφρά οξειδωτικές ουσίες ταξινομημένες με (β) ή (γ) του 1° μέχρι 5°, 8° μέχρι 11°, 21°, 26°, 27°, 31° μέχρι 39°, 42° μέχρι 45°, 51° μέχρι 54° και 61° μέχρι 66°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπό (β) ή (γ) εκείνων των ουσιών·

(δ) Οξειδωτικές ή ελαφρά οξειδωτικές ουσίες σε σκόνη ή κόκκους ταξινομημένες υπό (β) ή (γ) του 22°, 23°, 26°, 27°, 31°, 35°, 39°, 41°, 45°, 52° και 65° και παρό-

μοιες ουσίες σε σκόνη ή κόκκους προς κατάταξη υπό (β) ή (γ) εκείνων των ειδών.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα λασπωδών αποβλήτων μολύβδου που περιέχουν θειϊκό οξύ του 1° (β) και ουσιών του 23°, βλέπε το περιθωριακό 81 111.

211 811
Παράγραφος 2: Κατασκευή –211 819

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών αναγραφόμενων στο 6° και 24° θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 2.1 MPa (21 μπαρ) σε πίεση μετρητή. Περιβλήματα που προορίζονται για τη μεταφορά βρωμίου του 24° θα είναι εξοπλισμένα με επένδυση μολύβδου όχι λεπτότερη από 5 χιλ. πάχους ή ισότιμη επένδυση. 211 820

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 7° (α) θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 1.0 MPa (10 μπαρ) και περιβλήματα για τη μεταφορά ουσιών του 7° (β) και (γ) για πίεση υπολογισμού [13]/ όχι μικρότερη από 0.4 MPa (4 μπαρ).

Οι απαιτήσεις του Παραρτήματος Β.1δ θα έχουν εφαρμογή για υλικά και κατασκευή συγκολλημένων περιβλημάτων που προορίζονται για τη μεταφορά HYDROGEN FLUORIDE και υδροδιαλυμάτων του υδροφθορικού οξέος του 6°,

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 1.0 MPa (10 μπαρ) σε πίεση μετρητή. 211 821

Όπου η χρήση αλουμινίου είναι αναγκαία για περιβλήματα που προορίζονται για τη μεταφορά νιτρικού οξέος του 2° (α), αυτά τα περιβλήματα θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας τουλάχιστο 99,5 στα εκατό, οπότε κατά παρέκκλιση από τις διατάξεις της παραπάνω παραγράφου, το πάχος του τοιχώματος χρειάζεται να υπερβαίνει τα 15 χιλ.

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (γ) θα είναι σχεδιασμένα για πίεση υπολογισμού [13]/ όχι μικρότερη από 0.4 MPa (4 μπαρ) σε πίεση μετρητή. 211 822

Περιβλήματα προοριζόμενα για τη μεταφορά μονοχλωροοξικού οξέος (MONOCHLOROACETIC) του 31° (β) θα είναι εξοπλισμένα με επίστρωση σμάλτου ή ισότιμη επένδυση αν το υλικό του περιβλήματος επηρεάζεται από εκείνο το οξύ.

Περιβλήματα και τα είδη εξοπλισμού τους που προορίζονται για τη μεταφορά υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας τουλάχιστο 99.5 ή από κατάλληλο χάλυβα που δεν προκαλεί αποσύνθεση του υπεροξειδίου του υδρογόνου.

Ανεξάρτητα από τις διατάξεις της πρώτης παραγράφου, το πάχος του τοιχώματος δεν χρειάζεται να είναι μεγαλύτερο από 15 χιλ. όταν τα περιβλήματα είναι κατασκευασμένα από καθαρό αλουμίνιο.

Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών σε σκόνη ή σε κόκκους που αναφέρονται στο περιθωριακό 211 810 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος. 211 823

211 824
Παράγραφος 3: Είδη εξοπλισμού –211 829

Όλα τα ανοίγματα των περιβλημάτων που προορίζονται για τη μεταφορά ουσιών του 6°, 7° και 24° θα βρίσκονται πάνω από την επιφάνεια του υγρού. Μέσον των τοιχωμάτων του περιβλήματος δεν θα περνούν σωλήνες ή συνδέσεις σωλήνων κάτω από την επιφάνεια του υγρού. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά [6]/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με πώματα που κλειδώνουν. Επί πλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται. 211 830

Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (β), (γ) και (δ) μπορεί επίσης να είναι του τύπου κενώσεως από τον πυθμένα. Τα εξαρτήματα κενώσεως από τον πυθμένα των περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (β) και (γ) θα είναι σύμφωνα με τις απαιτήσεις του περιθωριακού 211 131. 211 831

Αν τα περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (β) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται πριν από τη βαλβίδα διαρρηγνυόμενος δίσκος. Η ρύθμιση του διαρρηγνυόμενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή 211 832

Περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου του θείου του 1° (α) θα είναι θερμικά μονωμένα και εφοδιασμένα με συσκευή θερμάνσεως στο έξω μέρος. 211 833

Περιβλήματα και ο εξοπλισμός εξυπηρετήσεως αυτών που προορίζονται για τη μεταφορά υποχλωριούχων διαλυμάτων του 62° και υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου του 62° θα είναι σχεδιασμένα έτσι ώστε να εμποδίζουν την είσοδο ξένων ουσιών, διαρροή υγρού ή τη δημιουργία οποιασδήποτε υπερβολικής πιέσεως επικίνδυνης φύσεως μέσα στο περίβλημα. 211 834

211 835
211 839
Παράγραφος 4: Έγκριση τύπου

211 840
(Δεν υπάρχουν ειδικές προϋποθέσεις) –211 849

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου υδροφθορικού οξέος ή υδατοδιαλυμάτων υδροφθορικού οξέος του 6° θα υποβάλλονται στην αρχική και περιοδικές δοκιμές σε πίεση μετρητή τουλάχιστον 1.0 MPa (10 μπαρ) και εκείνα που προορίζονται για τη μεταφορά ουσιών του 7° θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ). 211 850

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 6° και 7° επιθεωρούνται κάθε 3 έτη για αντοχή στην οξείδωση, με κατάλληλα όργανα (π.χ. υπερήχους). Τα υλικά κάθε κολλημένου περιβλήματος που προορίζεται για τη μεταφορά HYDROGEN FLUORIDE και υδατοδιαλυμάτων υδροφθορικού οξέος του 6° θα δοκιμάζονται με τη μέθοδο που περιγράφονται στο Παράρτημα Β.1δ.

Περιβλήματα προοριζόμενα για τη μεταφορά βρωμίου του 24° ή των ουσιών που αναφέρονται ή των ουσιών που αναφέρονται στο περιθωριακό 211 810 (β) και (γ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ). Η δοκιμή υδραυλικής πίεσης για περιβλήματα που προορίζονται για τη μεταφορά τριοξειδίου του θείου του 1° (α) θα επαναλαμβάνεται κάθε τρία έτη. Περιβλήματα κατασκευασμένα από καθαρό αλουμίνιο και προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (α) και υδατοδιαλυμάτων του υπεροξειδίου του υδρογόνου του 62° δεν χρειάζεται να υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή μεγαλύτερη από 0.25 MPa (2.5 μπαρ). Η κατάσταση της επενδύσεως των περιβλημάτων που προορίζονται για τη μεταφορά βρωμίου του 24° θα επιθεωρείται κάθε χρόνο από ειδικό της εγκρίσεως της αρμόδιας αρχής, ο οποίος θα επιθεωρεί το εσωτερικό του περιβλήματος. 211 851

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 211 810 (δ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού αυτών όπως καθορίζεται στο περιθωριακό 211 123. 211 852

211 853
Παράγραφος 6: Σήμανση –211 859

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου υδροφθορικού οξέος ή υδατοδιαλυμάτων του υδροφθορικού οξέος του 6°, ή βρωμίου του 24°, θα φέρουν πέραν από τα στοιχεία που αναφέρονται στο περιθωριακό 211 160 ένδειξη του επιτρεπόμενου ανώτατου καθαρού φορτίου σε κιλά και την ημερομηνία (μήνα, έτος) της πιο πρόσφατης εσωτερικής επιθεωρήσεως του περιβλήματος. 211 860

211 861
-211 869

Παράγραφος 7: Λειτουργία

Περιβλήματα που προορίζονται για τη μεταφορά τριοξειδίου του θείου του 1° (α) δεν θα γεμίζονται πάνω από το 88 στα εκατό της χωρητικότητας αυτών· εκείνα που προορίζονται για τη μεταφορά βρωμίου του 24° θα γεμίζονται όχι λιγότερο από το 88 στα εκατό και όχι περισσότερο από το 92 στα εκατό της χωρητικότητας αυτών ή 2.86 κιλά ανά λίτρο χωρητικότητας. 211 870

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου υδροφθορικού οξέος ή υδατοδιαλυμάτων υδροφθορικού οξέος του 6° δεν θα γεμίζονται μέχρι πάνω από 0.84 κιλά ανά λίτρο χωρητικότητας.

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 6°, 7°, και 24 θα κλείνονται ερμητικά [6]/ στη διάρκεια της μεταφοράς, τα δε κλεισίματα θα προστατεύονται με πώματα που κλειδώνουν. 211 871

211 872
-211 999

Παράρτημα Β.13
ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΔΕΞΑΜΕΝΟΚΟΝΤΕΗΝΕΡ

ΣΗΜΕΙΩΣΗ: Το μέρος Ι καθορίζει τις προϋποθέσεις που έχουν εφαρμογή τα δεξαμενοκοντέηνερ που προορίζονται για τη μεταφορά ουσιών όλων των Κατηγοριών. Το μέρος ΙΙ περιέχει ειδικές προϋποθέσεις που συμπληρώνουν ή τροποποιούν τις προϋποθέσεις του Μέρους Ι.

ΜΕΡΟΣ Ι: ΠΡΟΫΠΟΘΕΣΕΙΣ ΓΙΑ ΟΛΕΣ ΤΙΣ ΚΑΤΗΓΟΡΙΕΣ

212 000
-212 099

Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενοκοντέηνερ)· ορισμοί

ΣΗΜΕΙΩΣΗ: Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (1), η μεταφορά επικίνδυνων ουσιών σε δεξαμενο-κοντέηνερ επιτρέπεται μόνο όπου ρητά επιτρέπεται για τέτοιες ουσίες σε κάθε μία από τις Παραγράφους 1 του Μέρους ΙΙ του παρόντος Παραρτήματος

Οι προϋποθέσεις αυτές θα έχουν εφαρμογή σε δεξαμενοκοντέηνερ χωρητικότητας πάνω από 0.45 κυβικού μέτρου που χρησιμοποιούνται για τη μεταφορά ουσιών σε υγρή, αέρια, κονιώδη ή κοκκώδη κατάσταση, και στα εξαρτήματα και παραρτήματα αυτών 212 100

Το δεξαμενοκοντέηνερ θα περιλαμβάνει περίβλημα και είδη εξοπλισμού, περιλαμβανόμενου εξοπλισμού για τη διευκόλυνση των κινήσεων χωρίς σημαντική μεταβολή συμπεριφοράς 212 101

Στις παρακάτω προϋποθέσεις: 212 102

(1) (α) «Περίβλημα» σημαίνει την ίδια τη δεξαμενή (περιλαμβανόμενων των ανοιγμάτων και κλεισμάτων αυτών)·

(β) «Εξοπλισμός εξυπηρετήσεως» του περιβλήματος σημαίνει συσκευές πληρώσεως και κενώσεως, αερισμού, ασφαλείας, θερμάνσεως και θερμομονώσεως και τα όργανα μετρήσεως· και

(γ) «Δομικός Εξοπλισμός» σημαίνει τα ενισχυτικά, προστατευτικά ή σταθεροποιητικά μέλη έξω από το περίβλημα.

(2) (α) «Υπολογισμένη πίεση» σημαίνει θεωρητική πίεση τουλάχιστον ίση με την πίεση δοκιμής η οποία σύμφωνα με το βαθμό κινδύνου που παρουσιάζει μία ουσία που μεταφέρεται μπορεί να υπερβαίνει την πίεση λειτουργίας λίγο πολύ ουσιαστικά. Χρησιμοποιείται αποκλειστικά για τον προσδιορισμό του πάχους των τοιχωμάτων του περιβλήματος, με εξαίρεση οποιασδήποτε εξωτερικής ή εσωτερικής ενισχυτικής συσκευής·

(β) «Ανώτατη πίεση λειτουργίας (πίεση μετρητή)» σημαίνει την ανώτατη από τις τρεις παρακάτω πιέσεις:
(ι) την ανώτατη πραγματική επιτρεπόμενη πίεση στο περίβλημα κατά τη διάρκεια της πληρώσεως («ανώτατη επιτρεπόμενη πίεση πληρώσεως»)·
(ιι) την ανώτατη πραγματική επιτρεπόμενη πίεση στο περίβλημα στη διάρκεια της κενώσεως («ανώτατη επιτρεπόμενη πίεση κενώσεως»)· και
(ιιι) την πραγματική πίεση μετρητή στην οποία υποβάλλεται το περίβλημα από το περιεχόμενό του (περιλαμβανόμενων και όποιων εξωτερικών αερίων μπορεί να περιέχει) στην ανώτατη θερμοκρασία λειτουργίας.

Εκτός όπου οι ειδικές προϋποθέσεις για κάθε Κατηγορία προβλέπουν διαφορετικά, η αριθμητική πίεση (πίεση μετρητή) δεν θα έχει τιμή μικρότερη από την πίεση εξατμίσεως (απόλυτη πίεση) της ουσίας πληρώσεως στους 50°Κ.

Για περιβλήματα εξοπλισμένα με βαλβίδες ασφαλείας (με ή χωρίς εκρηγνυόμενο δίσκο), η ανώτατη πίεση λειτουργίας (πίεση μετρητή) θα είναι πάντως ίση με την προβλεπόμενη πίεση ανοίγματος αυτών των βαλβίδων ασφαλείας.

Για περιβλήματα εξοπλισμένα με συστήματα αερισμού και συσκευή ασφαλείας που εμποδίζει το χύσιμο του περιεχομένου αν αναποδογυρίσει το περίβλημα, η ανώτατη πίεση λειτουργίας (πίεση μετρητή) θα είναι ίση με τη στατική πίεση της πληρούμενης ουσίας.

(γ) «Πίεση δοκιμής» σημαίνει την ανώτατη πραγματική πίεση που δημιουργείται στο περίβλημα στη διάρκεια της δοκιμής πιέσεως·

(δ) «Πίεση Πληρώσεως» σημαίνει την ανώτατη πίεση που πραγματικά δημιουργείται στο περίβλημα όταν γεμίζεται με πίεση·

(ε) «Πίεση Κενώσεως» σημαίνει την ανώτατη πίεση που πραγματικά δημιουργείται στο περίβλημα όταν αδειάζεται με πίεση·

(3) «Δοκιμή διαρροής» σημαίνει τη δοκιμή που συνίσταται από την υποβολή του περιβλήματος σε πραγματική εσωτερική πίεση ίση με την ανώτατη πίεση λειτουργίας αλλά όχι μικρότερη από 20 Κρα (0.2 μπάρ) (πίεση μετρητή), με διαδικασία της εγκρίσεως της αρμόδιας αρχής.

212 103
-212 119

Παράγραφος 2: Κατασκευή

Τα περιβλήματα θα είναι σχεδιασμένα και κατασκευασμένα σύμφωνα με τις διατάξεις τεχνικού κώδικα αναγνωρισμένου από την αρμόδια αρχή, αλλά θα καλύπτονται οι παρακάτω ελάχιστες προϋποθέσεις: 212 120

(1) Τα περιβλήματα θα είναι κατασκευασμένα από ελατά μεταλλικά υλικά. Για τα συγκολλημένα περιβλήματα θα χρησιμοποιείται μόνον υλικό του οποίου η ικανότητα συγκολλήσεως έχει πλήρως εξακριβωθεί. Οι συγκολλήσεις θα γίνονται με πλήρη δεξιοτεχνία και θα παρέχουν πλήρη ασφάλεια. Τα υλικά των περιβλημάτων όπως και οι προστατευτικές επενδύσεις τους που έρχονται σε επαφή με το περιεχόμενο που μεταφέρεται δεν θα περιέχουν ουσίες που μπορεί να αντιδράσουν επικίνδυνα με τις τελευταίες για το σχηματισμό επικίνδυνων ενώσεων, ή την ουσιαστική εξασθένιση του υλικού

(1) Περιβλήματα, τα προσαρτήματα αυτών και ο εξοπλισμός εξυπηρετήσεως και κατασκευής θα είναι σχεδιασμένα να αντέχουν τουλάχιστο τη στατική και δυναμική ένταση σε κανονική μεταφορά χωρίς απώλεια του περιεχομένου [1]/ 212 121

Η πίεση πάνω στην οποία βασίζεται ο υπολογισμός των διαστάσεων του τοιχώματος του δεξαμενοκοντέηνερ δεν θα είναι μικρότερη από την υπολογισμένη πίεση, αλλά οι εντάσεις που αναφέρονται στο περιθωριακό 212 121 θα λαμβάνονται επίσης υπόψη. 212 122

Εκτός αν ειδικά προβλέπεται διαφορετικά στις διάφορες Κατηγορίες, στο σχεδιασμό των περιβλημάτων θα λαμβάνονται υπόψη τα παρακάτω στοιχεία: 212 123

(1) Τα περιβλήματα κενώσεως με τη βαρύτητα που προορίζονται για τη μεταφορά ουσιών που έχουν πίεση εξατμίσεως που δεν υπερβαίνει τα 110 ΚΡα (1.1 μπαρ) (απόλυτη πίεση) στους 50°Κ θα είναι σχεδιασμένα για πίεση υπολογισμού διπλή από τη στατική πίεση της προς μεταφοράν ουσίας αλλά όχι λιγότερο από δύο φορές τη στατική πίεση του νερού.

(2) Περιβλήματα που γεμίζονται ή κενώνονται με πίεση

[1]/ Αν υπάρχουν εξαεριστήρες αερίων, αυτό δεν θα έχει εφαρμογή στις ποσότητες αερίου που διαφεύγουν μέσω αυτών.

προοριζόμενα για τη μεταφορά ουσιών που έχουν πίεση εξατμίσεως που δεν υπερβαίνει τα 110 KPa (1.1 μπαρ) (απόλυτη πίεση) στους 50°K θα είναι σχεδιασμένα για πίεση υπολογισμού ίση με 1.3 φορές την πίεση πληρώσεως ή κενώσεως.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που έχουν πίεση εξατμίσεως πάνω από 110 KPa (1.1 μπαρ) αλλά όχι πάνω από 175 KPa (1.75 μπαρ) (απόλυτη πίεση) στους 50°K, όποιο και αν είναι το σύστημά τους πληρώσεως ή κενώσεως, θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 0.15 MPa (1.5 μπαρ) σε πίεση μετρητή ή 1.3 φορές την πίεση πληρώσεως ή κενώσεως, όποια είναι η μεγαλύτερη.

(4) Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που έχουν πίεση εξατμίσεως πάνω από 175 KPa (1.75 μπαρ) (απόλυτη πίεση) στους 50°K θα είναι, όποιο και αν είναι το σύστημά τους πληρώσεως ή κενώσεως, σχεδιασμένα για πίεση υπολογισμού ίση με 1.3 φορές τη πίεση πληρώσεως ή κενώσεως αλλά όχι κάτω από 0.4 MPa (4 μπαρ) σε πίεση μετρητή.

Δεξαμενο-κοντέηνερ προοριζόμενα να περιέχουν ορισμένες 212 124
επικίνδυνες ουσίες θα είναι εφοδιασμένα με πρόσθετη προστασία, που μπορεί να λάβει τη μορφή πρόσθετου πάχους του περιβλήματος (του πρόσθετου αυτού πάχους καθοριζόμενου υπό τος φως των κινδύνων που περιέχονται στις ουσίες για τις οποίες πρόκειται· βλέπε τις σχετικές Κατηγορίες) ή προστατευτικής συσκευής.

Κατά την πίεση δοκιμής, η ένταση σ (σίγμα) στο πιό βαρειά 212 125
πιεζόμενο σημείο του περιβλήματος θα είναι σύμφωνη με τα εξαρτώμενα απότο υλικό όρια που προβλέπονται παρακάτω. Επί πλεόν, κατά την επιλογή του υλικού και τον προσδιορισμό του πάχους του τοιχώματος, πρέπει να λαμβάνονται ύποψη η ανώτατη και ελάχιστη θερμοκρασία πληρώσεως και λειτουργίας, με ειδική αναφορά στον κίνδυνο θραύσεως.

(1) Για μέταλλα και μίγματα που παρουσιάζουν καθαρά καθοριζόμενο σημείο αποδόσεως ή χαρακτηριζόμενα από εγγυημένη συμβατική ένταση αποδόσεως RE (γενικά 0.2 στα εκατό της υπολειμματικής επιμηκύνσεως):

(α) όπου η σχέση RE/RM δεν είναι πάνω από 0.66 (RE = ένταση εμφανούς αποδόσεως ή 0.2 στα εκατό ένταση αποδείξεως· RM = εγγυημένη ελάχιστη αντοχή εντάσεως):

$$\sigma \leqslant 0.75\ RE$$

(β) όπου η σχέση RE/RM υπερβαίνει το 0.66:

$$\sigma \leqslant 0.5\ RM$$

(2) Για μέταλλα και μίγματα που δεν εμφανίζουν ένταση εμφανούς αποδόσεως και χαρακτηριζόμενα από ελάχιστη εγγυημένη αντοχή εντάσεως RM:

$$\sigma \leqslant 0.43\ RM$$

(3) Η επιμήκυνση στη θραύση, 2/ σε ποσοστά, δεν θα είναι λιγότερο από

$$\frac{10\ 000}{RM\ (IN\ N/MM_2)}$$

αλλά δεν θα είναι λιγότερο από 20 στο εκατό στην περίπτωση χάλυβα και όχι λιγότερο από 12 στο εκατό στην περίπτωση μιγμάτων αλουμινίου.

Δεξαμενοκοντέηνερ προοριζόμενα για τη μεταφορά εύφλε- 212 126
κτων υγρών που έχουν σημείο αναφλέξεως όχι πάνω από 55°K και για τη μεταφορά εύφλεκτων αερίων θα πρέπει να μπορούν να γειωθούν από πλευράς ηλεκτρισμού.

Τα δεξαμενο - κοντέηνερ θα είναι σε θέση να απορροφήσουν 212 127
τις δυνάμεις που καθορίζονται στην παράγραφο (1) το δε πάχος του τοιχώματος των περιβλημάτων θα είναι όπως προβλέπεται στις παρακάτω παραγράφους (2) - (4).

(1) Δεξαμενοκοντέηνερ και τα δεσίματα αυτών θα είναι σε θέση κάτω από το ανώτατο επιτρεπόμενο φορτίο να απορροφήσουν τις δυνάμεις που ασκούνται από:

– στην κατεύθυνση της πορείας: δύο φορές το συνολικό βάρος·

– οριζόντια σε ορθές γωνίες προς την κατεύθυνση της πορείας: η συνολική μάζα· (όπου η κατεύθυνση της πορείας δεν είναι σαφώς προσδιορισμένη, το ανώτατο επιτρεπόμενο φορτίο θα είναι δύο φορές η συνολική μάζα)·

– κάθετα προς το άνω: τη συνολική μάζα· και

– κάθετα προς τα κάτω: δύο φορές τη συνολική μάζα.

Κάτω από κάθε μία από αυτές τις δυνάμεις οι συντελεστές ασφαλείας που πρέπει να τηρηθούν θα είναι οι παρακάτω:

– για μέταλλα που έχουν σαφώς καθορισμένο σημείο αποδόσεως: συντελεστή ασφαλείας 1.5 σε σχέση με την ένταση εμφανούς αποδόσεως· ή για μέταλα χωρίς σαφώς καθορισμένο σημείο αποδόσεως: συντελεστή ασφαλείας 1.5 σε σχέση με την εγγυημένη 0.2 στα εκατό ένταση αποδείξεως.

(2) Το πάχος του κυλινδρικού τοιχώματος του περιβλήματος και των άκρων και των πλακών επικαλύψεως θα υπολογίζεται με τον παρακάτω τύπο:

$$e = \frac{P_{MPa} \times D}{2 \times \sigma}\ (\text{σε χιλ}) \qquad e = \frac{P_{BAR} \times D}{20 \times \sigma}\ (\text{σε χιλ})$$

όπου P_{MPa} = υπολογισμένη πίεση ή πίεση δοκιμής, όποια είναι η μεγαλύτερη, σε MPa·

P_{BAR} = υπολογισμένη πίεση ή πίεση δοκιμής όποια είναι η μεγαλύτερη, σε μπάρ·

D = εσωτερική διάμετρος περιβλήματος σε χιλ. και

σ = επιτρεπόμενη ένταση, όπως καθορίζεται στο περιθωριακό 212 125, παράγραφοι (1) (α), (1) (β) και (2). σε N/MM^2.

Το πάχος σε καμμιά περίπτωση δεν θα είναι μικρότερο από προβλεπόμενο στις παραγράφους (3) και (4) παρακάτω.

(3) Τα βυτία, άκρα και καλύμματα των περιβλημάτων με διάμετρο όχι πάνω από 1.80 μ., δεν θα έχουν πάχος μικρότερο από 5 χιλ. αν είναι από μαλακό χάλυβα [3]/ (όπως καθορίζεται στο περιθωριακό 212 125) ή αντίστοιχο πάχος αν είναι από άλλο μέταλλο. Όποιο και αν είναι το χρησιμοποιούμενο μέταλλο, το πάχος του περιβλήματος σε καμμία περίπτωση δεν θα είναι κάτω από 3 χιλ.

(4) Όπου προβλέπεται πρόσθετη προστασία του περιβλήματος εναντίον βλάβης, η αρμόδια αρχή μπορεί να επιτρέψει όπως το προαναφερόμενο ελάχιστο πάχος μειωθεί κατά αναλογία της παρεχόμενης προστασίας· όμως, το προαναφερόμενο πάχος δεν θα είναι κάτω από 3 χιλ. στην περίπτωση μαλακού χάλυβα, ή από το ισότιμο πάχος στην περίπτωση άλλων υλικών, για περιβλήματα που έχουν διάμετρο όχι πάνω από 1.80 μ. Για περιβλήματα με διάμετρο που υπερβαίνει το 1.80 μ. το προαναφερόμενο ελάχιστο πάχος θα αυξάνεται σε 4 χιλ. στην περίπτωση μαλακού χάλυβα [3]/ και στο ισότιμο πάχος στην περίπτωση άλλου μετάλου.

Δεξαμενο-κοντέηνερ θα μεταφέρονται μόνο επί οχημάτων 212 128
των οποίων τα μέσα στερεώσεώς τους είναι σε θέση, κάτω από το ανώτατο επιτρεπτό φορτίο στα δεξαμενο-κοντέηνερ, να απορροφήσουν τις δυνάμεις που ορίζονται στο περιθωριακό 212 127 (1).

Παράγραφος 3: Είδη εξοπλισμού 212 129

Τα είδη εξοπλισμού θα είναι τακτοποιημένα κατά τέτοιο 212 130
τρόπο ώστε να προστατεύονται από τον κίνδυνο βίαιης αποσπάσεως ή βλάβης κατά τη μεταφορά ή τον χειρισμό. Αν η σύνδεση μεταξύ του πλαισίου και του περιβλήματος επιτρέπει σχετική κίνηση όπως μεταξύ αυτών των υποσυναρμολογήσεων, τα είδη εξοπλισμού θα είναι στερεωμένα κατά τέτοιο τρόπο ώστε να επιτρέπει τέτοια κίνηση χωρίς κίνδυνο βλάβης σε κινούμενα μέρη.

Τα είδη εξοπλισμού θα παρουσιάζουν κατάλληλο βαθμό ασφαλείας συγκρινόμενη με εκείνη του περιβλήματος.

Επί πλέον, ειδικοί όροι που έχουν εφαρμογή για δεξαμενο-

---

[2]/ Τα υποδείγματα που χρησιμοποιούνται για τον καθορισμό της επιμηκύνσεως στη θραύση θα λαμβάνονται εγκάρσια προς την κατεύθυνση της ελασματοποιήσεως και θα είναι εξασφαλισμένα ώστε:

$$L_o = 5\ D$$

όπου L_o = μήκος του υποδείγματος προ της δοκιμής· και
D = διάμετρος.

[3]/ «Μαλακός χάλυβος» σημαίνει χάλυβα που έχει αντοχή θραύσεως μεταξύ 360 και 440 N/MM^2.

κοντέηνερ που αδειάζουν από τον πυθμένα προβλέπονται στο περιθωριακό 212 131 παρακάτω.

Κάθε δεξαμενο-κοντέηνερ που αδειάζει από τον πυθμένα, και στην περίπτωση δεξαμενο-κοντέηνερ με διαμερίσματα που αδειάζουν από τον πυθμένα κάθε διάμερισμα θα έχει δύο αμοιβαία ανεξάρτητες συσκευές κλεισίματος, η πρώτη θα είναι εσωτερική βαλβίδα κλεισίματος [4]/ τοποθετημένη απ' ευθείας στο περίβλημα και η δεύτερη θα είναι βάνα εκροής ή άλλη παρόμοια συσκευή [5]/, τοποθετημένη σε σειρά, μία σε κάθε άκρο του σωλήνα κενώσεως. Επί πλέον, τα ανοίγματα των περιβλημάτων θα είναι σε θέση να κλείνονται με βιδωτά πώματα, φλάντζες ή άλλα εξίσου αποτελεσματικά μέσα. Η εσωτερική βαλβίδα κλεισίματος θα μπαίνει σε λειτουργία από πάνω ή από κάτω. Αν είναι δυνατόν, τα ανοίγματα ή κλεισίματα της βαλβίδας κλεισίματος - ανοικτή ή κλειστή - θα μπορεί να ελέγχεται από το έδαφος και στις δύο περιπτώσεις. Οι συσκευές ελέγχου της εσωτερικής βαλβίδας κλεισίματος θα είναι σχεδιασμένες κατά τρόπο ώστε να αποφεύγεται απροσδόκητο άνοιγμα λόγω προσκρούσεως ή ακούσιας ενέργειας. 212 131

Η εσωτερική συσκευή κλεισίματος θα εξακολουθεί να λειτουργεί αποτελεσματικά σε περίπτωση βλάβης της συσκευής εξωτερικού ελέγχου. Για να αποφευχθεί οποιαδήποτε απώλεια περιεχομένου σε περίπτωση βλάβης των εξωτερικών εξαρτημάτων κενώσεως (σωλήνων, πλαγίων συσκευών κλεισίματος), η εσωτερική βαλβίδα κλεισίματος και η έδρα της θα προστατεύονται κατά του κινδύνου βιαίας αποσπάσεως από εξωτερικές πιέσεις ή θα είναι έτσι σχεδιασμένη ώστε να ανθίσταται σ' αυτές. Οι συσκευές πληρώσεως και κενώσεως (περιλαμβανομένων των φλαντζών ή των πωμάτων με βίδα) και τα προστατευτικά πώματα (αν υπάρχουν) θα είναι σε θέση να εξασφαλίζονται εναντίον οποιουδήποτε ακούσιου ανοίγματος δεξαμενο-κοντέηνερ ή κάθε ένα από τα διαμερίσματά του θα είναι, εκτός όπου προορίζεται για τη μεταφορά αερίων βαθειάς καταψύξεως, εφοδιασμένο με άνοιγμα αρκετά μεγάλο για να μπορεί να γίνεται επιθεώρηση του δεξαμενο-κοντέηνερ ή του διαμερίσματος.

Δεξαμενο-κοντέηνερ προοριζόμενα για τη μεταφορά ουσιών για τις οποίες όλα τα ανοίγματα βρίσκονται πάνω από την επιφάνεια του υγρού μπορεί να είναι εξοπλισμένα, στο κάτω μέρος του κορμού, με άνοιγμα καθαρισμού. Το άνοιγμα αυτό θα είναι σε θέση να σφραγίζεται με φλάντζα που θα το κλείνει υδατοστεγώς, το σχέδιο της οποίας θα εγκρίνεται από την αρμόδια αρχή ή από το νομικό πρόσωπο που θα ορίσει αυτή η αρχή. 212 132

Δεξαμενο-κοντέηνερ προοριζόμενο για τη μεταφορά υγρών που έχουν πίεση εξατμίσεως όχι μεταγαλύτερη από 110 KPa (1.1 μπαρ) (απόλυτη) στους 50°K θα έχει σύστημα αερισμού και συσκευή ασφαλείας για να εμποδίζει το χύσιμο του περιεχομένου έξω από το περίβλημα αν το δεξαμενο-κοντέηνερ αναποδογυρίσει, ή θα ανταποκρίνεται στις απαιτήσεις του παρακάτω περιθωριακού 212 134 ή 212 135. 212 133

Δεξαμενο-κοντέηνερ προοριζόμενο για τη μεταφορά υγρών που έχουν πίεση εξατμίσεως όχι κάτω από 110 KPa (1.1 μπαρ) και όχι πάνω από 175 KPa (1.75 μπαρ) (απόλυτη) στους 50°K θα έχει βαλβίδα ασφαλείας κανονισμένη σε όχι λιγότερο από 150 KPa (1.5 μπαρ) (πίεση μετρητή) και τέτοια ώστε να ανοίγει τελείως σε πίεση που δεν υπερβαίνει την πίεση δοκιμής· ή θα είναι σύμφωνη με τις απαιτήσεις του περιθωριακού 212 135. 212 134

Δεξαμενο-κοντέηνερ προοριζόμενο για τη μεταφορά υγρών που έχουν πίεση εξατμίσεως όχι λιγότερο από 175 KPa (1.75 μπαρ) και όχι περισσότερο από 300 KPa (3 μπαρ) (απόλυτη) στους 50°K θα είναι εφοδιασμένο με βαλβίδα ασφαλείας κανονισμένη σε πίεση μετρητή όχι λιγότερο από 300 KPa (3 μπαρ) και τέτοια ώστε να ανοίγει τελείως σε πίεση που δεν υπερβαίνει την πίεση δοκιμής ή θα κλείνει ερμητικά [6]/. 212 135

Τα κινούμενα μέρη όπως καλύμματα, κλεισίματα, κ.λπ. τα οποία μπορεί να έλθουν σε επαφή τριβής ή κρούσεως με δεξαμενο-κοντέηνερ αλουμινίου προοριζόμενα για τη μεταφορά εύφλεκτων υγρών που έχουν σημείο αναφλέξεως όχι πάνω από 55°K ή για τη μεταφορά εύφλεκτων αερίων δεν θα είναι κατασκευασμένα από απροστάτευτο οξειδούμενο χάλυβα. 212 136

212 137
-212 139

Παράγραφος 4: Έγκριση τύπου

Η αρμόδια αρχή ή σώμα οριζόμενο από αυτή την αρχή θα εκδίδει σε σχέση με κάθε νέο τύπο δεξαμενο-κοντέηνερ πιστοποιητικό που θα πιστοποιεί ότι το πρωτότυπο δεξαμενο-κοντέηνερ, περιλαμβανόμενων των συστημάτων στερεώσεως, το οποίο επιθεώρησε είναι κατάλληλο για το σκοπό για τον οποίο προορίζεται και ανταποκρίνεται προς τις κατασκευαστικές απαιτήσεις της Παραγράφου 2 και τις απαιτήσεις εξοπλισμού της Παραγράφου 3. Αν τα δεξαμενο-κοντέηνερ κατασκευάζονται σε σειρά χωρίς τροποποίηση, η έγκριση αυτή θα ισχύει για ολόκληρη τη σειρά. Τα αποτελέσματα των δοκιμών, οι ουσίες ή/και οι ομάδες ουσιών για τη μεταφορά των οποίων έχει εγκριθεί το δεξαμενοαυτοκίνητο και ο αριθμός εγκρίσεως του τύπου του θα καταχωρούνται σε έκθεση δοκιμής. Οι ουσίες ομάδας ουσιών θα είναι παρόμοιου είδους και εξίσου ταιριαστές με τα χαρακτηριστικά του περιβλήματος. Οι ουσίες ή ομάδες ουσιών που επιτρέπονται θα καθορίζονται στην έκθεση δοκιμής, με τα χημικά τους ονόματα, ή με την αντιστοιχούσα συλλογική επικεφαλίδα στον πίνακα ττων ουσιών, και η Κατηγορία τους και ο αριθμός είδους. Ο αριθμός εγκρίσεως θα συνίσταται από το διακριτικό σήμα [7]/ του Κράτους στην επικράτεια του οποίου χορηγήθηκε η έγκριση και αριθμός εγγραφής. 212 140

212 141
-212 149

Παράγραφος 5: Δοκιμές

Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται είτε μαζί είτε χωριστά σε αρχική επιθεώρηση πριν μπουν σε υπηρεσία. Αυτή η επιθεώρηση θα περιλαμβάνει έλεγχο ανταποκρίσεως προς το εγκεκριμένο πρωτότυπο, έλεγχο των χαρακτηριστικών του σχεδίου, [8]/ εξωτερική και εσωτερική εξέταση, δοκιμή υδραυλικής πιέσεως [9]/ στην πίεση δοκιμής που ορίζεται στην πινακίδα των στοιχείων και έλεγχο ικανοποιητικής λειτουργίας του εξοπλισμού. 212 150

Η δοκιμή υδραυλικής πιέσεως θα γίνεται πριν από την εγκατάσταση της θερμικής μονώσεως που θα χρειαστεί. Αν τα περιβλήματα και ο εξοπλισμός τους δοκιμαστούν χωριστά, θα υποβληθούν μαζί σε δοκιμή στεγανότητας μετά την συναρμολόγησή τους.

Τα περιβλήματα και ο εξοπλισμός αυτών θα υποβάλλονται σε περιοδικές επιθεωρήσεις σε τακτά χρονικά διαστήματα. Οι περιοδικές επιθεωρήσεις θα περιλαμβάνουν: εξωτερική και εσωτερική εξέταση και, σαν γενικό κανόνα, δοκιμή υδραυλικής πιέσεως [9]/. Η επένδυση για θερμική ή άλλη μόνωση θα αφαιρείται μόνο στην απαιτούμενη έκταση για αξιόπιστη εκτίμηση των χαρακτηριστικών του περιβλήματος. 212 151

Στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά ουσιών σε σκόνη ή κόκκους και με το σύμφωνο του ειδικού που έχει εγκριθεί από την αρμόδια αρχή, οι περιοδικές δοκιμές υδραυλικής πιέσεως μπορεί να παραλειφθούν και να αντικατασταθούν από δοκιμές στεγανότητας σύμφωνα με το περιθωριακό 212 102 (3).

---

[4]/ Εκτός όπως μπορεί να προβλέπεται διαφορετικά μπορεί να προβλέπεται στην περίπτωση περιβλημάτων που προορίζονται για τη μεταφορά ορισμένων κρυσταλλοποιούμενων ή πολύ ιξωδών ουσιών.

[5]/ Στην περίπτωση δεξαμενο-κοντέηνερ χωρητικότητας κάτω από 1 m^3 η βάνα εκροής ή άλλη παρόμοια συσκευή μπορεί να αντικατασταθεί από τυφλή φλάντζα.

[6]/ «Ερμητικά κλειστά περιβλήματα» σημαίνει περιβλήματα των οποίων τα ανοίγματα είναι ερμητικά κλειστά και τα οποία δεν είναι εφοδιασμένα με βαλβίδες ασφαλείας, εύθραυστος δίσκους ή άλλες παρόμοιες συσκευές ασφαλείας. Περιβλήματα τα οποία έχουν πριν από τις βαλβίδες ασφαλείας εύθραυστο δίσκο θα θεωρούνται ότι είναι ερμητικά κλειστά.

[7]/ Διακριτικό σήμα προς χρήση σε διεθνείς μεταφορές προβλεπόμενο από τη Συνθήκη περί Οδικών Μεταφορών (Βιέννη, 1968).

[8]/ Ο έλεγχος των χαρακτηριστικών σχεδίου θα περιλαμβάνει επίσης, για περιβλήματα που χρειάζονται πίεση δοκιμής 1 MPa (10 μπαρ) ή μεγαλύτερη, έλεγχο τεμαχίων συγκολλήσεως και τις δοκιμές που προβλέπονται στο Παράρτημα 8.1δ.

[9]/ Σε ειδικές περιπτώσεις και με το σύμφωνο του ειδικού της εγκρίσεως της αρμόδιας αρχής, η δοκιμή υδραυλικής πίεσης μπορεί να αντικατασταθεί από δοκιμή πιέσεως χρησιμοποιώντας άλλο υγρό ή αέριο, όπου αυτή η εργασία δεν παρουσιάζει κίνδυνο.

Τα ανώτατα χρονικά διαστήματα για επιθεωρήσεις θα είναι πέντε χρόνια.

Επί πλέον, κάθε τουλάχιστον δυόμισυ χρόνια θα γίνεται 212 152
δοκιμή στεγανότητας του περιβλήματος με τον εξοπλισμό του και έλεγχος ικανοποιητικής λειτουργίας όλου του εξοπλισμού.

Όταν η ασφάλεια του περιβλήματος ή του εξοπλισμού του 212 153
μπορεί να έχει εξασθενήσει σαν αποτέλεσμα επισκευών, τροποποιήσεων ή ατυχήματος, για το σκοπό αυτό θα γίνεται εξαιρετικός έλεγχος.

Οι δοκιμές, επιθεωρήσεις και έλεγχοι σύμφωνα με τα πε- 212 154
ριθωριακά 212 150 μέχρι 212 153 θα γίνονται από τον ειδικό που έχει εγκριθεί από την αρμόδια αρχή. Θα εκδίδονται πιστοποιητικά που θα δείχνου την έκβαση αυτών των εργασιών.

212 155
-212 159

Παράγραφος 6: Σήμανση

Κάθε δεξαμενο – κοντέηνερ θα είναι εξοπλισμένο με αντιο- 212 160
ξειδωτική μεταλλική πλάκα μόνιμα προσαρτημένη στο περίβλημα σε θέση εύκολα προσιτή για επιθεώρηση. Τουλάχιστον τα παρακάτω στοιχεία θα είναι σημειωμένα πάνω στην πλάκα με σφραγίδα ή με οποιονδήποτε άλλο παρόμοι τρόπο. Αυτά τα στοιχεία μπορεί να χαράσσονται απευθείας στα τοιχώματα του περιβλήματος αν τα τοιχώματα είναι έτσι ενισχυμένα ώστε να μην εξασθενεί η αντοχή του περιβλήματος:

– αριθμό εγκρίσεως·
– σήμα ή επωνυμία κατασκευαστή·
– αύξων αριθμός κατασκευαστή·
– έτος κατασκευής·
– πίεση δοκιμής σε MPa ή μπάρ (πίεση μετρητή)·
– χωρητικότητα σε λίτρα – στην περίπτωση δεξαμενοκοντέηνερ πολλαπλών στοιχείων: χωρητικότητα κάθε στοιχείου.
– θερμοκρασία σχεδίου (μόνο αν είναι πάνω από 50°K ή κάτω από -20°K)·
– ημερομηνία (μήνας και έτος αρχικής δοκιμής και της πλέον πρόσφατης περιοδικής δοκιμής σύμφωνα με τα περιοδικά 212 150 και 212 151· και
– σφραγίδα του ειδικού που έκανε τις δοκιμές.

Για τα δεξαμενο – κοντέηνερ που γεμίζονται ή αδειάζονται με πίεση θα αναγράφεται επί πλέον η ανώτατη επιτρεπόμενη πίεση λειτουργίας.

Τα παρακάτω στοιχεία θα αναγράφονται είτε στο ίδιο το 212 161
δεξαμενο – όχημα είτε πάνω σε πίνακα:

– τα ονόματα του ιδιοκτήτη και του οδηγού·
– η χωρητικότητα του περιβλήματος·
– το απόβαρο·
– το ανώτατο επιτρεπόμενο μικτό βάρος· και
– η ονομασία της ουσίας που μεταφέρεται [10]/

Επί πλέον, τα δεξαμενο - κοντέηνερ θα φέρουν τις προβλεπόμενες πινακίδες κινδύνου.

212 162
-212 169

Παράγραφος 7: Λειτουργία

Στη διάρκεια της μεταφοράς, τα δεξαμενο – κοντέηνερ θα 212 170
στερεώνονται πάνω στο μεταφέρον όχημα κατά τέτοιο τρόπο ώστε να προστατεύονται αρκετά από τα εξαρτήματα του μεταφέροντος οχήματος ή από το ίδιο το δεξαμενο - κοντέηνερ κατά πλευρικής και κατά μήκος προσκρούσεως και κατά της ανατροπής [11]/. Αν τα περιβλήματα και ο εξοπλισμός εξυπηρετήσεως είναι κατασκευασμένα κατά τρόπο ώστε να αντέχουν στην πρόσκρουση ή την ανατροπή δεν χρειάζονται να προστατεύονται κατ' αυτό τον τρόπο.

Δεξαμενο - κοντέηνερ δεν θα φορτώνονται με οποιεσδήποτε 212 171
επικίνδυνες ουσίες εκτός από εκείνες για τις οποίες έχει εγκριθεί η μεταφορά.

(1) Οι παρακάτω βαθμοί πληρώσεως δεν θα υπερβαίνο- 212 172
νται σε δεξαμενο - κοντέηνερ που προορίζονται για τη μεταφορά υγρών σε θερμοκρασίες περιβάλλοντος:

(α) για εύφλεκτες ουσίες χωρίς πρόσθετους κινδύνους (π.χ. τοξικές ή οξειδωτικές), σε δεξαμενο - κοντέηνερ με σύστημα αερισμού και με ή χωρίς βαλβίδες ασφαλείας ακόμη και όταν προηγείται αυτών εύθραυστος δίσκος:

$$\text{βαθμός πληρώσεως} = \frac{100}{1 + \alpha(50\text{-}T_F)} \text{ ή } \frac{100}{1 + 35\alpha} \%$$

της χωρητικότητας·

(β) για τοξικές ή οξειδωτικές ουσίες, είτε εύφλεκτες είτε όχι, σε δεξαμενο - κοντέηνερ με σύστημα αερισμού και με ή χωρίς βαλβίδες ασφαλείας ακόμη και όταν προηγείται εύθραυστος δίσκος:

$$\text{βαθμός πληρώσεως} = \frac{98}{1 + \alpha(50\text{-}T_F)} \text{ ή } \frac{98}{1 + 35\alpha} \%$$

της χωρητικότητας·

(γ) για εύφλεκτες, επιβλαβείς ή ελαφρά οξειδωτικές ουσίες· σε ερμητικά κλειστά περιβλήματα: [9]/

$$\text{βαθμός πληρώσεως} = \frac{97}{1 + \alpha(50\text{-}T_F)} \text{ ή } \frac{97}{1 + 35\alpha} \%$$

της χωρητικότητας·

(δ) για πολύ τοξικές, τοξικές, πολύ οξειδωτικές, οξειδωτικές ουσίες σε ερμητικά κλειστά περιβλήματα: [9]/

$$\text{βαθμός πληρώσεως} = \frac{95}{1 + \alpha(50\text{-}T_F)} \text{ ή } \frac{95}{1 + 35\alpha} \%$$

της χωρητικότητας·

(2) Σ' αυτούς τους τύπους, το α είναι ο μέσος συντελεστής της κυβικής διαστολής του υγρού μεταξύ 15° και 50K, δηλ. για ανώτατη διακύμανση σε θερμοκρασία 35°K.

το α υπολογίζεται με τον τύπο: $\alpha = \frac{D_{15} - D_{50}}{35 \times D_{50}}$

όπου το D_{15} και το D_{50} είναι η σχετική πυκνότητα του υγρού στους 15°K και στους 50°K αντίστοιχα. Το T_F είναι η μέση θερμοκρασία του υγρού κατά τη διάρκεια της πληρώσεως.

(3) Οι διατάξεις του περιθωριακού 212 172 (1) δεν θα έχουν εφαρμογή σε δεξαμενοκοντέηνερ των οποίων το περιεχόμενο διατηρείται με τη βοήθεια θερμαντικής συσκευής σε θερμοκρασία πάνω από 50°K κατά τη διάρκεια της μεταφοράς. Σε τέτοια περίπτωση ο βαθμός πληρώσεως στην έναρξη θα είναι τέτοιος και η θερμοκρασία θα είναι έτσι κανονισμένη ώστε το δεξαμενοκοντέηνερ να μην είναι πλήρες περισσότερο από 95 στα εκατό της χωρητικότητάς του οποτεδήποτε στη διάρκεια της μεταφοράς.

Αν τα περιβλήματα των δεξαμενοκοντέηνερ που προορίζο- 212 173
νται για τη μεταφορά υγρών [12]/ δεν είναι με διαμερίσματα ή με πλάκες διογκώσεως χωρισμένο σε τμήματα χωρητικότητας όχι πάνω από 5 μ3, τα προαναφερόμενα περιβλήματα θα γεμίζονται μέχρι όχι ολιγώτερο από 80 στα εκατό της χωρητικότητάς τους εκτός αν είναι στην ουσία κενά.

Τα δεξαμενο-κοντέηνερ θα κλείνονται σε τρόπο ώστε το 212 174
περιεχόμενο να μη μπορεί να χύνεται ανεξέλεγκτα. Τα ανοίγματα των περιβλημάτων που αδειάζουν από τον πυθμένα θα κλείνονται με βιδωτά πώματα, τυφλές φλάντζες ή άλλες εξίσου αποτελεσματικές συσκευές.

Όπου είναι τοποθετημένα σε σειρά πολλά συστήματα κλει- 212 175
σίματος, θα κλείνεται πρώτο εκείνο που βρίσκεται πιο κοντά προς την μεταφερόμενη ουσία

Κανένα κατάλοιπο της μεταφερόμενης επικίνδυνης ουσίας 212 176
δεν θα προσκολλάται στο εξωτερικό δεξαμενοκοντέηνερ στη διάρκεια της μεταφοράς.

---

[10]/ Συλλογική περιγραφή ή αριθμός ευρετηρίου μπορεί να αναγραφεί αντί του ονόματος.

[11]/ Παραδείγματα προστασίας περιβλημάτων:

1. Προστασία κατά πλευρικής προσκρούσεως μπορεί για παράδειγμα να συνίσταται από κατά μήκος ράβδους που προστατεύουν το περίβλημα και στις δύο πλευρές στο ύψος της μέσης γραμμής.

2. Προστασία κατά ανατροπής μπορεί για παράδειγμα να συνίσταται από ενισχυτικού δακτυλίους ή ράβδους τοποθετημένους εγκάρσια σε σχέση με το πλαίσιο.

3. Προστασία κατά οπίσθιας προσκρούσεως μπορεί για παράδειγμα να συνίσταται από προφυλακτήρα ή πλαίσιο.

[12]/ Σύμφωνα με την παρούσα διάταξη, ουσίες των οποίων το κινηματικό ιξώδες στους 20°K είναι κάτω από 25 CM2/δευτ. θα θεωρούνται ότι είναι υγρά.

Για να γίνουν δεκτά για μεταφορά, τα κενά δεξαμενοκοντέηνερ, ακαθάριστα, θα κλείονται με τον ίδιο τρόπο και θα έχουν τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτα. 212 177

212 178
-212 179

Παράγραφος 8: Μεταβατικά μέτρα

Δεξαμενο-κοντέηνερ που έχουν κατασκευαστεί πριν από την 1η Μαΐου 1985 σύμφωνα με τις απαιτήσεις του ισχύοντος ADR μεταξύ 1ης Οκτωβρίου 1978 και 30 Απριλίου 1985 αλλά που δεν είναι σύμφωνα με τις διατάξεις που ισχύουν από 1ης Μαΐου 1985 μπορεί να συνεχίσουν να χρησιμοποιούνται μετά εκείνη την ημερομηνία 212 180

212 181
-212 189

Παράγραφος 9: Χρήση δεξαμενο-κοντέηνερ εγκριμένων για μεταφορά δια θαλάσσης

Δεξαμενο-κοντέηνερ που δεν ανταποκρίνονται πλήρως στις απαιτήσεις του παρόντος παραρτήματος αλλά τα οποία έχουν εγκριθεί σύμφωνα με τις απαιτήσεις που αφορούν θαλάσσια μεταφορά [13]/ θα γίνονται δεκτά για μεταφορά πριν ή μετά από θαλάσσια μεταφορά. Επί πλέον από τα στοιχεία που ήδη έχουν προβλεφθεί, το έγγραφο μεταφοράς θα φέρει τις λέξεις: «Μεταφορά σύμφωνα με το περιθωριακό 212 190». Μόνο ουσίες που επιτρέπονται σύμφωνα με το περιθωριακό 10 121 (1) μπορεί να μεταφερθούν σε δεξαμενοκοντέηνερ. 212 190

212 191
-212 199

ΜΕΡΟΣ II: ΕΙΔΙΚΕΣ ΠΡΟΫΠΟΘΕΣΕΙΣ ΠΟΥ ΣΥΜΠΛΗΡΩΝΟΥΝ Η ΤΡΟΠΟΠΟΙΟΥΝ ΤΙΣ ΠΡΟΫΠΟΘΕΣΕΙΣ ΤΟΥ ΜΕΡΟΥΣ I

Κατηγορία 2: Αέρια, συμπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση.

212 200

Παράγραφος 1: Γενικά, πλαίσιο (χρήση δεξαμενοκοντέηνερ), ορισμοί. 212 209

Χρήση.

Αέρια της Κατηγορίας 2 εκτός από εκείνα που αναγράφονται παρακάτω μπορεί να μεταφέρονται σε δεξαμενοκοντέηνερ: φθόριο και SILICON TETRAFLUORIDE του 1° (AT)· νιτρικό οξείδιο του 1° (CT) μίγματα υδρογόνου με όχι πάνω από 10 στα εκατό SELENIDE ή φωσφίνη ή SILANE ή GERMANE κατ' όγκο ή με όχι πάνω από 15 στα εκατό ASPINE κατ' όγκο· μίγματα αζώτου ή σπανίων αερίων (που περιέχουν όχι πάνω από 10 στα εκατό ξένον κατ' όγκο) με όχι πάνω από 10 στα εκατό HYDROGEN SELENIDE ή φωσφίνη ή SILANE ή GERMANE κατ' όγκο ή με όχι πάνω από 15 στα εκατό ARSINE κατ' όγκο του 2° (BT) μίγματα υδρογόνου με όχι πάνω από 10 στα εκατό DIBORANE κατ' όγκο· μίγματα αζώτου ή σπάνια αέρια (που περιέχουν όχι πάνω από 10 στα εκατό ξένον κατ' όγκο) με όχι πάνω από 10 στα εκατό DIBORANE κατ' όγκο του 2° (CT)BORON CHLORIDE, CHLORINE TRIFLUORIDE, NITROSYL CHLORIDE: SULPHURYL FLUORIDE και TUNGSTEN HEXAFLUORIDE του 3° (AT)· METHYLSILANE του 3° (β)· ARSINE, DICHLOROSILANE, DIMETHYLSILANE, HYDROGEN SELENIDE και TRIMETHYLSILANE του 3° (BT)· CYANOGEN, CHLORIDE και ETHYLENE OXIDE του 3° (CT) μίγματα METHYLSILANES του 4° (BT)· ETHYLENE OXIDE που περιέχει όχι πάνω από 50 στα εκατό METHYL FORMATE κατά βάρος του 4° (CT) SILANE του 5° (β)· ουσίες του 5° (BT) και (CT) διαλυμένη ασετυλίνη του 9° (γ)· και τα αέρια του 12° και 13°. 212 210

212 212

Παράγραφος 2: Κατασκευή 212 219

Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά ουσιών του 1 μέχρι 6° και του 9° δεν θα είναι κατασκευασμένα από αλουμίνιο ή μίγμα αλουμινίου. 212 220

Οι προϋποθέσεις του Παραρτήματος B.1δ θα έχουν εφαρμογή στα υλικά και την κατασκευή των κολημένων περιβλημάτων. 212 221

212 222

Παράγραφος 3: Είδη εξοπλισμού 212 229

Επί πλέον του ότι θα είναι εξοπλισμένα με συσκευές που προβλέπονται στο περιθωριακό 213 131, οι σωλήνες κενώσεως του δεξαμενο-κοντέηνερ θα είναι σε θέση να κλείνονται με τυφλές φλάντζες ή κάποια άλλη εξίσου σίγουρη συσκευή 212 230

Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγροποιημένων αερίων μπορεί να είναι εξοπλισμένα, πέραν των ανοιγμάτων πληρώσεως, κενώσεως και ισορροπήσεως της πιέσεως του αερίου, με ανοίγματα στα οποία μπορεί να τοποθετηθούν μετρητές, θερμόμετρα και μανόμετρα. 212 231

Οι βαλβίδες ασφαλείας θα ανταποκρίνονται στους όρους που προβλέπονται στις παρακάτω παραγράφους (1), (2) και (3).. 212 232

(1) Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 1° μέχρι 6° και του 9° μπορεί να είναι εξοπλισμένα με όχι πάνω από δύο βαλβίδες ασφαλείας. Οι βαλβίδες ασφαλείας θα είναι σε θέση να ανοίγουν αυτόματα κάτω από μία πίεση 0.9 μέχρι 1.0 φορές την πίεση δοκιμής του περιβλήματος στο οποίο είναι προσαρμοσμένες. Επί πλέον θα είναι κατασκευασμένες κατά τέτοιο τρόπο ώστε σε περίπτωση ολικής περιτυλίξεως από φωτιά η πίεση μέσα στο περίβλημα να μην υπερβαίνει την πίεση δοκιμής, Θα είναι τέτοιου τύπου ώστε να ανθίστανται σε δυναμικές πιέσεις, περιλαμβανόμενης της διογκώσεως του υγρού. Η χρήση βαλβίδων νεκρού βάρους ή αντίβαρου απαγορεύεται.

Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 1° μέχρι 9° επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγόμενων κίνδυνο δηλητηριάσεως [14]/ δεν θα έχουν βαλβίδες ασφαλείας εκτός αν οι βαλβίδες ασφαλείας έχουν μπροστά εύθραυστο δίσκο. Στην τελευταία αυτή περίπτωση η ρύθμιση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα γίνεται κατά τρόπο ικανοποιούντα την αρμόδια αρχή.

(2) Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 7° (α) και 8° (α) που δεν βρίσκονται σε συνεχή επικοινωνία με τον εξωτερικό αέρα, και εκείνων που προορίζονται για τη μεταφορά αερίων του 7° (β) και 8° (β) θα είναι εξοπλισμένα με δύο ανεξάρτητες βαλβίδες ασφαλείας κάθε μία σχεδιασμένη κατά τέτοιο τρόπο ώστε να επιτρέπει την εκκένωση των αερίων από το περίβλημα κατά τέτοιο τρόπο ώστε η πίεση να μην υπερβαίνει ποτέ την πίεση εργασίας που αναγράφεται στο δεξαμενο-κοντέηνερ πάνω από 10 στα εκατό.

Επί πλέον, τα περιβλήματα αυτών των δεξαμενοκοντέηνερ μπορούν να είναι εξοπλισμένα με εύθραυστους δίσκους σε σειρά και πριν από τις βαλβίδες ασφαλείας. Στην περίπτωση αυτή η ρύθμιση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα γίνεται κατά τρόπο ικανοποιούντα την αρμόδια αρχή.

(3) Οι βαλβίδες ασφαλείας των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 7° και 8° θα είναι σε θέση να ανοίγουν με την πίεση εργασίας που αναγράφεται πάνω στο δεξαμενο-κοντέηνερ. Θα είναι σχεδιασμένες κατά τέτοιο τρόπο ώστε να λειτουργούν αλάνθαστα ακόμη και στη χαμηλότερη θερμοκρασία εργασίας. Η αξιοπιστία της λειτουργίας τους θα εξακριβώνεται και θα ελέγχεται είτε με δοκιμή κάθε βαλβίδας είτε με δοκιμή υποδείγματος βαλβίδας κάθε τύπου.

Μια εσωτερική βαλβίδα περιορισμού της ροής ή παρόμοια συσκευή θα τοποθετείται σε κάθε άνοιγμα διαμέτρου πάνω από 1,5 χιλ. που υπάρχει στο περίβλημα για τη διέλευση αερίων ή υγρών, εκτός από τα ανοίγματα που έχουν βαλβίδες ασφαλείας. 212 233

212 234

Θερμική μόνωση

(1) Αν τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγροποιημένων αερίων του 3° μέχρι

[14]/ Αέρια αναγνωριζόμενα με το γράμμα «T» στον πίνακα των ουσιών θεωρούνται ότι είναι αέρια επιβλαβή για τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνο δηλητηριάσεως.

4° είναι εξοπλισμένα με θερμική μόνωση, αυτή η μόνωση θα υπόκειται στις ειδικές διατάξεις του παρακάτω (2) είτε:

– Συνίστανται από αλεξήλιο που καλύπτει όχι λιγότερο από το πάνω τρίτο αλλά όχι περισσότερο από το πάνω μισό του δεξαμενο-κοντέηνερ και χωριζόμενο από το περίβλημα από κενό χώρο αέρα τουλάχιστο 4 εκ., είτε

– Συνίστανται από πλήρη επένδυση, ικανού πάχους από μονωτικά υλικά.

Η θερμική μόνωση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε να μην εμποδίζει πρόσβαση στις συσκευές πληρώσεως και κενώσεως.

(2) Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά 1,3 – BUTADIENE του 3° (γ), ή METHYL VINYL ETHER, TRIFLUOROCHLOROETHYLENE ή VINYL BROMIDE του 3° (CT), θα προστατεύονται από αλεξήλιο όπως καθορίζεται παραπάνω.

(3) Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 7° και 8° θα είναι θερμικά μονωμένα. Η θερμική μόνωση θα προστατεύεται κατά κρούσεως (προσκρούσεως) με συνεχή επένδυση. Αν ο χώρος μεταξύ του περιβλήματος και της μεταλλικής επένδυσης είναι με κενό (μόνωση με κενό) η προστατευτική επένδυση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε να αντέχει χωρίς παραμόρφωση σε εξωτερική πίεση τουλάχιστον 0.1 MPa (1 μπαρ) (πίεση μετρητή). Αν η επένδυση είναι τόσο κλειστή ώστε να είναι αεροστεγής, θα υπάρχει συσκευή που θα εμποδίζει την ανάπτυξη οποιασδήποτε επικίνδυνης πίεσης στο μονωτικό στρώμα σε περίπτωση ανεπαρκούς αεροστεγανότητας του περιβλήματος ή των ειδών εξοπλισμού του. Η συσκευή θα εμποδίζει τη διείσδυση υγρασίας στη μονωτική επένδυση θερμότητας.

(4) Τα περιβλήματα των δεξαμεν-κοντέηνερ που προορίζονται για τη μεταφορά οξυγόνου του 7° (α), ή αέρα ή μιγμάτων οξυγόνου με άζωτο του 8° (α), δεν θα περιλαμβάνουν οποιοδήποτε καύσιμο υλικό είτε στη θερμική μόνωση είτε στα μέσα προσαρτήσεως στο πλαίσιο αυτών.

Στην περίπτωση δεξαμενο-κοντέηνερ με πολλαπλά στοι- 212 235
χεία, θα καλύπτονται οι παρακάτω όροι:

(1) Αν ένα από τα στοιχεία δεξαμενο-κοντέηνερ πολαπλών στοιχείων είναι εξοπλισμένο με βαλβίδα ασφαλείας και με συσκευές κλεισίματος μεταξύ των στοιχείων, κάθε στοιχείο θα είναι εξοπλισμένο κατ' αυτό τον τρόπο.

(2) Ο συσκευές πληρώσεως και κενώσεως μπορεί να είναι εφαρμοσμένες σε πολλαπλή.

(3) Κάθε στοιχείο δεξαμενο-κοντέηνερ πολλαπλών στοιχείων που προορίζεται για τη μεταφορά συμπιεσμένων αερίων του 1° και 2° επικίνδυνων για το αναπνευστικό σύστημα ή συνεπαγόμενων κίνδυνο δηλητηριάσεως [15]/ θα μπορούν να απομονωθούν με βαλβίδα.

(4) Τα στοιχεία δεξαμενο-κοντέηνερ πολλαπλών στοιχείων που προορίζονται για τη μεταφορά υγροποιημένων αερίων του 3° μέχρι 5° επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγόμενων κίνδυνο δηλητηριάσεως [15]/ θα είναι έτσι σχεδιασμένα ώστε να μπορούν να γεμίζονται χωριστά και να απομονώνονται με βαλβίδα που μπορεί να σφραγιστεί.

212 236
-212 239

Παράγραφος 4: Έγκριση τύπου

212 240
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 249

Παράγραφος 5: Δοκιμές

Τα υλικά κάθε κολλημένου περιβλήματος θα δοκιμάζονται 212 250
με τη μέθοδο που περιγράφεται στο Παράρτημα B.1δ

Η πίεση δοκιμής θα είναι όπως παρακάτω: 212 251

(1) Δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 1° και 2°, σύμφωνα με το περιθωριακό 2219 (1)·

(2) Δεξαμενοκοντέηνερ προοριζόμενα για τη μεταφορά αερίων του 3° και 4°, σύμφωνα με το περιθωριακό 2220 (2) αν τα περιβλήματα δεν έχουν διάμετρο μεγαλύτερη από 1.5 μ., και σύμφωνα με το περιθωριακό 211 251 (2) (β) αν τα περιβλήματα έχουν διάμετρο μεγαλύτερη από 1.5 μ.

(3) Δεξαμενο-κοντέηνερ προοριζόμενα για τη μεταφορα αερίων του 5° και 6°, σύμφωνα με το περιθωριακό 2220 (3) και (4) και σύμφωνα με το περιθωριακό 211 251 (3) (β) στην περίπτωση δεξαμενο-κοντέηνερ πολλαπλών στοιχείων των οποίων τα στοιχεία αλληλοσυνδέονται και σχηματίζουν συστοιχία, δεν είναι απομονωμένα μεταξύ τους και είναι περικλεισμένα σε θερμική μόνωση·

(4) Δεξαμενο-κοντέηνερ προοριζόμενα για τη μεταφορά αμμωνίας διαλυμένης υπό πίεση του 9° (AT), σύμφωνα με το περιθωριακό 211 251 (4)·

(5) (α) Δεξαμενο-κοντέηνερ εξοπλισμένα με βαλβίδες ασφαλείας και προοριζόμενα για τη μεταφορά αερίων του 7° και 8°: 1.5 φορές την πίεση λειτουργίας που αναγράφεται στο περίβλημα, αλλά όχι λιγότερο από 0.3 MPa (3 μπάρ) (πίεση μετρητή)· για δεξαμενο-κοντέηνερ με μόνωση κενού, η πίεση δοκιμής θα είναι 1.5 φορές την πίεση λειτουργίας αυξημένη κατά 0.1 MPa (1 μπάρ).

(β) Στην περίπτωση δεξαμενο-κοντέηνερ χωρίς βαλβίδες ασφαλείας και προοριζόμενα για τη μεταφορά αερίων του 7° (α) και 8° (α), η πρώτη δοκιμή θα γίνεται σε 0.2 MPa (2 μπάρ) (πίεση μετρητή) και οι περιοδικές δοκιμές σε 0.1 MPa (1 μπάρ) (πίεση μετρητή).

Η πρώτη δοκιμή υδραυλική πιέσεως θα γίνεται πριν από 212 252
την τοποθέτηση της θερμικής μονώσεως

Η χωρητικότητα του περιβλήματος κάθε δεξαμενο- 212 253
κοντέηνερ που προορίζεται για τη μεταφορά αερίων του 3°, 4° και 9° θα προσδιορίζεται υπό την επίβλεψη ειδικού εγκριμένου από την αρμόδια αρχή, διαζυγίου ή ογκομετρικής μετρήσεως της ποσότητας νερού που χρειάζεται για να γεμίσει το περίβλημα. Η μέτρηση της χωρητικότητας του περιβλήματος θα είναι ακριβής και με ανοχή μέχρι 1 στα εκατό. Προσδιορισμός με υπολογισμό βασιζόμενο στις διαστάσεις του περιβλήματος δεν επιτρέπεται. Οι ανώτατες επιτρεπόμενες μάζες πληρώσεως σύμφωνα με τα περιθωριακά 2220 (4) και 211 251 (3) θα καθορίζονται από εγκριμένο ειδικό

Όλες οι κολλήσεις στο περίβλημα θα δοκιμάζονται χωρίς 212 254
κίνδυνο βλάβης με ραδιογραφία ή υπερήχους.

Ανεξάρτητα από τις απαιτήσεις των περιθωριακών 212 212 255
150 και 212 151, οι περιοδικές δοκιμές θα λαμβάνουν χώρα:

(1) Κάθε διόμισυ χρόνια στην περίπτωση δεξαμενοκοντέηνερ που προορίζονται για τη μεταφορά BORON TRIFLUORIDE του 1° (AT), φωταερίου του 2° (BT), χλωρίνης, HYDROGEN BROMIDE, διοξειδίου του αζώτου, φωσγενίου ή διοξειδίου του θείου του 3° (AT), HYDROGEN SULPHIDE του 3° (BT), ή HYDROGEN CHLORIDE του 5° (AT)·

(2) Μετά από υπηρεσία έξι ετών στην περίπτωση δεξαμενο-κοντέηνερ χωρίς βαλβίδες ασφαλείας, που προορίζονται για τη μεταφορά αερίων του 7° (α) και 8° (α)·

(3) Μετά από υπηρεσία οκτώ ετών και στη συνέχεια κάθε 12 χρόνια στην περίπτωση δεξαμενο-κοντέηνερ που έχουν βαλβίδες ασφαλείας και προορίζονται για τη μεταφορά αερίων του 7° (α) και 8° (α) και δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 7° (β) και 8° (β). Δοκιμή στεγανότητας μπορεί να γίνεται ύστερα από αίτηση της αρμόδιας αρχή μεταξύ οποιωνδήποτε δύο διαδοχικών δοκιμών.

[15]/ Τα παρακάτω θεωρούνται ότι είναι υγροποιημένα αέρια επικίνδυνα για τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνο δηλητηριάσεως: HYDROGEN BROMIDE (άνυδρο υδροβρωμικό οξύ), HYDROGEN FLUORIDE (άνυδρο υδροφθωρικό οξύ), HYDROGEN SULPHIDE (θειωμένο υδρογόνο), αμμωνία, χλωρίνη, διοξείδια του θείου (άνυδρο θειώδες οξύ), διοξείδιο του αζώτου (υπεροξείδιο του αζώτου· τετροξείδιο του αζώτου), αέριο T, METHYL VINYL ETHER, CHLOROMETHANE (METHYL CHLORIDE), BROMOMETHANE (METHYL BROMIDE), φωσγένιο (CARBONYL CHLORIDE VINYL BROMIDE, METHYLAMINE (MONOMETHYLAMINE) DIMETHYLAMINE, TRIMETHYLAMINE, ETHYLAMINE (MONOETHYLAMINE), ETHYLENE OXIDE, METHANETHIOL (METHYL MERCAPTAN) μίγματα διοξειδίου του άνθρακα με ETHYLENE OXIDE και υγροποιημένο HYDROGEN CHLORIDE (άνυδρο υδροχλωρικό οξύ).

Κατά τις περιοδικές δοκιμές για δεξαμενο-κοντέηνερ που 212 256
είναι εξοπλισμένα με μόνωση κενού και προορίζονται για τη μεταφορά αερίων του 7° και 8°, η υδραυλική δοκιμή μπορεί να αντικατασταθεί με δοκιμή στεγανότητας που γίνεται είτε με τα αέρια τα οποία το δεξαμενο-κοντέηνερ και προορισμένο να περιέχει ή με αδρανές αέριο.

Αν, κατά το χρόνο των περιοδικών επιθεωρήσεων, γίνουν 212 257
στα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 11° μέχρι 13°, η μέθοδος με την οποία κλείνονται ερμητικά πριν τα δεξαμενο-κοντέηνερ επιστραφούν στην υπηρεσία θα είναι εγκριμένη από τον εγκριμένο ειδικό και θα εξασφαλίζει την ακεραιότητα του περιβλήματος.

Η στεγανότητα των περιβλημάτων που προορίζονται για 212 258
τη μεταφορά αερίων του 1° μέχρι 6° και του 9° θα δοκιμάζεται σε πίεση όχι μικρότερη από 0.4 MPa (4 μπαρ) και όχι πάνω από 0.8 MPa (8 μπαρ) πίεση μετρητή.

212 259

Παράγραφος 6: Σήμανση

Επί πλέον θα αναγράφονται με σφραγίδα ή οποιαδήποτε 212 260
άλλη ισότιμη μέθοδο τα παρακάτω στοιχεία πάνω στην πλάκα που περιγράφεται στο περιθωριακό 212 160, ή απευθείας πάνω στα τοιχώματα του περιβλήματος αν τα τοιχώματα είναι ενισχυμένα κατά τρόπον ώστε να μην αδυνατίζει η αντοχή του περιβλήματος:

(1) Σε δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά μιάς ουσίας μόνο:

– η πλήρης ονομασία του αερίου.

Αυτό θα συνοδεύεται, στην περίπτωση δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά συμπιεσμένων αερίων του 1° και 2° από την ανώτατη επιτρεπόμενη πίεση φορτώσεως και, στην περίπτωση δεξαμενο-κοντέηνερ προοριζόμενων για τη μεταφορά υγροποιημένων αερίων του 3° μέχρι 8° και αμμωνίας διαλυμένης υπό πίεση του 9° (ΑΤ), από το επιτρεπόμενο ανώτατο φορτίο σε κιλά.

(2) Σε δεξαμενο-κοντέηνερ πολλών σκοπών:

– οι πλήρεις ονομασίες των αερίων για τη μεταφορά των οποίων έχει εγκριθεί το δεξαμενο-κοντέηνερ, ακολουθούμενες από στοιχεία του επιτρεπτού ανώτατου φορτίου, σε κιλά, για κάθε ένα από αυτά,

(3) Σε δεξαμενο-κοντέηνερ εξοπλισμένα με βαλβίδες ασφαλείας και προοριζόμενα για τη μεταφορά αερίων του 7° (α) και 8° (α) και σε δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά αερίων του 7° (β) και 8° (β):

– η πίεση λειτουργίας.

(4) Σε δεξαμενο-κοντέηνερ εξοπλισμένα με θερμική μόνωση η φράση «Θερμικά μονωμένο» θα αναγράφεται σε μία από τις επίσημες γλώσσες της ADR.

Το πλαίσιο του δεξαμενο-κοντέηνερ πολλαπλών στοιχείων 212 261
θα είναι εξοπλισμένο κοντά στο σημείο πληρώσεως με πλάκα αναγράφουσα:

– την πίεση δοκιμής των στοιχείων·

– την πίεση λειτουργίας των στοιχείων που προορίζονται για συμπιεσμένα αέρια·

– τον αριθμό των στοιχείων·

– τη συνολική χωρητικότητα των στοιχείων σε λίτρα·

– την πλήρη ονομασία του αερίου·

και στην περίπτωση υγροποιημένων αερίων:

– το επιτρεπόμενο ανώτατο φορτίο κατά στοιχείο, σε κιλά.

212 262
-212 269

Παράγραφος 7: Λειτουργία

Δεξαμενο-κοντέηνερ χρησιμοποιούμενο σε διαφορετικούς 212 270
χρόνους για τη μεταφορά διάφορων υγροποιημένων αερίων του 3° μέχρι 8° (δεξαμενο-κοντέηνερ πολλαπλών σκοπών) δεν μπορεί να μεταφέρει ουσίες άλλες από εκείνες που αναγράφονται σε μία και μόνη από τις παρακάτω ομάδες:

Ομάδα 1: αλογονωμένοι υδρογονάνθρακες του 3°(α) και 4°(α).

Ομάδα 2: υδρογονάνθρακες του 3° (β) και 4° (β), 1,3-BUTADIENE του 3° (γ) και μίγματα του 1,3-BUTADIENE και υδρογονάνθρακες του 4° (γ)·

Ομάδα 3: αμμωνία του 3° (ΑΤ)· DIMETHYL ETHER του 3° (β)· DIMETHYLAMINE, ETHYLAMINE, METHYLAMINE και TRIMETHYLAMINE του 3° (ΒΤ)· και VINYL CHLORIDE του 3° (γ)·

Ομάδα 4: METHYL BROMIDE του 3° (ΑΤ)· ETHYL CHLORIDE και METHYL CHLORIDE του 3° (ΒΤ)·

Ομάδα 5: Μίγματα ETHYLENE OXIDE με διοξείδιο του άνθρακα και ETHYLENE OXIDE με άζωτο του 4° (CT)·

Ομάδα 6: αέρια του 7° (α) και μίγματα αερίων του 8° (α)·

Ομάδα 7: αιθάνιο, αιθυλένιο και μεθάνιο του 7° (β)· και μίγματα αιθανίου με μεθάνιο, επίσης όταν περιέχουν προπάνιο ή βουτάνιο του 8° (β)·

Δεξαμενο-κοντέηνερ τα οποία έχουν γεμιστεί με ουσία της 212 271
ομάδας 1 ή ομάδας 2 θα αδειάζονται από το υγροποιημένο αέριο πριν φορτωθούν με άλλη ουσία που ανήκει στην ίδια ομάδα. Δεξαμενο-κοντέηνερ τα οποία έχουν γεμιστεί με ουσία μιας από τις ομάδες 3 μέχρι 7 θα αδειάζονται τελείως από το υγροποιημένο αέριο και θ αδιοχετεύεται αέρας πριν φορτωθούν με άλλη ουσία που ανήκει στην ίδια ομάδα.

Η πολλαπλή χρήση δεξαμενο-κοντέηνερ για τη μεταφορά 212 272
υγροποιημένων αερίων της ίδιας ομάδας θα επιτρέπεται αν όλες οι προϋποθέσεις που προβλέπονται για τα αέρια προς μεταφορά σε ένα και το αυτό δεξαμενο-κοντέηνερ τηρηθούν. Αυτή η πολλαπλή χρήση να υπόκειται σε έγκριση από έγκριση απο εγκριμένο ειδικό.

Η πολλαπλή χρήση δεξαμενο-κοντέηνερ για τη μεταφορά 212 273
αερίων διαφόρων ομάδων θα επιτρέπεται αν το εγκρίνουν εγκριμένοι ειδικοί.

Όταν φορτωμένα δεξαμενο-κοντέηνερ ή κενά αλλά ακά- 212 274
θαρτα δεξαμενο-κοντέηνερ παραδίδονται για μεταφορά, μόνο τα στοιχεία που έχουν εφαρμογή κατά το περιθωριακό 212 161 για το φορτωθέν αέριο ή μόλις εκφορτωθέν θα είναι ορατά· όλα τα στοιχεία που αφορούν άλλα αέρια θα είναι καλυμένα.

Όλα τα στοιχεία δεξαμενο-κοντέηνερ πολλαπλών στοι- 212 275
χείων θα περιέχουν ένα και το αυτό αέριο. Στην περίπτωση δεξαμενο-κοντέηνερ πολλαπλών στοιχείων που προορίζεται για τη μεταφορά υγροποιημένων αερίων επιβλαβών για τα αναπνευστικά όργανα ή συνεπαγόμενων κίνδυνο δηλητηριάσεως [14]/, [15]/ τα στοιχεία θα γεμίζονται χωριστά και θα διατηρούνται απομονωμένα με σφραγισμένη βαλβίδα.

Οι ανώτατοι επιτρεπόμενοι βαθμοί πληρώσεως σε κιλό/ 212 276
λίτρο που προβλέπονται στα περιθωριακά 2219 (2), 2220 (2), (3) και (4) και 211 251 (2), (3) και (4) θα τηρούνται.

Ο βαθμός πληρώσεως των περιβλημάτων των δεξαμενο- 212 277
κοντέηνερ που είναι εξοπλισμένα με βαλβίδες ασφαλείας και προορίζονται για τη μεταφορά αερίων του 7° και 8° θα είναι τέτοιος ώστε στην θερμοκρασία «επιφυλακής», στην οποία η πίεση εξατμίσεως είναι ίση με την πίεση ανοίγματος των βαλβίδων, ο όγκος του υγρού δεν υπερβαίνει τον επιτρεπόμενο βαθμό πληρώσεως του περιβλήματος σ' εκείνη τη θερμοκρασία, δηλ. 95 στα εκατό στην περίπτωση εύφλεκτων αερίων και 98 στα εκατό στην περίπτωση άλλων αερίων.

Επί των περιβλημάτων των δεξαμενο-κοντέηνερ που προ- 212 278
ορίζονται για τη μεταφορά οξυγόνου του 7° (α) ή αέρα ή μιγμάτων οξυγόνου με άζωτο του 8° (α), δεν θα χρησιμοποιούνται ουσίες που περιέχουν γράσσο ή λάδι για να εξασφαλιστεί η στεγανότητα των συνδέσμων ή για τη συντήρηση των κλεισιμάτων.

212 279
-212 299

Κατηγορία 3: Εύφλεκτα υγρά

212 300
-212 309

Παράγραφος 1: Γενικά· πλαίσιο (χρήστη δεξαμενο-κοντέηνερ)· ορισμοί

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 3 μπορεί να μεταφέ- 212 310
ρονται σε δεξαμενο-κοντέηνερ:

(α) ουσίες καταχωρημένες ονομαστικά στο 12°.

(β) ουσίες καταταγμένες με (α) του 11°, 14° μέχρι 23°, 25° και 26° και παρόμοιες ουσίες προς κατάταξη υπό (α)

αυτών των ειδών, με την εξαίρεση του ISOPROPYL CHLOROFORMATE του 25° (α)·

(γ) ουσίες καταταγμένες υπό (β) του 11°, 14° μέχρι 20°, 22° και 24° μέχρι 26° και παρόμοιες ουσίες προς κατάταξη υπό (β) αυτών των ειδών·

(δ) ουσίες του 1° μέχρι 6 και 31° μέχρι 34° και παρόμοιες ουσίες προς κατάταξη σ' αυτά τα είδη, με εξαίρεση του νιτρομεθανίου του 31° (γ).

212 311

Παράγραφος 2: Κατασκευή -212 319

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 12° θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.5 MPα (15 μπαρ) σε πίεση μετρητή. 212 320

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που αναφέρονται στο περιθωριακό 212 310 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.0 MPα (10 μπαρ) σε πίεση μετρητή. 212 321

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (γ) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 0.4 MPα (4 μπαρ) σε πίεση μετρητή. 212 322

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος. 212 323

212 324

Παράγραφος 3: Είδη εξοπλισμού -212 329

Όλα τα ανοίγματα περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακο 212 310 (α) και (β) θα βρίσκονται πάνω από τη στάθμη του υγρού. Κάτω από την επιφάνεια του υγρού δεν θα περνούν από τα τοιχώματα ούτε σωληνώσεις ούτε συνδέσεις σωλήνων. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά [6]/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με πώματα που κλειδώνουν. 212 330

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (γ) και (δ) μπορεί επίσης να είναι του τύπου κενώσεως από τον πυθμένα. Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (γ) θα είναι σε θέση να κλείνονται ερμητικά [6]/. 212 331

Αν περιβλήματα προριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (α) και (β) ή 11° ή 14° μέχρι 20° του περιθωριακού 212 310 (γ) είναι εξοπλισμένα με βαλβίδες ασφαλείας, πριν από τη βαλβίδα θα τοποθετείται εύθραυστος δίσκος. Η τακτοποίηση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή. Αν περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (δ) είναι εξοπλισμένα με βαλβίδες ασφαλείας ή σύστημα αερισμού, αυτά θα ικανοποιούν τις απαιτήσεις των περιθωριακών 212 133 μέχρι 212 135. Περιβλήματα προοριζόμενα για τη μέταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (δ) που έχουν σημείο αναφλέξεως που δεν υπερβαίνει τους 55° Κ και είναι εξοπλισμένα με σύστημα αερισμού που δεν μπορεί να κλειστεί θα έχουν φλογοπαγίδα στο σύστημα αερισμού. 212 332

212 333

Παράγραφος 4: Έγκριση τύπου -212 339

212 340

-212 349

(Δεν υπάρχουν ειδικές προϋποθέσεις)

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (α), (β) ή (γ) θα υπόκεινται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPα (4 μπαρ). 212 350

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (δ) θα υπόκεινται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού αυτών όπως καθορίζεται στο περιθωριακό 212 351

212 123

212 352

Παράγραφος 6: Σήμανση -212 359

212 360

(Δεν υπάρχουν ειδικές προϋποθέσεις). -212 369

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως περιβλημάτων προοριζόμενων για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (α), (β) ή (γ) θα είναι σύμφωνος με το περιθωριακό 212 172 (1) (δ). Τα περιβλήματα θα είναι ερμητικά κλειστά [6]/ κατά τη διάρκεια του ταξειδιού. Τα κλεισίματα περιβλημάτων προοριζόμενων για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 310 (α) και (β) θα προστατεύονται με πώματα που ασφαλίζουν. 212 370

Δεξαμενο-κοντέηνερ που έχουν εγκριθεί για τη μεταφορά ουσιών του 6°, 11°, 12° και 14° δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως ή ζωοτροφών. 212 371

Περιβλήματα από μίγμα αλουμινίου δεν θα χρησιμοποιούνται για τη μεταφορά ακεταλδεΰδης του 1° (α) εκτός αν το περίβλημα χρησιμοποιείται αποκλειστικά γι' αυτή τη μεταφορά και η ακεταλδεΰδη είναι απαλλαγμένη οξέος. 212 372

Από τον Οκτώβριο μέχρι τον Μάρτιο, μίγματα υδρογονανθράκων που έχουν πίεση εξατμίσεως πάνω από 110 KPα (1.1 μπαρ) αλλά που δεν υπερβαίνει τα 150 KPα (1.5 μπαρ) (απόλυτη πίεση) στους 50°Κ, όπως ορισμένα ελαφρά αποστάγματα για διάσπαση, μπορεί να μεταφέρονται σε περιβλήματα του τύπου που περιγράφεται στο περιθωριακό 212 373

212 133

212 374

-212 399

Κατηγορία 4.1: Εύφλεκτα στερεά

Κατηγορία 4.2: Ουσίες που υπόκεινται σε αιφνίδια καύση

Κατηγορία 4.3: Ουσίες που αναδύουν εύφλεκτα αέρια σε επαφή με το νερό

212 400

-212 409

Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενο–κοντέηνερ· ορισμοί

Χρήση

Ουσίες του 2°, 8° και 11° της Κατηγορίας 4.1 και 1°, 3° και 8° της Κατηγορίας 4.2 και το νάτριο, κάλλιο, μίγματα νατρίου και καλλίου, του 1° (α), ουσίες του 2° (ε) και του 4° της Κατηγορίας 4.3 μπορεί να μεταφέρονται σε δεξαμενο-κοντέηνερ. 212 410

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα θείου του 2° (α), ναφθαλίνη του 11° (α) και (β), διαστελλόμενων πολυστερινών του 12° της Κατηγορίας 4.1, ουσιών του 5°, σκόνης από φίλτρα υφικαμίνων του 6° (α) και ουσιών του 10° της Κατηγορίας 4.2 και κόκκων μαγνησίου, επιχρισμένων του 1° (δ). ανθρακασβεστίου του 2° (α) και CALCIUM SILICIDE σε σβώλους του 2° (δ) της Κατηγορίας 4.3, βλέπε περιθωριακά 41 111 και 42 111 και 43 111.

212 411

Παράγραφος 2: Κατασκευή -212 419

Περιβλήματα προοριζόμενα για τη μεταφορά λευκού και κίτρινου φωσφόρου του περιθωριακού 2431, 1° ή ουσίες του 2° (ε) και του 4° του περιθωριακού 2471 θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 1.0 MPα (10 μπαρ) σε πίεση μετρητή. 212 420

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 2.1 MPα (21 μπαρ) σε πίεση μετρητή 212 421

212 422

Παράγραφος 3: Είδη εξοπλισμού -212 429

Τα περιβλήματα δεξαμενο-κοντέηνερ προοριζόμενα για τη μεταφορά θείου του περιθωριακού 2401,2° (β), και ναφθαλίνης του περιθωριακού 2401,11° (γ) θα είναι εξοπλισμένα με θερμική μόνωση από υλικά τα οποία δεν είναι εύκολα εύφλεκτα ώστε η θερμοκρασία στην εξωτερική επιφάνεια δεν 212 430

16. Βλέπε περιθωριακό 212 127 (2).

μπορεί να ανέλθει πάνω από 50° Κ κατά τη διάρκεια της μεταφοράς. Μπορεί να είναι εξοπλισμένα με βαλβίδες που ανοίγουν αυτόματα προς τα μέσα ή προς τα έξω υπό την επίδραση διαφοράς πιέσεως 20 KPa (0.2 μπαρ) μέχρι KPa 30 (0.3 μπαρ). Οι συσκευές κενώσεως α είναι σε θέση να προστατεύονται από σφραγιζόμενο μεταλλικό πώμα.

Τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά λευκού και κίτρινου φωσφόρου του περιθωριακού 2431,1°, θα καλύπτουν τις παρακάτω προϋποθέσεις: 212 431

(1) Η συσκευή θερμάνσεως δεν θα εισχωρεί μέσα στο σώμα του περιβλήματος, αλλά θα είναι τοποθετημένη έξω από αυτό. Άλλες σωληνώσεις θα εισέρχονται στο περίβλημα στο πάνω τμήμα αυτού· ανοίγματα θα υπάρχουν πάνω από το υψηλότερο επιτρεπτό σημείο του φωσφόρου και θα είναι σε θέση να κλείνονται τελείως με πώματα που ασφαλίζουν.

(2) Το περίβλημα θα είναι εξοπλισμένο με σύστημα μετρήσεων για την εξακρίβωση του ύψους του φωσφόρου και, αν χρησιμοποιηθεί νερό σαν προστατευτικός παράγων, με σταθερό σημείο μετρήσεως που να δείχνει το ανώτερο επιτρεπτό ύψος του νερού.

Τα ανοίγματα και οι οπές (βαλβίδες, αγωγοί, ανθρωποθυρίδες, κ.λπ.) στα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2471°, 1° (α), θα είναι εξοπλισμένα με στεγανά ασφαλιζόμενα πώματα και αυτά τα περιβλήματα θα είναι εξοπλισμένα με θερμική μόνωση και κατασκευασμένη από υλικά που δεν φλέγονται εύκολα σε τρόπο ώστε η θερμοκρασία στην εξωτερική επιφάνεια να μην μπορεί να ανέλθει πάνω από 50°Κ στη διάρκεια της μεταφοράς. 212 432

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431,3°, ή του περιθωριακού 2471,2° (ε) δεν θα έχουν ανοίγματα ή συνδέσεις κάτω από τη στάθμη του υγρού, ακόμη και αν αυτά τα ανοίγματα ή συνδέσεις είναι σε θέση να κλείνονται. Επί πλέον, τα ανοίγματα καθαρισμού που προβλέπονται στο περιθωριακό 212 132 δεν θα επιτρέπονται. Ανοίγματα στο άνω τμήμα του περιβλήματος, περιλαμβανόμενων των εξαρτημάτων τους, θα είναι σε θέση να προστατεύονται από πώμα. 212 433

Παράγραφος 4: Έγκριση τύπου 212 437 -212 439

212 440
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 449

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά: 212 450
-θείου σε λυωμένη κατάσταση του περιθωριακού 2401 2 (β).
-ναφθαλίνης σε λυωμένη κατάσταση του περιθωριακού 2401, 11° (γ).
-λευκού ή κίτρινου φωσφόρου του περιθωριακού 2431,1°.
-νατρίου, καλλίου ή μιγμάτων νατρίου ή καλλίου του περιθωριακού 2471, 1° (α).
-ουσιών του περιθωριακού 2471, 2° (ε).
-ουσιών του περιθωριακού 2471, 4°
θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή τουλάχιστον 0.4 MPa (4 μπάρ).

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του περιθωριακού 2431, 3° θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές με υγρό που δεν αντιδρά με την προς μεταφορά ουσία, σε πίεση δοκιμής 1.0 MPa (10 μπάρ) σε πίεση μετρητή. 212 451

Τα υλικά κάθε περιβλήματος που προορίζεται για τη μεταφορά ουσιών του περιθωριακού 2431, 3°, θα δοκιμάζονται με τη μέθοδο που περιγράφεται στο Παράρτημα Β.18.

Περιβλήματα προοριζόμενα για τη μεταφορά θείου (περιλαμβανομένων των ανθέων του θείου) του 2° (α). PHOSPHORUS SESQUISULPHIDE και PHOSPHORUS PENTASULPHIDE του 8°, ακατέργαστης ή καθαρής ναφθαλίνης του 11° (α) και (β) του περιθωριακού 2401 ή φρεσκοσβησμένου ξυλάνθρακα του περιθωριακού 2431, 8°, θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού αυτών όπως καθορίζεται στο περιθωριακό 212 173. 212 452

212 453
Παράγραφος 6: Σήμανση -212 459

Περιβλήματα που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2431, 3° θα φέρουν επί πλέον των στοιχείων που προβλέπονται στο περιθωριακό 212 161 τις λέξεις: «Μην ανοίγετε κατά τη διάρκεια του ταξειδίου. Υποκείμενο σε αιφνίδια καύση». 212 460

Περιβλήματα που προορίζονται για τη μεταφορά ουσιών του περιθωριακού 2471, 2° (ε), θα φέρουν επί πλέον των στοιχείων που προβλέπονται στο περιθωριακό 212 161 τις λέξεις «Μην ανοίγετε στη διάρκεια του ταξειδίου. Αναδίδει εύφλεκτα αέρια σε επαφή με το νερό».

Τα στοιχεία αυτά θα είναι σε επίσημη γλώσσα της χώρας εγκρίσεως, επίσης δε, αν αυτή η γλώσσα δεν είναι Αγγλική, Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός αν οποιεσδήποτε συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερόμενων χωρών για τη μεταφορά προβλέπουν διαφορετικά.

212 461
Παράγραφος 7: Λειτουργία -212 469

Τα περιβλήματα δεξαμενο-κοντέηνερ που καθορίζονται για τη μεταφορά θείου του περιθωριακού 2401, 2°, θα γεμίζονται μέχρι όχι παραπάνω του 98 στα εκατό της χωρητικότητας αυτών. 212 470

Ο λευκός ή κίτρινος φωσφόρος του περιθωριακού 2431, 1°, αν χρησιμοποιείται νερό σαν ο προστατευτικός παράγων, θα καλύπτονται σε βάθος όχι μικρότερο των 12 εκ. νερού κατά τον χρόνο της πληρώσεως· ο βαθμός πληρώσεως σε θερμοκρασία 60°Κ δεν θα υπερβαίνει το 98 στα εκατό. Αν χρησιμοποιείται άζωτο σαν ο προστατευτικός παράγων, ο βαθμός πληρώσεως σε θερμοκρασία 60°Κ δεν θα υπερβαίνει το 96 στα εκατό. Ο απομένων χώρος θα γεμίζεται με άζωτο κατά τέτοιο τρόπο ώστε, ακόμη και μετά την ψύξη (δρόσιμα), η πίεση δεν πέφτει ποτέ κάτω από την ατμοσφαιρική πίεση. Το περίβλημα θα κλείνεται ερμητικά ώστε να μην υπάρξει διαρροή. 212 471

Για τη μεταφορά ουσιών του περιθωριακού 2471, 1° (α), τα πώματα θα κλείνονται σύμφωνα με το περιθωριακό 212 432 και η θερμοκρασία της εξωτερικής επιφάνειας του περιβλήματος δεν θα υπερβαίνει τους 50°Κ. 212 472

Για τη TRICHLOROSILANE (SILICOCHLOROFORM) του περιθωριακού 2471, 4° (α) ή για METHYLDICHLOROSILANE ή ETHYLDICHLOROSILANE του 4° (β), ο βαθμός πληρώσεως δεν θα υπερβαίνει το 1.14 ή 0.95 ή 0.93 κιλό ανά λίτρο χωρητικότητας αντίστοιχα, αν το γέμισμα είναι κατά μάζα, ή 85 στα εκατό αν το γέμισμα είναι κατ' όγκο. 212 473

Τα περιβλήματα των δεξαμενο-κοντέηνερ που περιείχαν φώσφορο του περιθωριακού 2431, 1°, όταν παραδίδονται για μεταφορά είτε θα: 212 474

– γεμίζονται με άζωτο· ο αποστολέας οφείλει να πιστοποιεί στο έγγραφο μεταφοράς ότι η δεξαμενή, μετά το κλείσιμο, είναι αεροστεγής· είτε θα

– γεμίζονται με νερό μέχρι όχι λιγότερο από 96 στα εκατό και όχι περισσότερο από 98 στα εκατό της χωρητικότητας αυτών· μεταξύ της 1ης Οκτωβρίου και της 31 Μαρτίου το νερό αυτό θα περιέχει ένα ή περισσότερα αντιψυκτικά απαλλαγμένα από οξειδωτική ενέργεια, που δεν πρόκειται να προκαλέσουν αντίδραση με το φώσφορο και αρκετά συμπυκνωμένα ώστε να εμποδίσουν το πάγωμα του νερού κατά τη μεταφορά.

Δεξαμενο-κοντέηνερ που περιείχαν φώσφορο του περιθωριακού 2431, 1°, πρέπει να θεωρούνται, όσον αφορά την εφαρμογή των διατάξεων του περιθωριακού 42 500 (1), σαν «κενά δεξαμενο-κοντέηνερ, ακάθαρτα».

Ο βαθμός πληρώσεως για περιβλήματα που περιέχουν ουσίες του περιθωριακού 2431, 3°, ή περιθωριακού 2471, 2° (ε), δεν θα υπερβαίνει το 90 στα εκατό· χώρος 5 στα εκατό θα παραμένει κενός για ασφάλεια όταν το υγρό βρίσκεται σε μέση θερμοκρασία 50°Κ. Κατά τη διάρκεια της μεταφοράς, η ουσία θα βρίσκεται κάτω από στρώμα αδρανούς αερίου, η 212 475

πίεση μετρητή του οποίου δεν θα υπερβαίνει τα 50 KPa (0.5 μπαρ). Τα περιβλήματα θα είναι ερμητικά κλεισμένα [b]/ και τα πώματα κατά το περιθωριακό 212 433 θα ασφαλίζονται. Τα κενά περιβλήματα, ακαθάριστα, όταν παραδίδονται για μεταφορά θα γεμίζονται με αδρανές αέριο σε πίεση μετρητή μέχρι 50 KPa (0.5 μπαρ).

212 476
Κατηγορία 5.1: Οξειδωτικές ουσίες -212 499

Κατηγορία 5.2: Οργανικά υπεροξείδια

212 500
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενο-κοντέηνερ)· ορισμοί -212 509

Χρήση

Ουσίες του 1° μέχρι 3° και διαλύματα του 4° (επίσης βρεγμένο SODIUM CHLORATE) της Κατηγορίας 5.1 και ουσίες του 10°, 14° και 15° της Κατηγορίας 5.2 μπορεί να μεταφέρονται σε δεξαμενο-κοντέηνερ. 212 510

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα ουσιών της Κατηγορίας 5.1, 4° μέχρι 6° και 7° (α) και (β), βλέπε περιθωριακό 51 111.

212 511
Παράγραφος 2: Κατασκευή -212 519

Τα περιβλήματα δεξαμενο-κοντέηνερ και τα είδη εξοπλισμού τους, που προορίζονται για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου του περιθωριακού 2501, 1°, ή για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 10°, 14° και 15°, θα είναι κατασκευασμένα από αλουμίνιο όχι λιγότερο από 99.5 στα εκατό καθαρό ή από κατάλληλο μίγμα χάλυβα που δεν πρόκειται να προκαλέσει αποσύνθεση του υπεροξειδίου του υδρογόνου ή των οργανικών υπεροξειδίων. 212 520

212 521
Παράγραφος 3: Είδη εξοπλισμού -212 529

Τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου που περιέχει πάνω από 70 στα εκατό υπεροξείδιου του υδρογόνου και υπεροξείδιου του υδρογόνου του περιθωριακού 2501, 1°, θα έχουν τα ανοίγματά τους πάνω από την επιφάνεια του υγρού. Στην περίπτωση που διαλύματα περιέχουν πάνω από 60 στα εκατό αλλά όχι πάνω από 70 στα εκατό υπεροξείδιο του υδρογόνου, ανοίγματα κάτω από την επιφάνεια του υγρού θα είναι επιτρεπτά. Στην περίπτωση αυτή το σύστημα κενώσεως του περιβλήματος θα περιλαμβάνει δύο αμοιβαία ανεξάρτητες συσκευές κλεισίματος, η πρώτη θα είναι εσωτερική βαλβίδα κλεισίματος εγκριμένου τύπου ταχείας ενέργειας και η δεύτερη θα είναι βάνα τοποθετημένη σε σειρά, μία σε κάθε άκρη του σωλήνα κενώσεως. Στην έξοδο κάθε βάνας θα είναι επίσης τοποθετημένη τυφλή φλάντζα ή κάποια άλλη εξίσου αξιόπιστη συσκευή. Η εσωτερική βαλβίδα κλεισίματος θα είναι τέτοια ώστε να παραμένει σταθερά κλειδωμένη (προσαρμοσμένη) πάνω στο περίβλημα και σε κλειστή θέση αν ο σωλήνας αποσπαστεί βίαια. Επί πλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 212 132 θα επιτρέπονται. 212 530

Η σύνδεση των εξωτερικών στομίων των σωλήνων των δεξαμενο-κοντέηνερ θα είναι επιχρισμένη (επενδυμένη) με κατάλληλο πλαστικό υλικό. 212 531

Τα περιλβήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 10°, 14° και 15° θα είναι εξοπλισμένα με συσκευή αερισμού με φλογο-παγίδα και ακολουθούμενη σε σειρά από βαλβίδα ασφαλείας που ανοίγει αυτόματα σε πίεση 0.18 MPa (1.8 μπαρ) μέχρι 0.22 MPa (2.2 μπαρ) (πίεση μετρητή). Τα υλικά από τα οποία είναι κατασκευασμένα τα κλεισίματα που μπορεί να έλθουν σε επαφή με το υγρό ή με τους ατμούς του δεν θα έχουν καταλυτική επίδραση (βαλβίδα ασφαλείας με ελατήριο οπλίσεως από μίγμα ALUMINIUM - SILICON (SILUMIN) ή από ανοξείδωτο χάλυβα V2A ή από υλικό ισάξιας ποιότητας). 212 532

Τα περιβλήματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 10°, 14° και 15° θα είναι εξοπλισμένα με θερμική μόνωση σύμφωνα με τις απαιτήσεις του περιθωριακού 212 234 (1). Το καλύπτον και το ακάλυπτο τμήμα του περιβλήματος θα βάφεται λευκό. 212 533

212 534
Παράγραφος 4: Έγκριση τύπου -212 539

212 540
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 549

Παράγραφος 5: Δοκιμές

Τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατοδιαλυμάτων υπεροξειδίου του υδρογόνου, του περιθωριακού 2501, 1° ή υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 10°, 14° και 15° θα δοκιμάζονται σε πίεση 0.4 MPa (4 μπαρ). 212 550

212 551
Παράγραφος 6: Σήμανση -212 559

212 560
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 569

Παράγραφος 7: Λειτουργία

Το εσωτερικό του περιβλήματος του δεξαμενο-κοντέηνερ και όλα τα μεταλλικά μέρη που μπορεί να έλθουν σε επαφή με υπεροξείδια του υδρογόνου του περιθωριακού 2501, 1°, θα διατηρούνται καθαρά. Δεν θα χρησιμοποιείται για τις αντλίες, βαλβίδες και άλλες συσκευές λιπαντικό που μπορεί να συνδυαστεί επικίνδυνα με τη μεταφερόμενη ουσία. 212 570

Τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγρών του περιθωριακού 2501, 1° μέχρι 3°, θα γεμίζονται μέχρι όχι πάνω από το 95 στα εκατό της χωρητικότητάς τους σε θερμοκρασία αναφοράς 15°K. Τα περιβλήματα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά υγρών οργανικών υπεροξειδίων του περιθωριακού 2551, 10°, 14° και 15°, θα γεμίζονται μέχρι όχι πάνω από το 80 στα εκατό της χωρητικότητάς τους. Τα περιβλήματα θα είναι απαλλαγμένα από ξένες ύλες όταν γεμίζονται. 212 571

212 572
Κατηγορία 6.1: Τοξικές ουσίες -212 599

212 600
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενο-κοντέηνερ)· ορισμοί -212 609

Χρήση

Οι παρακάτω ουσίες της Κατηγοριάς 6.1 μπορεί να μεταφέρονται σε δεξαμενο-κοντέηνερ: 212 610

(α) πολύ τοξικές ουσίες αναφερόμενες ονομαστικά στο 2° και 3°.

(β) πολύ τοξικές ουσίες καταταγμένες υπό (α) του 11° μέχρι 24°, 31°, 41°, 51°, 55° και 71° μέχρι 88°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπό (α) αυτών των ειδών·

(γ) τοξικές ή επιβλαβείς ουσίες καταταγμένες υπό (β) ή (γ) του 11° μέχρι 24°, 51° μέχρι 55°, 57° μέχρι 68° και 71° μέχρι 88°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπό (β) ή (γ) αυτών των ειδών·

(δ) Τοξικές ή επιβλαβείς ουσίες σε σκόνη ή σε κόκκους καταταγμένες υπό (β) ή (γ) του 12°, 14°, 17°, 19°, 21°, 23°, 24°, 51° μέχρι 55°, 57° μέχρι 68° και 71° μέχρι 88° και παρόμοιες ουσίες σε σκόνη ή κόκκους προς κατάταξη υπό (β) ή (γ) εκείνων των ειδών.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα ουσιών του 44° (β), 60° (γ) και 63° (γ) βλέπε το περιθωριακό 61 111.

212 611
Παράγραφος 2: Κατασκευή -212 619

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών αναφερόμενων ονομαστικά υπό 2° και 3° θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.5 MPa (15 μπαρ) σε πίεση μετρητή. 212 620

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.0 MPa (10 μπαρ) σε πίεση μετρητή. 212 621

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (γ) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 0.4 MPa (4 μπαρ) σε πίεση μετρητή. 212 622

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών σε σκόνη ή κόκκους που αναφέρονται στο περιθωριακό 212 610 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος. 212 623

212 624
Παράγραφος 3: Είδη εξοπλισμού -212 629

Όλα τα ανοίγματα περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (α) και (β) θα βρίσκονται πάνω από την επιφάνεια του υγρού. Κανένας σωλήνας ή σύνδεση δεν θα διέρχεται μέσον των τοιχωμάτων του περιβλήματος κάτω από την επιφάνεια του υγρού. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά [6]/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με πώματα που ασφαλίζουν. Τα ανοίγματα καθαρισμού που προβλέπονται στο περιθωριακό 212 132 δεν θα επιτρέπονται όμως για περιβλήματα που προορίζονται για τη μεταφορά υδροκυανικού οξέος του 2°. 212 630

Περιβλήματα που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (γ) και (δ) μπορεί επίσης να είναι του τύπου κενώσεως από τον πυθμένα. Τα περιβλήματα θα είναι σε θέση να κλείνονται ερμητικά [6]/. 212 631

Αν τα περιβλήματα είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται πριν από τη βαλβίδα ασφαλείας εύθραυστος δίσκος. Η ρύθμιση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή. 212 632

212 633
Παράγραφος 4: Έγκριση τύπου -212 639

212 640
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 649

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (α), (β) και (γ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ). 212 650

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (δ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές στην πίεσή τους υπολογισμού όπως καθορίζεται στο περιθωριακό 212 123. 212 651

212 652
Παράγραφος 6: Σήμανση -212 659

212 660
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 669

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (α), (β) και (γ) θα είναι σύμφωνα με το περιθωριακό 212 172 (1) (δ). 212 670

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 3° δεν θα γεμίζονται μέχρι πάνω από 1 κιλό ανά λίτρο χωρητικότητας. 212 671

Τα περιβλήματα θα είναι ερμητικά κλειστά [b]/ κατά τη διάρκεια της μεταφοράς. Τα κλεισίματα των περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 (α) και (β) θα προστατεύονται με ασφαλιζόμενα πώματα. 212 672

Δεξαμενο-κοντέηνερ εγκριμένα για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 610 δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών καταναλώσεως ή ζωοτροφών. 212 673

212 674
Κατηγορία 7: Ραδιενεργές ουσίες -212 699

212 700
Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενο-κοντέηνερ)· ορισμοί -212 709

Χρήση

Σύμφωνα με το ισχύον πρόγραμμα του περιθωριακού 2703. 212 710

ΣΗΜΕΙΩΣΗ: Μόνο υγρές ή στερεές χαμηλής-ειδικής ενέργειας ουσίες, LSA (1), του περιθωριακού 2703, πίνακας 5, περιλαμβανομένου, άσχετα από τη διάταξη στο περιθωριακό 212 100, φυσικού ή εξαντλημένου URANIUM HEXAFLUORIDE [17]/ μπορεί να μεταφέρονται σε δεξαμενο-κοντέηνερ.

212 711
Παράγραφος 2: Κατασκευή -212 719

Δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στον Πίνακα 5, με εξαίρεση του URANIUM HEXAFLUORIDE, θε είναι σχεδιασμένα για πίεση υπολογισμού τουλάχιστον 0.4 MPa (4 μπαρ). Στην περίπτωση δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά URANIUM HEXAFLUORIDE, η πίεση υπολογισμού θα είναι καθορισμένη στο 1 MPa (1 μπαρ). Όταν η ραδιενεργός ουσία βρίσκεται σε διάλυμα ή αιώρημα σε επικίνδυνες ουσίες άλλων Κατηγοριών και όταν οι απαιτούμενες πιέσεις υπολογισμού για τα δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά των τελευταίων αυτών ουσιών είναι μεγαλύτερες, θα εφαρμόζονται αυτές οι πιέσεις. 212 720

212 721
Παράγραφος 3: Εξοπλισμός -212 729

Τα ανοίγματα των δεξαμενο-κοντέηνερ που προορίζονται για τη μεταφορά ραδιενεργών ουσιών [12]/ θα βρίσκονται πάνω από την επιφάνεια του υγρού και κανένας σωλήνας ή σύνδεση σωλήνων δεν θα διέρχεται μέσα από τα τοιχώματα του περιβλήματος κάτω από την επιφάνεια του υγρού. 212 730

212 731
Παράγραφος 4: Έγκριση τύπου -212 739

Δεξαμενο-κοντέηνερ εγκριμένα για τη μεταφορά ραδιενεργών ουσιών δεν θα εγκρίνονται για τη μεταφορά οποιασδήποτε άλλης ουσίας. 212 740

212 741
Παράγραφος 5: Δοκιμές -212 749

Τα δεξαμενο-κοντέηνερ θα υποβάλλονται, τουλάχιστο μια φορά τα πέντε χρόνια, σε δοκιμή υδραυλικής πιέσεως με πίεση 0.4 MPa (1 μπάρ). Ανεξάρτητα από το περιθωριακό 212 150, η περιοδική εσωτερική επιθεώρηση μπορεί να αντικατασταθεί με τέστ υπερήχων του πάχους του τοιχώματος διενεργούμενο κάθε διόμισυ χρόνια. 212 750

212 751
Παράγραφος 6: Σήμανση -212 759

212 760
(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 769

Παράγραφος 7: Λειτουργία

Ο βαθμός πληρώσεως στη θερμοκρασία αναφοράς των 212 770

[17]/ Για εμπλουτισμένο URANIUM HEXAFLUORIDE, βλέπε περιθωριακό 2703, Πίνακα 11.

15°Κ δεν θα υπερβαίνει το 93 στα εκατό της συνολικής χωρητικότητας του περιβλήματος. Δεξαμενο-κοντέτηερ που έχουν χρησιμοποιηθεί για τη μεταφορά ραδιενεργών ουσιών δεν θα χρησιμοποιούνται για τη μεταφορά άλλων ουσιών

212 771

Κατηγορία 8: Οξειδωτικές ουσίες -212 799

212 800

Παράγραφος 1: Γενικά· πλαίσιο (χρήση δεξαμενο--212 809
κοντέηνερ)· ορισμοί

Χρήση

Οι παρακάτω ουσίες της Κατηγορίας 8 μπορεί να μεταφέ- 212 810
ρονται σε δεξαμενο-κοντέηνερ:

(α) ουσίες αναφερόμενες ονομαστικά στο 6°, 7° και 24°, και ουσίες παρόμοιες με εκείνες του 7°·

(β) πολύ οξειδωτικές ουσίες καταταγμένες υπό (α) του 1°, 2°, 3°, 10°, 11°, 21°, 26°, 27°, 32°, 33°, 36°, 37°, 64°, 65° και 66°, μεταφερόμενες σε υγρή κατάσταση, και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπό (α) εκείνων των ειδών·

(γ) οξειδωτικές ή πολύ οξειδωτικές ουσίες καταταγμένες υπό (β) ή (γ) του 1°, μέχρι 5°, 8 μέχρι 11°, 21°, 26°, 27°, 31° μέχρι 39°, 42° μέχρι 45°, 51°, μέχρι 54° και 61° μέχρι 66°, μεταφερόμενες σε υγρή κατάσταση και παρόμοιες ουσίες ή διαλύματα προς κατάταξη υπό (β) ή (γ) εκείνων των ειδών·

(δ) οξειδωτικές ή ελαφρά οξειδωτικές ουσίες σε σκόνη ή σε κόκκους, καταταγμένες υπό (β) ή (γ) του 22°, 23°, 26°, 27°, 31°, 35°, 39°, 41°, 45°, 52° και 65° και παρόμοιες ουσίες σε σκόνη ή κόκκους προς κατάταξη υπό (β) ή (γ) εκείνων των ειδών.

ΣΗΜΕΙΩΣΗ: Για τη μεταφορά χύμα ουσιών του 23° και ιλύος μολύβδου που περιέχει θειϊκό οξύ του 1° (β), βλέπε περιθωριακό 81 111.

Παράγραφος 2: Κατασκευή:

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών που 212 820
αναγράφονται στο 6° και 24° θα είναι σχεδιασμένα για πίεση υπολογισμού όχι μικρότερη από 2.1 MPa (21 μπάρ) σε πίεση μετρητή. Περιβλήματα που προορίζονται για τη μεταφορά βρωμίου του 24° θα έχουν επένδυση μολύβδου πάχους όχι λιγότερο από 5 χιλ. ή ισότιμη επένδυση.

Περιβλήματα που προορίζονται για τη μεταφορά του 7° (α) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.0 MPa (10 μπάρ) και περιβλήματα για τη μεταφορά ουσιών του 1° (β) και (γ) για πίεση υπολογισμού [16]/ όχι μικρότερη από 0.4 MPa (4 μπάρ).

Οι απαιτήσεις του Παραρτήματος Β.1δ θα έχουν εφαρμογή στα υλικά και την κατασκευή κολλημένων περιβλημάτων προοριζόμενων για τη μεταφορά HYDROGEN FLUORIDE και υδατοδιαλύματα υδροφθοριασμού οξέος του 6°.

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών 212 821
που αναφέρονται στο περιθωριακό 212 810 (β) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 1.0 MPa (10 μπαρ) σε πίεση μετρητή.

Όπου η χρήση αλουμινίου είναι αναγκαία για περιβλήματα προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (α), αυτά τα περιβλήματα θα κατασκευάζονται από αλουμίνιο καθαρότητας όχι κάτω του 99.5 στα εκατό, οπότε, κατά παρέκκλιση των διατάξεων της παραπάνω παραγράφου, το πάχος του τριχώματος δεν χρειάζεται να υπερβαίνει τα 15 χιλ.

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών 212 822
που αναφέρονται στο περιθωριακό 212 810 (γ) θα είναι σχεδιασμένα για πίεση υπολογισμού [16]/ όχι μικρότερη από 0.4 MPa (4 μπαρ) σε πίεση μετρητή.

Περιβλήματα προοριζόμενα για τη μεταφορά μονοχλωροξικού οξέος του 31° (β) θα είναι εξοπλισμένα με επένδυση σμάλτου ή ισάξιας επένδυσης αν το υλικό του περιβλήματος προσβάλλεται από το οξύ.

Περιβλήματα και τα είδη εξοπλισμού τους που προορίζονται για τη μεταφορά υδροδιαλυμάτων του υπεροξειδίου του υδρογόνου θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι κάτω του 99.5 στα εκατό ή από κατάλληλο χάλυβα που δεν προκαλεί αποσύνθεση του υπεροξειδίου του υδρογόνου.

Ανεξάρτητα από τις διατάξεις της πρώτης παραγράφου, το πάχος του τοιχώματος δεν χρειάζεται να είναι μεγαλύτερο από 15 χιλ. όταν τα περιβλήματα είναι κατασκευασμένα από καθαρό αλουμίνιο.

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών 212 823
σε σκόνη ή κόκκους που αναφέρονται στο περιθωριακό 212 810 (δ) θα είναι σχεδιασμένα σύμφωνα με τις απαιτήσεις του γενικού μέρους του παρόντος Παραρτήματος.

212 824

Παράγραφος 3: Είδη εξοπλισμού -212 829

Όλα τα ανοίγματα των περιβλημάτων που προορίζονται 212 830
για τη μεταφορά ουσιών του 6°, 7° και 24° θα βρίσκονται πάνω από την επιφάνεια του υγρού. Κανένας σωλήνας ή σύνδεση σωλήνα δεν θα διαπερνά τα τοιχώματα κάτω από την επιφάνεια του υγρού. Δεξαμενοκοντέηνερ θα είναι σε θέση να κλείνονται ερμητικά[6]/ και τα κλεισίματα θα είναι σε θέση να προστατεύονται με ασφαλιζόμενα πώματα. Επί πλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 212 132 δεν θα επιτρέπονται.

Περιβλήματα προοριζόμενα για τη μεταφορά των ουσιών 212 831
που αναφέρονται στο περιθωριακό 212 810 (β), (γ) και (δ) μπορεί επίσης να είναι του τύπου κενώσεως από τον πυθμένα. Τα εξαρτήματα κενώσεως από τον πυθμένα περιβλημάτων που προορίζονται για τη μεταφορά των ουσιών που αναφέρονται στο περιθωριακό 212 810 (β) και (γ) θα συμφωνούν με τις απαιτήσεις του περιθωριακού 212 131.

Αν περιβλήματα προοριζόμενα για τη μεταφορά των ου- 212 832
σιών που αναφέρονται στο περιθωριακό 212 810 (β) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται πριν από τη βαλβίδα εύθραυστος δίσκος. Η τακτοποίηση του εύθραυστου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

Περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου 212 833
του θείου του 1° (α) θα είναι θερμικά μονωμένα και θα είναι εξωτερικά εξοπλισμένα με θερμαντική συσκευή.

Περιβλήματα και ο εξοπλισμός εξυπηρετήσεως αυτών που 212 834
προορίζονται για τη μεταφορά διαλυμάτων υποχλωριτών του 61° και υδατοδιαλυμάτων του υπεροξειδίου του υδρογόνου του 62°, θα είναι σχεδιασμένα έτσι ώστε να εμποδίζουν την είσοδο ξένων ουσιών, διαρροή υγρού ή δημιουργία επικίνδυνης υπερβολικής πιέσεως μέσα στο περίβλημα.

212 835

Παράγραφος 4: Έγκριση τύπου -212 839

212 840

(Δεν υπάρχουν ειδικές προϋποθέσεις) -212 849

Παράγραφος 5: Δοκιμές

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου 212 850
υδροφθορικού οξέος ή υδατοδιαλυμάτων υδροφθορικού οξέος του 6° θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή τουλάχιστον 1.0 MPa (10 μπαρ) και εκείνα που προορίζονται για τη μεταφορά ουσιών του 7° θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ).

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 6° και 7° θα επιθεωρούνται κάθε διόμισυ χρόνια για αντίσταση στην οξείδωση, με κατάλληλα όργανα (π.χ. με υπερήχους),

Τα υλικά κάθε κολλημένου περιβλήματος που προορίζεται για τη μεταφορά HYDROGEN FLUORIDE και υδατοδιαλυμάτων υδροφθορικού οξέος του 6° θα δοκιμάζονται με τη μέθοδο που περιγράφεται στο Παράρτημα Β. 1δ.

Περιβλήματα προοριζόμενα για τη μεταφορά βρωμίου του 212 851
24° ή των ουσιών που αναφέρονται στο περιθωριακό 212 810 (β) και (γ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή όχι μικρότερη από 0.4 MPa (4 μπαρ). Η δοκιμή υδραυλικής πίεσεως περιβλημάτων που προορίζονται για τη μεταφορά τριοξειδίου του θείου του 1° (α) θα επαναλαμβάνεται κάθε διόμισυ χρόνια. Περιβλήματα κατασκευασμένα από καθαρό αλουμίνιο και προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (α) και υδατοδιαλυμάτων του υπεροξειδίου του υδρογόνου του 62° χρειάζεται να υποβληθούν στην αρχική και τις περιοδικές δοκιμές σε πίεση μετρητή μόνο 0.25 MPa (2.5 μπαρ).

Η κατάσταση της επενδύσεως των περιβλημάτων που προορίζονται για τη μεταφορά βρωμίου του 24° θα επιθεωρείται κάθε έτος από ειδικό εγκριμένο από την αρμόδια αρχή, που θα επιθεωρήσει το εσωτερικό του περιβλήματος.

Περιβλήματα προοριζόμενα για τη μεταφορά που αναφέρονται στο περιθωριακό 212 810 (δ) θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές στην πίεση υπολογισμού τους όπως καθορίζεται στο περιθωριακό 212 123. 212 852

Παράγραφος 6: Σήμανση 212 853 -212 859

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου υδροφθορικού οξέος ή υδατοδιαλυμάτων υδροφθορικού οξέος του 6°, βρωμίου του 24°, θα φέρουν πέραν από τα στοιχεία που αναφέρονται στο περιθωριακό 212 160 ένδειξη του επιτρεπόμενου ανώτατου καθαρού φορτίου σε κιλά και την ημερομηνία (μήνας, έτος) της πλέον πρόσφατης εσωτερικής επιθεωρήσεως του περιβλήματος. 212 860

Παράγραφος 7: Λειτουργία 212 861 -212 869

Περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου του θείου του 1° (α) δεν θα γεμίζονται μέχρι πάνω από το 88 στα εκατό της χωρητικότητάς τους· εκείνα που προορίζονται για τη μεταφορά βρωμίου του 24° θα γεμίζονται μέχρι όχι λιγότερο από το 88 στα εκατό και όχι περισσότερο από το 92 στα εκατό της χωρητικότητάς τους ή μέχρι 2.86 κιλά ανά λίτρο χωρητικότητας. 212 870

Περιβλήματα προοριζόμενα για τη μεταφορά άνυδρου υδροφθορικού οξέος ή υδατοδιαλυμάτων του υδροφθορικού του 6° δεν θα γεμίζονται πάνω από 0.84 κιλά ανά λίτρο χωρητικότητας.

Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών του 6°, 7° και 24 θα κλείνονται ερμητικά[6]/ στη διάρκεια της μεταφοράς και τα κλεισίματα θα προστατεύονται με ασφαλιζόμενα πώματα. 212 871

Παράρτημα Β.Ιγ 212 872 -212 999

ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΙ ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΑΠΟ ΕΝΙΣΧΥΜΕΝΟ ΠΛΑΣΤΙΚΟ

ΣΗΜΕΙΩΣΕΙΣ 1. Το παρόν Παράρτημα έχει εφαρμογή σε σταθερές δεξαμενές και αποσυναρμολογούμενες δεξαμενές· δεν έχει εφαρμογή σε συστοιχίες δοχείων, ή σε δεξαμενοκοντέηνερ ή σε δοχεία.

2. Για δοχεία, βλέπε τις προϋποθέσεις που τα φορά στο Προσάρτημα Α (συσκευασίες).

Παράγραφος 1: Γενικές διατάξεις που αφορούν τη χρήση και την κατασκευή σταθερών και αποσυναρμολογούμενων δεξαμενών 213.000 -213 009

ΣΗΜΕΙΩΣΗ: Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (2) η μεταφορά επικίνδυνων ουσιών σε σταθερές ή αποσυναρμολογούμενες δεξαμενές κατασκευασμένες από ενισχυμένο πλαστικό που ανταποκρίνονται στις απαιτήσεις του παρόντος Παραρτήματος επιτρέπεται μόνο όπου η χρήση αυτών των δεξαμενών για εκείνες τις ουσίες επιτρέπεται ρητά σύμφωνα με το περιθωριακό 213 010.

Χρήση

Οι παρακάτω ουσίες μπορεί να μεταφέρονται σε δεξαμενές από ενισχυμένο πλαστικό σύμφωνα με τις διατάξεις του παρόντος Παραρτήματος: 213 010

(α) Αργό πετρέλαιο και άλλα ακατέργαστα έλαια· πτητικά προϊόντα από τη διύλιση αργού πετρελαίου και άλλων ακατέργαστων ελαίων του 3° (β) της Κατηγορίας 3·

(β) Ημιβαρέα προϊόντα από τη διύλιση πετρελαίου και άλλων ακατέργαστων ελαίων του 31° (γ) της Κατηγορίας 3·

(γ) Πετρέλαια θερμάνσεως και πετρέλαια ντήζελ του 32° (γ) της Κατηγορίας 3·

(δ) Διαλύματα του 4° (α) της Κατηγορίας 5.1·

(ε) Ουσίες του 1° (β) και (γ), 2° (β) και (γ), διαλύματα υδροχλωρικού οξέος του 5° (β) και ουσίες του 42°, 61° και 62° της Κατηγορίας 8.

Κατασκευή 213 011 -213 099

Οι δεξαμενές θα ανταποκρίνονται στις παρακάτω απαιτήσεις του Παραρτήματος Β.Ια: 213 100

(1) Γενικές διατάξεις που έχουν εφαρμογή για δεξαμενές που χρησιμοποιούνται για τη μεταφορά ουσιών όλων των κατηγοριών:

Περιθωριακά 211 120 (4), (5) και (6)· 211 121· 211 122· 211 124° 211 126· 211 127(6)· 211 128· 211 130· 211 132· 211 140· 211 150 μέχρι 211 154· 211 160 και 211 161· 211 171· 211 172 (1) και (2)·211 173 μέχρι 211 178.

(2) Διατάξεις που έχουν εφαρμογή για δεξαμενές που χρησιμοποιούνται για μεταφορά ουσιών της Κατηγορίας 3.

Περιβλήματα που είναι εξοπλισμένα με συσκευή αερισμού που δεν μπορεί να κλείνεται και τα οποία προορίζονται για τη μεταφορά εύφλεκτων υγρών που έχουν σημείο αναφλέξεως που δεν υπερβαίνει τους 55°Κ θα έχουν φλογοπαγίδα στη συσκευή αερισμού.

Η δοκιμή στεγανότητας και η εσωτερική επιθεώρηση θα γίνονται κάθε τρία χρόνια.

(3) Διατάξεις που έχουν εφαρμογή για δεξαμενές που χρησιμοποιούνται για μεταφορά ουσιών της Κατηγορίας 8: περιθωριακό 211 834.

Τα τοιχώματα της δεξαμενής πρέπει να μη παρουσιάζουν ουσιαστικό ελάττωμα που προκαλεί μείωση της ασφάλειας. 213 101

Τα τοιχώματα της δεξαμενής πρέπει να έχουν αντοχή διαρκείας στις μηχανικές, θερμικές και χημικές πιέσεις στις οποίες υποβάλλονται. 213 102

Ανοίγματα δεξαμενών

(1) Όπου η δεξαμενή έχει ένα ή περισσότερα ανοίγματα κενώσεως κάτω από την επιφάνεια του υγρού, οποιοσδήποτε σωλήνας ή βαλβίδα που είναι εφαρμοσμένη στο άνοιγμα αυτό η ανοίγματα θα προστατεύεται είτε με θέση μέσα σε εσοχή στη δεξαμενή είτε με οποιοδήποτε άλλο μέσο της εγκρίσεως της αρμόδιας αρχής και παρεισάξια προστασία. 213 103

(2) Η χρήση βύσματος με βίδα απαγορεύεται αυστηρά. Οι βαλβίδες θα είναι τύπου της εγκρίσεως της αρμόδιας αρχής.

(3) Τα ανοίγματα πληρώσεως θα κλείνονται με ερμητική συσκευή. Αν η συσκευή προβάλλει προς τα έξω από το περίβλημα της δεξαμενής θα προστατεύεται με πώμα που θα μπορεί να αντέχει σε πιέσεις αποσπάσεως που λαμβάνουν χώρα σε περίπτωση ανατροπής του οχήματος από ατύχημα.

Παράγραφος 2: Υλικά χρησιμοποιούμενα για τα τοιχώματα της δεξαμενής 213 104 -213 119

Τα τοιχώματα των δεξαμενών μπορεί να κατασκευάζονται από τα παρακάτω υλικά: 213 120

1) Συνθετική ρητίνη

– ακόρεστες ρητίνες πολυεστέρων·

– εποξυρητίνες

– άλλες ρητίνες με παρόμοια χαρακτηριστικά, με τον όρο ότι η ασφάλεια του τοιχώματος καταδεικνύεται.

(2) Ενισχύσεις με ίνες

Ίνες γιαλιού (γιαλί των τύπων Ε και Γ) [4]/ με κατάλληλη επένδυση, για παράδειγμα με βάση το SILANE ή παρόμοια προϊόντα. Οι ίνες του γιαλιού μπορεί να χρησιμοποιηθούν υπό μορφή κομμένων ή μη κομμένων θηλειών περιλαμβανόμενων προεντεταμένων συνεχών θηλειών ή νημάτων, φαθών, ψαθών επιφανείας ή υφάσματος.

(3) Πρόσθετα

(α) Πρόσθετα αναγκαία για την επεξεργασία των ρητινών.

---

[4]/Γιαλί των τύπων Ε και Γ καθορίζεται στον Πίνακα 1.

για παράδειγμα καταλύτες, επιταχυντές, μονομερή, σκληρυντές, θιξοτροπικές ουσίες, σύμφωνα με οδηγίες του κατασκευαστή της ρητίνης.

(β) Διαλυτικά, χρωστικές ουσίες, και άλλα προϊόντα που βοηθούν να επιτευχθούν οι απαιτούμενες ιδιότητες, δια παράδειγμα ή αύξηση της αντιστάσεως στη φωτιά, με τον όρο ότι δεν προκαλούν μείωση στην ασφάλεια χρήσεως των τοιχωμάτων της δεξαμενής.

213 121

Παράγραφος 3: Δομή των τοιχωμάτων της δεξαμενής -213 129

Το εξωτερικό επιφανειακό στρώμα των τοιχωμάτων της 213 130
δεξαμενης πρέπει να αντέχει στις ατμοσφαιρικές επιδράσεις και επίσης σε σύντομη επαφή με την προς μεταφορά ουσία.

Τα τοιχώματα της δεξαμενής και οι σφραγισμένοι αρμοί 213 131
πρέπει να ικανοποιούν τις απαιτήσεις μηχανικής αντίστασης που αναφέρονται στην παράγραφο 4.

Το εσωτερικό επιφανειακό στρώμα των τοιχωμάτων πρέ- 213 132
πει να αντέχουν στις συνεχείς επιδράσεις της προς μεταφορά ουσίας. Το στρώμα αυτό πρέπει να είναι κατασκευασμένο από ενισχυμένη ρητίνα ελάχιστου πάχους 1 χιλ. Οι χρησιμοποιούμενες ίνες δεν πρέπει να μειώνουν τη χημική αντίσταση του στρώματος. Το εσωτερικό μέρους του στρώματος πρέπει να είναι πλούσιο σε ρητίνες και πρέπει να έχει ελάχιστο πάχος 0.2 χιλ.

Οι προϋποθέσεις που αναφέρονται λεπτομερώς στα περιθωριακά 213 140 (6) και 213 142 (2) της παραγράφου 4 πρέπει να ικανοποιηθούν

Τα τελειωμένα τοιχώματα πρέπει να καλύπτουν τις προϋ- 213 133
ποθέσεις που αναφέρονται λεπτομερώς στο περιθωριακό 213 140 (3) της παραγράφου 4.

Το ελάχιστο πάχος του τοιχώματος θα είναι 213 134

-3.5 χιλ. αν η χωρητικότητα της δεξαμενής δεν υπερβαίνει τα 3 μ^3

-5.0 χιλ. αν η χωρητικότητα της δεξαμενής είναι πάνω από 3 μ^3

213 135

Παράγραφος 4: Μέθοδοι δοκιμής και απαιτούμενες ιδιότη--213 139
τες

Απαιτούμενες δοκιμές και ιδιότητες για υλικά για το πρωτό- 213 140
τυπο της δεξαμενής

(1) Λήψη δειγμάτων

Τα απαιτούμενα δείγματα για τη δοκιμή πρέπει όπου είναι δυνατό να λαμβάνονται από τα τοιχώματα της δεξαμενής. Για το σκοπό αυτό, μπορεί να χρησιμοποιηθούν κομμάτια που προέρχονται από την κατασκευή των ανοιγμάτων κ.λπ.

(2) Ποσοστό υαλοβάμβακα

Η δοκιμή πρέπει να γίνεται σύμφωνα με τις μεθόδους που προβλέπονται στην ISO RECOMMENDATION R1172 1970.

Το περιεχόμενο γιαλιού του δείγματος πρέπει να είναι πάνω από 25 στα εκατό και λιγότερο από 75 στα εκατό κατά βάρος.

(3) Βαθμός πολυμερισμού

(α) Τοίχωμα με ίνες πολυεστέρα

Το κατάλοιπο περιεχόμενο στυρενίου δεν μπορεί να είναι μεγαλύτερο από 2 στα εκατό, υπολογιζόμενο επί της ολικής ποσότητας ρητινών. Η δοκιμή θα γίνεται σύμφωνα με κατάλληλη μέθοδο. [2]/

(β) Τοίχωμα με εποξυρητίνες

Το εκχύλισμα ακετόνης δεν μπορεί να είναι μεγαλύτερο από 2 στα εκατό υπολογιζόμενο επί της ολικής ποσότητας της ρητίνης. Η δοκιμή θα γίνεται σύμφωνα με κατάλληλη μέθοδο [3]/

(4) Αντοχή κάμψεως και εντάσεως

Οι μηχανικές ιδιότητες πρέπει να προσδιορίζονται:

-για το περίβλημα, στην αξονική και περιφερειακή κατεύθυνση·

-για τα άκρα και τα τοιχώματα των διαμερισμάτων προς οποιαδήποτε κατεύθυνση.

Αν οι κύριες κατευθύνσεις της ενισχύσεως δεν συμπίπτουν με την αξονική και περιφερειακή κατεύθυνση (για παράδειγμα στην περίπτωση διαξονικής περιελίξεως) η αντοχή πρέπει να προσδιοριστεί στις κύριες κατευθύνσεις της ενισχύσεως και να υπολογιστεί για τις αξονική και περιμετρική κατευθύνσεις εφαρμόζοντας το παρακάτω τύπο:

Εντάσεως

$\sigma T,\gamma - 2\ \sigma T,H\ SIN^2\alpha$ (άλφα)
$\sigma T,\alpha - 2\ \sigma T,H\ COS^2\alpha$ (άλφα)

Κάμψεως

$\sigma F,\gamma = 2\ \sigma F,H\ SIN^2\alpha$ (άλφα)
$\sigma F,\alpha = 2\ \sigma F,H\ COS^2\alpha$ (άλφα)

T = εντάσεως
γ = περιμετρική
α = αξονική
H = ελικοειδής
F = κάμψεως
α (άλφα) = προτιμησιακή γωνία περιελίξεως

Η αντοχή εντάσεως πρέπει να δοκιμαστεί σύμφωνα με τις μεθόδους που προβλέπονται στο έγγραφο ISO/TC61/WG2/TC «Δοκιμές πλαστικών ενισχυμένων με γυαλί» No 4 του Φεβρουαρίου 1971.

Η αντοχή κάμψεως πρέπει να δοκιμάζεται σύμφωνα με τις μεθόδους που προβλέπονται στη RECOMMENDATION ISO/TC61 No. 1540 του Απριλίου 1970.

Προϋποθέσεις

Οι νέες δεξαμενές πρέπει να καλύπτουν τους παρακάτω συντελεστές ασφαλείας κατά της θραύσεως:

Συντελεστής ασφαλείας για στατικό φορτίο 7.5

Συντελεστής ασφαλείας για δυναμικό φορτίο 5.5.

Οι τιμές επιταχύνσεως που θα εφαρμόζονται στον υπολογισμό του δυναμικού φορτίου είναι οι παρακάτω:

2 G στην κατεύθυνση πορείας·

1 G σε ορθές γωνίες προς κατεύθυνση πορείας·

1 G κάθετα προς τα πάνω· και

2 G κάθετα προς τα κάτω.

Επειδή τα χαρακτηριστικά φύλλου ενισχυμένου πλαστικού μπορεί να ποικίλουν σύμφωνα με το δομή του, ελάχιστες τιμές δεν προβλέπονται για κάμψη και ένταση αλλά για φορτία:

A = ε6T όπου το 6T είναι η αντοχή εντάσεως στη θραύση·

B = $\varepsilon^2$6F όπου το 6F είναι η αντοχή κάμψεως στη θραύση·

όπου ε είναι το πάχος του τοιχώματος.

Οι ελάχιστες τιμές για τις δυνάμεις A και B είναι:

Για κάμψη:

Χωρητικότητα δεξαμενής $\geqslant$ 3 μ^3
-περιμετρική κατεύθυνση B = 600 DαN
-αξονική κατεύθυνση B = 300 DαN
Χωρητικότητα δεξαμενής $>$ 3 μ^3
-περιμετρική κατεύθυνση B = 600 DαN
-αξονική κατεύθυνση B = 600 DαN

Για ένταση:

-περιμετρική κατεύθυνση A = 100 DαN/MM
-αξονική κατεύθυνση A = 70 DαN/MM

Το στοιχείο E στην κάμψη μετρείται στους -40°K και στους +60°K. Οι δύο τιμές δεν μπορεί να διαφέρουν κατά περισσότερο από 30 στα εκατό από την τιμή που έχει επιτευχθεί στους 20°K. Συμπεριφορά υλικού τοιχώματος στη διάρκεια δοκιμής εντάσεως που διαρκεί περισσότερο από 1000 ώρες.

Η ένταση δοκιμής είναι $\frac{G\ T}{7.5}$

Στη διάρκεια της δοκιμής ο συντελεστής $K = \frac{\varepsilon 1000}{\varepsilon 0}$

δεν μπορεί να είναι μεγαλύτερος από 1.6.

---

[2]/ Η μέθοδος που προβλέπεται στο πρότυπο DIN 16945 του Ιουνίου 1969, παρ. 6.4.3 θεωρείται κατάλληλη.

---

[3]/ Η μέθοδος που προβλέπεται στο πρότυπο DIN 16945 Ιουνίου 1969, παρ. 6.4.2 κρίνεται κατάλληλη.

ε0 = επιμήκυνση φορτωμένου υποδείγματος στην αρχή της δοκιμής.
ε1000 = επιμήκυνση φορτωμένου υποδείγματος στο τέλος της δοκιμής.

(5) Συμπεριφορά προσκρούσεως

(α) Φύση της δοκιμής

Η συμπεριφορά προσκρούσεως προσδιορίζεται πάνω σε δείγμα φύλλου που αντιστοιχεί στο κατασκευαστικό υλικό που χρησιμοποιήθηκε για την κατασκευή της δεξαμενής. Η δοκιμή γίνεται ρίπτοντας σιδερένιο βάρος 5 κιλών πάνω στην επιφάνεια του φύλλου που αντιστοιχεί στην εξωτερική επιφάνεια της δεξαμενής.

(β) Σύνεργα

Τα σύνεργα αποτελούνται από σιδερένιο βάρος 5 κιλών, μια συσκευή καθοδηγήσεως του βάρους αυτού και μία βάση τοποθετήσεως του δείγματος. Γενικό διάγραμμα των συνέργων δίνεται στην εικόνα 1. Το βάρος στην περίπτωση αυτή είναι υπό μορφή σιδερένιου κυλίνδρου εφοδιασμένου μεδύο αυλάκια καθοδηγήσεως, μετο κάτω άκρο του σεσχήμα σφαιρικό, διαμέτρου 90 χιλ.

Η συσκευή καθοδηγήσεως είναι εφαρμοσμένη κάθετα σε τοίχο.

Η βάση που φέρει το δείγμα αποτελείται από δύο ράβδους σεσχήμα γωνίας $100 \times 100 \times 25$ χιλ. και μήκους 300 χιλ., κολλημένες πάνω σεμεταλλική βάση 400×400 χιλ. Το κενό μεταξύ των δύο ράβδων είναι 175 χιλ. Η βάση του δείγματος, στερεωμένη στο έδαφος, έχει κοιλότητα 50 χιλ. για να επιτρέπει κάμψη του δείγματος.

(γ) Ετοιμασία δειγμάτων

Από το δείγμα λαμβάνονται τρία υποδείγματα, κάθε ένα διαστάσεων 200×200 χιλ. στο πάχος του δείγματος.

(δ) Μέθοδος ενέργειας

Το υπόδειγμα τοποθετείται συμμετρικά πάνω στη βάση· αν είναι δυνατό να στηρίζεται πάνω στη βάση, ακολουθώντας δύο βασικές ευθείες γραμμές της επιφάνειας, κατά τέτοιο τρόπο ώστε το βάρος να κτυπήσει στο κέντρο της πάνω επιφάνειας του υποδείγματος που αντιστοιχεί στην εξωτερική επιφάνεια της δεξαμενής.

Το βάρος αφήνεται να πέσει από καθορισμένο ύψος, λαμβανόμενης φροντίδας ώστε να μην αναπηδήσει και κτυπήσει το υπόδειγμα δεύτερη φορά.

Η δοκιμή πρέπει να γίνει σε θερμοκρασία περιβάλλοντος.

Το ύψος στο οποίο το βάρος ανυψώνεται στη συσκευή καθοδηγήσεως σημειώνεται.

Τα άλλα δύο υποδείγματα δοκιμάζονται με τον ίδιο τρόπο.

(ε) Απαιτούμενο

Το ύψος ρίψεως για βάρος 5 κιλών θα είναι 1 μέτρο· το υπόδειγμα δεν πρέπει να επιτρέπει διαρροή πάνω από 1 λίτρο ανά 24 ώρες όταν υποβάλλεται σε στήλη νερού 1 μ.

(6) Αντοχή σε χημικούς παράγοντες.

Επίπεδες πλάκες δοκιμής από ενισχυμένο πλαστικό, ετοιμασμένες στο εργαστήριο, υποβάλλονται σε προσβολή από την επικίνδυνο ουσία σε θερμοκρασία 50°K επί 30 ημέρες σύμφωνα με την παρακάτω διαδικασία:

(α) Περιγραφή των σύνεργων δοκιμής (Εικ. 2).

Τα σύνεργα δοκιμής περιλαμβάνουν γιάλινο κύλινδρο, διαμέτρου 140×150 χιλ., ύψους 150 χιλ. με δύο ακροφύσια τοποθετημένα στις 135°, ένα εφοδιασμένο με σύνδεσμο NS 29 για να υποδεχθεί ενδιάμεσο σωλήνα για συμπυκνωτή αναρροής (1), το άλλο ακροφύσιο εφοδιασμένο με σύνδεσμο NS 14.5 για να υποδεχθεί θερμόμετρο (2), ενδιάμεσο σωλήνα για συμπυκνωτή αναρροής και συμπυκνωτή αναρροής που δεν φαίνεται στο διάγραμμα. Το γιάλινο μέρος της συσκευής θα είναι από γιαλί που αντέχει σε αλλαγές θερμοκρασίας.

Τα υποδείγματα που πάρθηκαν από τις πλάκες δοκιμής αποτελούν τη βάση και την κορυφή του γιάλινου κυλίνδρου. Σφραγίζονται στις πλευρές του κυλίνδρου με κολλάρο PTFE. Ο κύλινδρος με τα δύο υποδείγματα αφίγγεται μεταξύ δύο πλακών πιέσεως από ανοξείδωτο χάλυβα με έξη κοχλίες που σφίγγουν με πεταλούδες περικόχλια. Μεταξύ των πλακών πιέσεως και των υποδειγμάτων πρέπει να τοποθετηθεί ροδέλλα από αμίαντο. Αυτές οι ροδέλες δεν εμφανίζονται στην εικόνα 2. Η θέρμανση γίνεται απέξω με ένα αυτόματα ελεγχόμενο θερμαντήρα σχήματος σωλήνα. Η μέτρηση της θερμοκρασίας γίνεται στο θάλαμο που περιέχει το υγρό.

(β) Λειτουργία της συσκευής δοκιμής.

Η συσκευή δοκιμής επιτρέπει τη δοκιμή μόνο επίπεδων πλακών ομοιόμορφου πάχους. Οι πλάκες δοκιμής πρέπει, αν είναι δυνατόν, να έχουν πάχος 4 χιλ. Αν αυτές οι πλάκες είναι καλυμένες με επίχρισμα κολλοειδούς, πρέπει να δοκιμάζονται σε κατάσταση όπως για πρακτική χρήση. Έξη εξάγωνα υποδείγματα που κάθε πλευρά τους είναι 100 χιλ. κόβονται από την πλάκα δοκιμής.

Για κάθε δοκιμή, ετοιμάζονται τρία υποδείγματα ανά συσκευή. Ένα από αυτά τα δείγματα χρησιμοποιείται σαν αναφορά και τα άλλα δύο χρησιμοποιούνται για έλεγχο στη ζώνη υγρού και τη ζώνη ατμού της συσκευής αντίστοιχα.

(γ) Διαδικασία δοκιμής

Τα υποδείγματα προς δοκιμή τοποθετούνται στη συσκευή με την επιφάνεια που μπορεί να είναι επιχρισμένη με κολλοειδές με το πρόσωπο προς τα μέσα. Ρίπτεται μέσα στο γιάλινο κίλυνδρο δοκιμαστικό υγρό 1 200 ML. Ύστερα η συσκευή θερμαίνεται μέχρι τη θερμοκρασία δοκιμής. Στη διάρκεια της δοκιμής διατηρείται σταθερή θερμοκρασία. Μετά τη δοκιμή η συσκευή ψύχεται σε θερμοκρασία περιβάλλοντος και αφαιρείται το υγρό της δοκιμής. Τα δοκιμασθέντα υποδείγματα πλένονται αμέσως με αποσταγμένο νερό. Τα υγρά που δεν είναι διαλυτά στο νερό αφαιρούνται με διαλυτικό που δεν προσβάλλει τα υποδείγματα. Μηχανικός καθαρισμός των πλακών δεν μπορεί να γίνει λόγω του κινδύνου βλάβης της επιφάνειας των υποδειγμάτων.

(δ) Αξιολόγηση

Γίνεται οπτική εξέταση:

– αν η οπτική εξέταση αποκαλύψει υπερβολική προσβολή (σχισμές, φυσαλίδες, πόρους, ξεφλουδίσματα, φουσκώματα ή ανωμαλίες), η δοκιμή είναι τελειωτικά αρνητική·

– αν η οπτική εξέταση δεν αποκαλύψει ανωμαλίες, γίνονται δοκιμές κάμψεως με τις μεθόδους που καθορίζονται στο περιθωριακό 213 140 (4) πάνω στα δύο υποδείγματα που υποβλήθηκαν σε χημική προσβολή και στο υπόδειγμα αναφοράς. Στην περίπτωση αυτή η αντοχή κάμψεως δεν θα είναι περισσότερο από 20 στα εκατό χαμηλότερη από την τιμή που εξακριβώθηκε για την πλάκα δοκιμής που δεν υποβλήθηκε σε οποιαδήποτε καταπόνηση.

Απαιτούμενη δοκιμή και ποιότητα για την πρωτότυπη μονάδα 213 141

Η πρωτότυπη δεξαμενή θα υποβληθεί σε δοκιμή υδραυλικής πιέσεως από ειδικό της εγκρίσεως της αρμόδιας αρχής Συμβαλλόμενου Μέρους.

Αν η πρωτότυπη δεξαμενή είναι χωρισμένη σε διαμερίσματα είτε με διαφράγματα με διαχωριστικές πλάκες, η δοκιμή θα γίνει πάνω σε μονάδα κατασκευασμένη γι' αυτό το σκοπό με τα ίδια εξωτερικά άκρα όπως ολόκληρη η δεξαμενή και που αντιπροσωπεύει το τμήμα της δεξαμενής που υποβάλλεται, υπό κανονικές συνθήκες χρήσεως, στις μέγιστες πιέσεις.

Η δοκιμή αυτή δεν πρέπει να γίνεται αν έγινε ήδη επιτυχημένη δοκιμή άλλης πρωτότυπης μονάδας της ίδιας διατομής ή διατομής με μεγαλύτερες διαστάσεις, γεωμετρικά ίδιας με εκείνη της πρωτότυπης μονάδας για την οποία πρόκειται, ακόμη και αν εκείνη η μονάδα έχει διαφορετικό εσωτερικό επιφανειακό στρώμα.

Αυτή η δοκιμή πρέπει να δείξει ότι η πρωτότυπη μονάδα έχει, υπό κανονικές συνθήκες χρήσεως, συντελεστή όχι μικρότερο από 7.5 όσον αφορά τη θραύση.

Πρέπει να αποδειχθεί, π.χ. με υπολογισμό, ότι καλύπτονται οι συντελεστές ασφαλείας κατά της θραύσεως που δίνονται στο περιθωριακό 213 140 (4) για κάθε τμήμα της δεξαμενής.

Θραύση λαμβάνει χώρα όταν το υγρό της δοκιμής διαφεύγει από τη δεξαμενή υπό μορφή πηδάκων. Κατά συνέπεια, πριν από αυτή τη θραύση, η παρουσία σχισμών και οι απώλειες υγρού μέσω αυτών των σχισμών υπό μορφή σταγονιδίων επιτρέπεται. Η πρωτότυπη μονάδα πρέπει να υποβληθεί σε υδραυλική πίεση.

$$H = 7.5 \times D \times h$$

όπου H είναι το ύψος της στήλης του νερού

h είναι το ύψος της δεξαμενής

D είναι ή πυκνότητα της προς μεταφορά ουσίας.

Αν λάβει χώρα θραύση με ύψος στήλης ύδατος H_1 λιγότερο από H θα πρέπει ακόμη να είναι

$$H_1 \geqslant 7.5 \times D \times (h - h_1)$$

όπου h_1 είναι το ύψος του υψηλότερου σημείου όπου εμφανίζεται ο πρώτος πήδακας υγρού.

Αν η ροή υγρού στο σημείο h_1 είναι πολύ μεγάλη, είναι απαραίτητο να γίνει μια προσωρινή επισκευή και προσωρινή τοπική ενίσχυση για να μπορέσει η δοκιμή αν συνεχίσει μέχρι το ύψος H.

213 142 Έλεγχος ομοιομορφίας σε δεξαμενές παραγόμενες σε σειρά

(1) Η επιθεώρηση ομοιομορφίας σε δεξαμενές που παράγονται σε σειρά θα γίνεται διεξάγοντας μία ή περισσότερες από τις δοκιμές που αναγράφονται στο περιθωριακό 213 140.

Εντούτοις, η μέτρηση του βαθμού πολυμερισμού αντικαθίσταται με μέτρηση σκληρότητας BARCOL.

(2) Σκληρότητα BARCOL

Η δοκιμή πρέπει να διεξαχθεί σύμφωνα με καταλληλες διαδικασίες [4]/. Η σκληρότητα BARCOL μετρούμενη πάνω στην εσωτερική επιφάνεια της έτοιμης δεξαμενής δεν θα είναι λιγότερο από 75 στα εκατό της τιμής που επιτυγχάνεται στο εργαστήριο πάνω σε καθαρή σκληρυμένη ρητίνη.

(3) Το ποσοστό υαλοβάμβακα πρέπει να βρίσκεται μέσα στα όρια που προβλέπονται από το περιθωριακό 213 140

(2) και, επί πλέον, δεν πρέπει να αποκλίνει κατά περισσότερο από 10 στα εκατό από το νούμερο για την πρωτότυπη δεξαμενή.

213 143 Απαιτούμενες δοκιμές και ιδιότητες για όλες τις δεξαμενές πριν μπουν σε υπηρεσία.

Η δοκιμή στεγανότητας θα γίνεται σύμφωνα με τις διατάξεις των περιθωριακών 211 150, 211 151 και 211 152 και πρέπει να μπαίνει στη δεξαμενή η σφραγίδα του ειδικού.

213 144-213 149 Παράγραφος 5: Ειδικές διατάξεις για δεξαμενές που χρησιμοποιούνται για τη μεταφορά ουσιών με σημείο αναφλέξεως 55°K ή χαμηλότερο

213 150 Η δεξαμενή πρέπει να κατασκευάζεται σε τρόπο ώστε να εξασφαλίζει την εξάλειψη στατικού ηλεκτρισμού από τα διάφορα συστατικά μέρη ώστε να αποφευχθεί η συγκέντρωση επικίνδυνων ηλεκτρικών κενώσεων.

Όλα τα μεταλλικά μέρη της δεξαμενής και της μεταφορικής μονάδας καθώς και τα τοιχώματα που είναι αγωγοί ηλεκτρισμού πρέπει να αλληλοσυνδεθούν.

Η αντίσταση μεταξύ κάθε άγοντος μέρους και του πλαισίου δεν πρέπει να είναι υψηλότερη από 10^6 OHMS.

Εξάλειψη των κινδύνων που οφείλονται σε κενώσεις που προέρχονται από τριβή.

213 153 Η επιφανειακή αντίσταση και η αντίσταση κενώσεως προς τη γη ολόκληρης της επιφάνειας της δεξαμενής θα είναι σύμφωνες με τις απαιτήσεις του περιθωριακού 213 154

213 154 Η επιφανειακή αντίσταση και η αντίσταση κενώσεως προς τη γή μετρούμενη σύμφωνα με το περιθωριακό 213 155 πρέπει να καλύπτει τις παρακάτω προϋποθέσεις.

(1) Τοιχώματα μη εφοδιασμένα με στοιχεία αγωγής ηλεκτρισμού:

(α) Επιφάνειες πάνω στις οποίες μπορεί κανείς να βαδίζει:

Η αντίσταση κενώσεως προς τη γη δεν θα είναι υψηλότερη από 10^8 OHMS.

(β) Άλλες επιφάνειες:

Η επιφανειακή αντίσταση δεν θα είναι υψηλότερη από 10^9 OHMS.

(2) Τοιχώματα εφοδιασμένα με στοιχεία αγωγής ηλεκτρισμού:

Η αντίσταση κενώσεως προς τη γη δεν θα είναι υψηλότερη από 10^8 OHMS.

(β) Άλλες επιφάνειες:

Η αγωγιμότητα θα θεωρείται σαν επαρκής αν το ανώτατο πάχος μη αγωγών στρωμάτων επί αγωγών στοιχείων, για παράδειγμα αγωγά φύλλα, μεταλλικό δικτύωμα ή άλλο καταλληλο υλικό, συνδεμένο με τη σύνδεση γειώσεως, δεν υπερβαίνει τα 2 χιλ. και ότι στην περίπτωση μεταλλικού δικτυωτού, η επιφάνεια του πλέγματος δεν υπερβαίνει τα 64 εκ.[2]

(3) Οποιαδήποτε μέτρηση επιφανειακής αντίστασης ή αντίστασης κενώσεως προς τη γή που χρειάζεται να γίνει στην ίδια τη δεξαμενή θα επαναλαμβάνεται κατά διαστήματα όχι μεγαλύτερα του έτους για να εξασφαλιστεί ότι δεν υπάρχει υπέρβαση αυτών των αντιστάσεων.

213 155 Μέθοδοι δοκιμής

1. Επιφανειακή αντίσταση (R_{100}) – (μονωτική αντίσταση) σε OHMS, ηλεκτρόδια αγωγού μπογιάς σύμφωνα με την εικόνα 3 της RECOMMENDATION IEC 167 του 1964, μετρούμενη στην κανονική ατμόσφαιρα 23/50 σύμφωνα με τη RECOMMENDATION ISO R291, παράγραφος 3.1 του 1963.

2. Η αντίσταση κενώσεως προς τη γη σε OHMS είναι η σχέση μεταξύ της άμεσης τάσεως μετρούμενης μεταξύ ηλεκτροδίου περιγραφόμενου παρακάτω σε επαφή με την επιφάνεια της δεξαμενής του οχήματος και το συνολικό ηλεκτρικό ρεύμα.

Η προετοιμασία των υποδειγμάτων είναι η ίδια όπως στην παράγραφο 1. Το ηλεκτρόδιο είναι δίσκος με επιφάνεια 20 $εκ^2$ και διάμετρο 50 χιλ. Η στενή επαφή του με την επιφάνεια της δεξαμενής πρέπει να εξασφαλιστεί για παράδειγμα χρησιμοποιώντας υγρό σφουγγάρι ή οποιαδήποτε άλλη κατάλληλη ουσία. Το γειωμένο πλαίσιο του οχήματος χρησιμοποιείται σαν το άλλο ηλεκτρόδιο. Θα εφαρμοστεί απευθείας τάση στην κλίμακα των 100 βόλτ - 500 βόλτ. Η μέτρηση θα γίνει μετά την εφαρμογή της τάσεως δοκιμής επί ένα λεπτό. Το ηλεκτρόδιο μπορεί να τοποθετηθεί πάνω σε οποιοδήποτε σημείο της εσωτερικής ή εξωτερικής επιφανείας της δεξαμενής.

Αν η μέτρηση είναι αδύνατη πάνω στη δεξαμενή, μπορεί επίσης να γίνει, με τις ίδιες συνθήκες, στο εργαστήριο, πάνω σε δείγμα του υλικού.

Εξάλειψη των κινδύνων που οφείλονται σε κενώσεις παραγόμενες κατά το γέμισμα.

213 156 Θα υπάρχουν μεταλικά συστατικά γειωμένα και κατά τέτοιο τρόπο διευθετημένα ώστε σε οποιοδήποτε στάδιο της διαδικασίας πληρώσεως ή κενώσεως να υπάρχει επιφάνεια όχι μικρότερη από 0.04 τετρ. μέτρου γειωμένου μετάλλου σε επαφή με το προϊόν ανά κυβικό μέτρο προϊόντος που περιέχεται εκείνη τη στιγμή στη δεξαμενή, και ότι κανένα τμήμα του προϊόντος δεν θα βρίσκεται σε απόσταση μεγαλύτερη από 2.0 μέτρα από το πλησιέστερο γειωμένο μεταλικό συστατικό. Αυτά τα μεταλλικά συστατικά μπορούν να λάβουν τη μορφή:

(α) βαλβίδας με μεταλλικό πόδα, έξοδο σωλήνα ή πλάκας με τον όρο ότι η συνολική επιφάνεια μετάλλου σε επαφή με το υγρό δεν είναι μικρότερη από τη καθοριζόμενη, ή

(β) Μεταλλικού δικτυωτού με πάχος σύρματος όχι μικρότερο από διάμετρο 1 χιλ. και επιφάνεια οπής όχι μεγαλύτερη από 4 τετρ. εκατοστά, με τον όρο ότι η συνολική επιφάνεια του πλέγματος σε επαφή με το υγρό δεν θα είναι μικρότερη από την καθοριζόμενη.

213 157 Το περιθωριακό 213 156 δεν θα έχει εφαρμογή για δεξαμενές από ενισχυμένο πλαστικό εξοπλισμένο με οποιοδήποτε άλλο σύστημα για την εξουδετέρωση του κινδύνου από κενώσεις που παράγονται στη διάρκεια του γεμίσματος, με τον όρο ότι έχει αποδειχθεί με πρακτική συγκριτική δοκιμή σύμφωνα με το περιθωριακό 213 158 ότι ο χρόνος υφέσεως της παραγόμενης εντός της δεξαμενής κενώσεως στη διάρκεια του γεμίσματος είναι ισότιμος με τον επιτυγχανόμενο για μεταλλική δεξαμενή παρόμοιων διαστάσεων.

[4]/ Οι διαδικασίες που προβλέπονται στο πρότυπο ASTM-D 2583-67 θεωρούνται κατάλληλες.

Συγκριτική δοκιμή

(1) Συγκριτική δοκιμή του χρόνου υφέσεως της ηλεκτροστατικής φορτίσεως σύμφωνα με τους όρους της δοκιμής που περιγράφεται στην παράγραφο (2) θα διεξάγεται πάνω πρωτότυπη δεξαμενή από ενισχυμένο πλαστικό και μεταλλική δεξαμενή με τον παρακάτω τρόπο (βλέπε εικόνα 3).

(α) Η δεξαμενή από ενισχυμένο πλαστικό θα είναι τοποθετημένη με τον ίδιο τρόπο που θα ήταν τοποθετημένη σε χρήση, για παράδειγμα πάνω σε σιδερένια βάση απομιμούμενη το πλαίσιο οχήματος, και θα γεμίζεται μέχρι όχι λιγότερο από 75 στα εκατό της χωρητικότητας με πετρέλαιο ντήζελ, μια αναλογία της οποίας περνά από κατάλληλο μικροφίλτρο με τέτοιο τρόπο ώστε η πυκνότητα φορτίσεως της συνολικής ροής είναι περίπου 100 μC/M^3.

(β) Η αντοχή πεδίου στο χώρο ατμών της δεξαμενής θα μετράται με κατάλληλο μετρητή πεδίου συνεχούς ενδείξεως τοποθετημένο με τον άξονά του κάθετο και σε θέση τουλάχιστο 20 εκ. από τον κάθετο σωλήνα γεμίσματος.

(γ) Παρόμοια δοκιμή θα γίνεται πάνω σε σιδερένεια δεξαμενή της οποίας το πλάτος, μήκος, εύρος είναι μέσα στα 15 στα εκατό εκείνων της δεξαμενής από ενισχυμένο πλαστικό, ή πάνω σε δεξαμενή από ενισχυμένο πλαστικό παρόμοιων διαστάσεων, επενδυμένη εσωτερικά με μεταλλικό φύλλο συνδεμένο με τη γή.

(2) Πρέπει να καλυφθούν οι παρακάτω όροι δοκιμής:

(α) Η δοκιμή θα γίνει σε καλυμένο χώρο υπό συνθήκες σχετικής υγρασίας κάτω από 80 στα εκατό.

(β) Το καύσιμο πετρέλαιο ντήζελ που χρησιμοποιείται για τη δοκιμή θα έχει αγωγιμότητα αδρανείας στη θερμοκρασία μετρήσεως μεταξύ 3 και 5 PS/M. Αυτή θα μετράται σε στοιχείο στο οποίο

$\frac{VT}{D^2}$ είναι λιγότερο ή ίσο με 2.5. X 10^6

όπου V – εφαρμοζόμενη τάση,
D – χώρος μεταξύ ηλεκτροδίων σε μέτρα
T – διάρκεια μετρήσεως σε δευτερόλεπτα.

Η αγωγιμότητα αδρανείας μετρουμενη πάνω σε δείγματα του προϊόντος που πάρθηκαν τη δεξαμενή δοκιμής μετά το γέμισμα δεν θα διαφέρει σε διαδοχικές δοκιμές επί πλαστικών και μεταλλικών δοκιμών περισσότερο από 0.5 PS/M.

(γ) Το γέμισμα θα γίνεται με σταθερό ρυθμό μέσα στα όρια του 1 μέχρι 2 μ^3/λεπτό και θα είναι ίδια για τη δεξαμενή απο ενισχυμένο πλαστικό και για τη χαλύβδινη δεξαμενή. Στο τέλος του γεμίσματος, η ροή πρέπει να σταματήσει σε χρόνο που είναι βραχύς σε σύγκριση με το χρόνο υφέσεως για τη φόρτιση στη χαλύβδινη δεξαμενή.

(δ) Η πυκνότητα φορτίσεως θα μετράται με κατάλληλο μετρητή συνεχών ενδείξεων βυθισμένο στο προϊόν και τοποθετημένο όσο το δυνατό πλησιέστερα στο σωλήνα γεμίσματος. 213 158

(ε) Οι σωλήνες παροχής και ο καθένας σωλήνας γεμίσματος θα έχουν εσωτερική διάμετρο 10 εκ. και θα καταλήγουν σε έξοδο σωλήνα γεμίσματος σε σχήμα «Τ».

(στ) Κατάλληλο μικροφίλτρο 2/ με προσαρμοζόμενη παράπλευρη που επιτρέπει τη ρύθμιση της αναλογίας ροής που περνά μέσα από αυτό, θα τοποθετηθεί σε απόσταση όχι μεγαλύτερη σε απόσταση όχι μεγαλύτερη από 5 μ. από το στόμιο του σωλήνα γεμίσματος.

(ζ) Η στάθμη του υγρού δεν θα φθάνει στον πυθμένα του σωλήνα γεμίσματος ή του μετρητή.

Σύγκριση χρόνων υφέσεως

(3) Η αρχική τιμή της ισχύος πεδίου θα είναι εκείνη που καταγράφεται στο βραχύτερο χρονικό σημείο μετά την παύση ροής του καυσίμου όταν θα έχει σχηματιστεί ήπια φθίνουσα καμπύλη. Ο χρόνος υφέσεως και στις δύο δοκιμές θα εκφράζεται σαν ο χρόνος που χρειάζεται για την ισχυ πεδίου να μειωθεί από την αρχική τιμή στο 0.37 της αρχικής τιμής.

(4) Ο χρόνος υφέσεως της δεξαμενής από ενισχυμένο πλαστικό δεν θα υπερβαίνει εκείνο της χαλύβδινης. 213 159 -213 999

Πίνακας 1

ΣΥΝΘΕΣΗ ΤΟΥ ΓΥΑΛΙΟΥ

Γυαλί Ε: Σύνθεση κατά μάζα:	
Διοξείδιο του πυριτίου (SiO_2)	52 – 55%
Αλουμίνα (Al_2O_3)	14 – 15.5%
Ασβεστος (CaO)	16.5 – 18%
Μαγνησία (MgO)	4 – 5.5%
Βορικό οξύ (B_2O_3)	6.5 – 21%
Φθόριο (F)	0.2 – 0.6%
Οξείδιο του σιδήρου (Fe_2O_3)	< 1 στα εκατό
Οξείδιο τιτανίου (TiO_2)	
Αλκαλικά οξέα ($Na_2O + K_2O$)	< 1 στα εκατό
Γυαλί Γ: Σύνθεση κατά μάζα:	
Διοξείδιο του πυριτίου (SiO_2)	63.5 – 65%
Αλουμίνα (Al_2O_3)	4 – 4.5%
Ασβεστος (CaO)	14 – 14.5%
Μαγνησία (MgO)	2.5 – 3%
Βορικό οξύ (B_2O_3)	5 – 6.5%
Σίδηρος (Fe_2O_3)	0.3%
Οξείδιο του νατρίου (Na_2O)	7 – 9%
Οξείδιο του καλλίου (K_2O)	0.7 – 1%

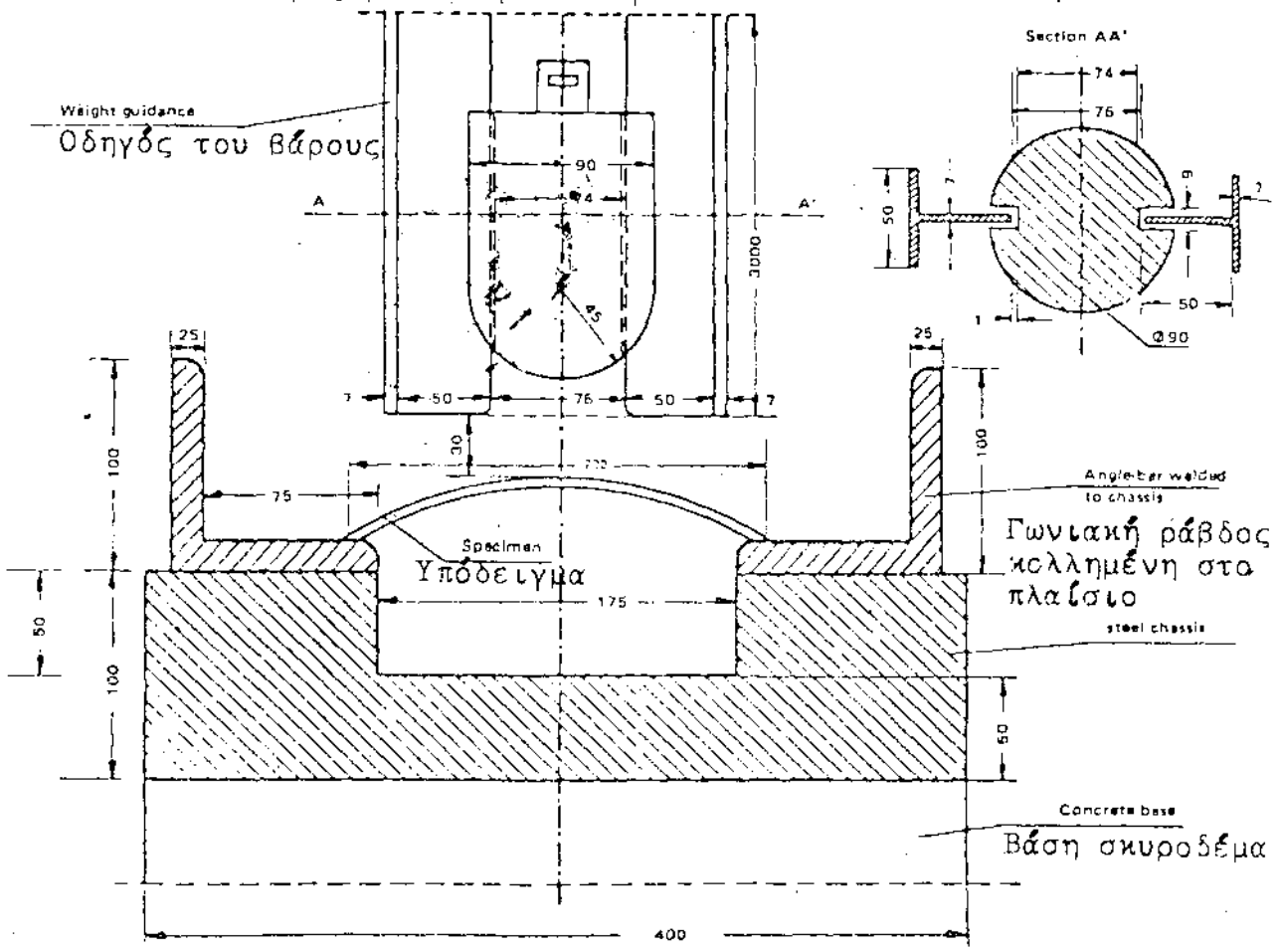
2/ Το RELUMIT 5 κρίθηκε ότι είναι κατάλληλο.

Appendix B.1c

Figure 1 Εικόνα Ι

Device for measuring impact resistance by means of a spherically-ended falling weight

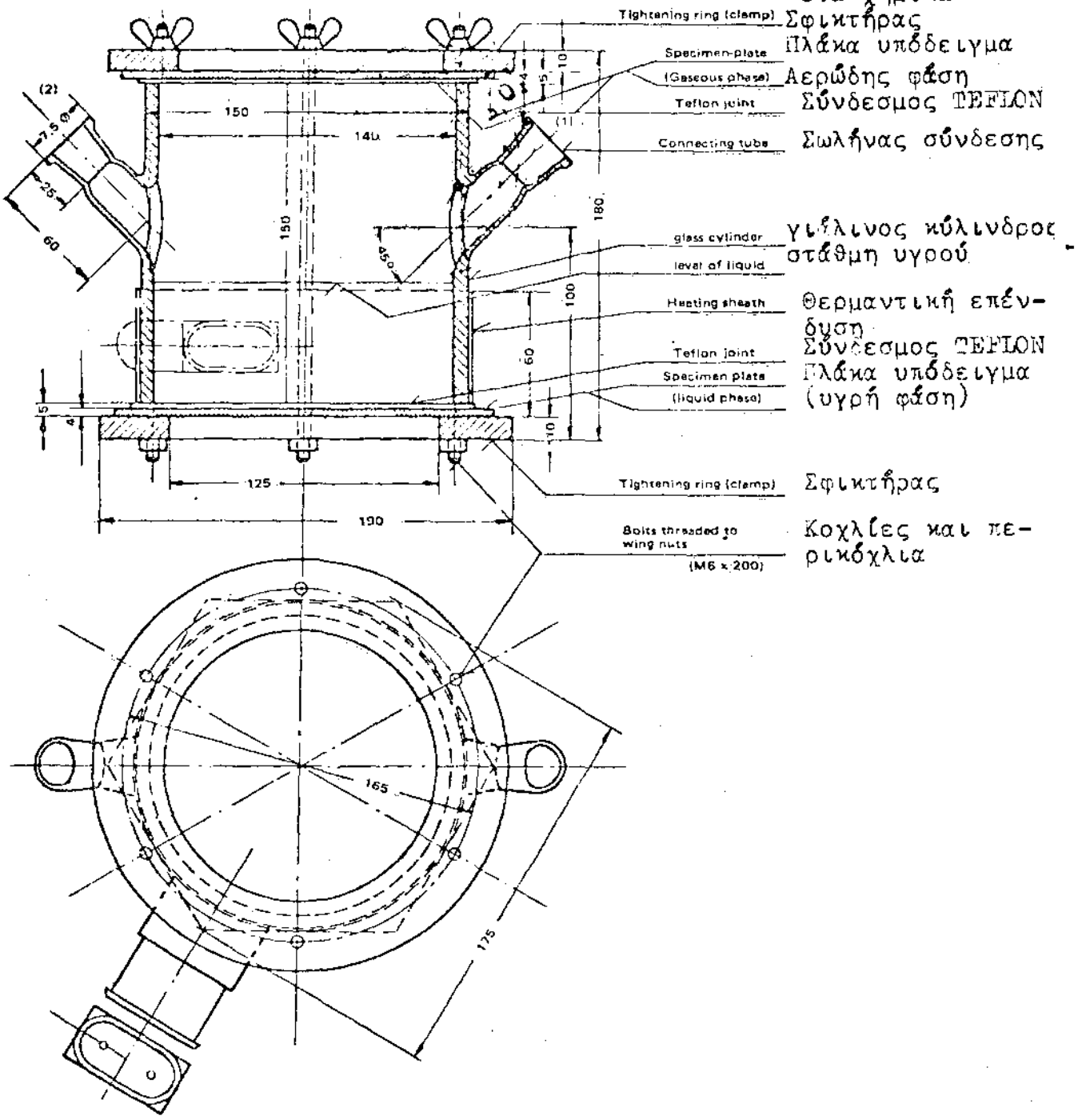
Συσκευή για μέτρηση αντιστάσεως κρούσεως με βάρος με σφαιρικό άκρο



Appendix B.1c

Figure 2 Εικόνα 2

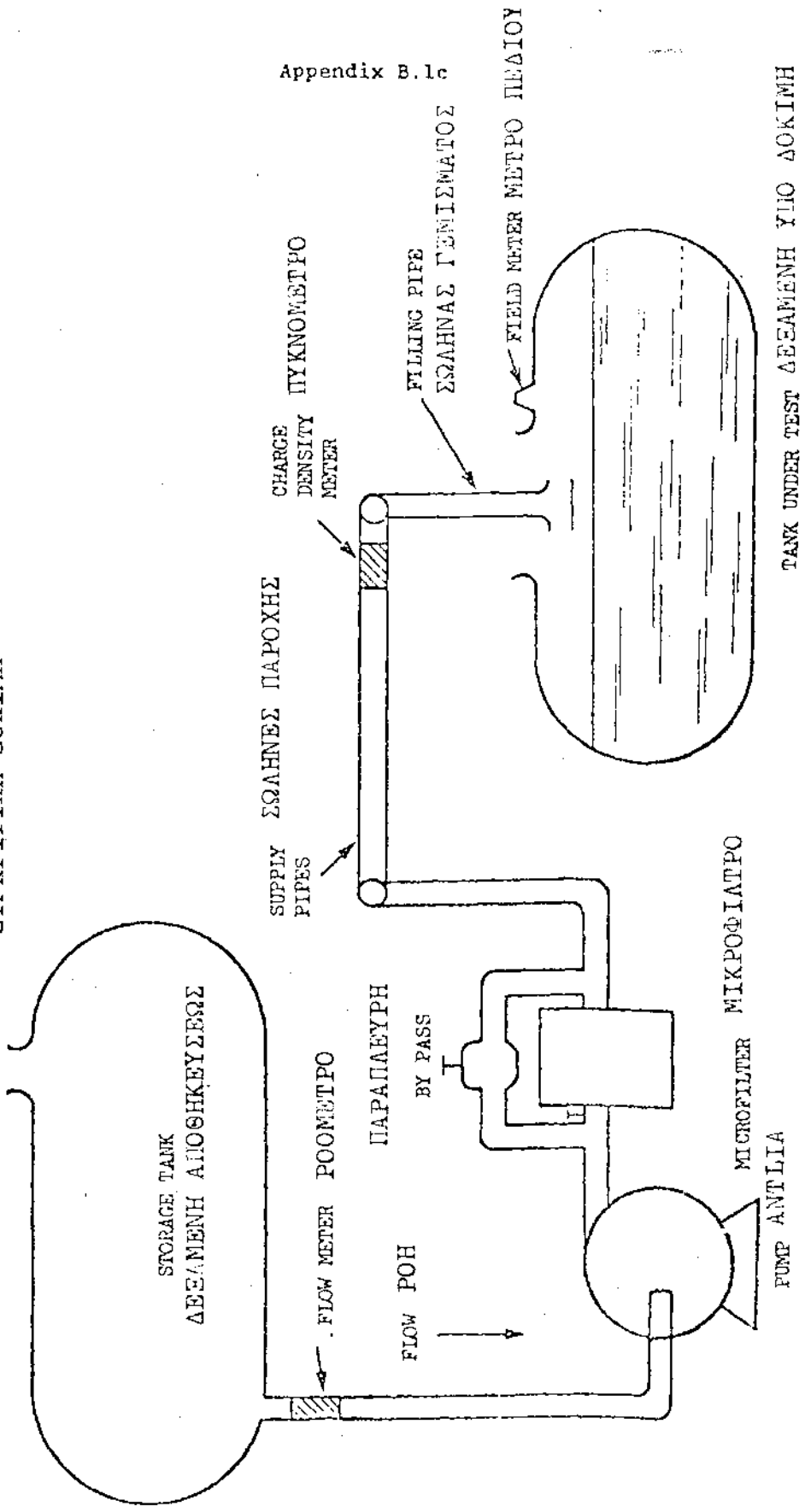
Device to test resistance to chemical agents Συσκευή δοκιμής αντιστάσεως στα χημικά



Appendix B.1c

Figure 3 Εικόνα 3

SCHEMATIC LAYOUT OF RIG FOR COMPARATIVE TEST
ΣΧΗΜΑΤΙΚΗ ΚΑΤΑΤΑΞΗ ΕΞΑΡΤΙΣΜΟΥ ΓΙΑ ΣΥΓΚΡΙΤΙΚΗ ΔΟΚΙΜΗ



Παράρτημα Β.Ιδ

ΠΡΟΫΠΟΘΕΣΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΤΑ ΥΛΙΚΑ ΚΑΙ ΤΗΝ ΚΑΤΑΣΚΕΥΗ ΣΤΑΘΕΡΩΝ ΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ, ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΩΝ ΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ ΚΑΙ ΚΟΛΛΗΜΕΝΩΝ ΠΕΡΙΒΛΗΜΑΤΩΝ ΔΕΞΑΜΕΝΟ-ΚΟΝΤΕΗΝΕΡ ΓΙΑ ΤΑ ΟΠΟΙΑ ΑΠΑΙΤΕΙΤΑΙ ΠΙΕΣΗ ΔΟΚΙΜΗΣ ΟΧΙ ΜΙΚΡΟΤΕΡΗ ΑΠΟ 1 ΜΡα (10 ΜΠΑΡ) και ΚΟΛΛΗΜΕΝΩΝ ΣΤΑΘΕΡΩΝ ΔΕΞΑΜΕΝΩΝ, ΚΟΛΛΗΜΕΝΩΝ ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ ΚΑΙ ΚΟΛΛΗΜΕΝΩΝ ΠΕΡΙΒΛΗΜΑΤΩΝ ΔΕΞΑΜΕΝΟ-ΚΟΝΤΕΗΝΕΡ ΠΟΥ ΠΡΟΟΡΙΖΟΝΤΑΙ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ ΥΓΡΟΠΟΙΗΜΕΝΩΝ ΑΕΡΙΩΝ ΒΑΘΕΙΑΣ ΚΑΤΑΨΥΞΕΩΣ ΤΗΣ ΚΑΤΗΓΟΡΙΑΣ 2.

214 000
-214 249

(1) Περιβλήματα προοριζόμενα για τη μεταφορά ουσιών της Κατηγορίας 2, 1° μέχρι 6° και 9°, Κατηγορία 4.2, 3° ή Κατηγορίας 8, 6° θα είναι κατασκευασμένα από χάλυβα. 214 250

(2) Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων βαθείας καταψύξεως της Κατηγορίας 2 θα είναι κατασκευασμένα από χάλυβα, αλουμίνιο, κράμα αλουμινίου, χαλκού ή κράματος χαλκού, π.χ. ορείχαλκου. Εντούτοις, περιβλήματα που είναι κατασκευασμένα από χαλκό ή κράμα χαλκού θα επιτρέπονται μόνο για αέρια που δεν περιέχουν ασετυλίνη· το αιθυλένιο, όμως, δεν μπορεί να περιέχει πάνω από 0.005 στα εκατό ασετυλίνη.

(3) Μπορεί να χρησιμοποιούνται μόνο υλικά κατάλληλα για την κατώτατη και υψηλότερη θερμοκρασία λειτουργίας των περιβλημάτων και των εξαρτημάτων αυτών.

Τα παρακάτω υλικά θα επιτρέπονται για την κατασκευή περιβλημάτων: 214 251

(α) χάλυβες που δεν υπόκεινται σε θρυματισμό στη χαμηλότερη θερμοκρασία λειτουργίας (βλέπε περιθωριακό 214 265).

Μπορεί να χρησιμοποιηθούν τα παρακάτω:

1. Μαλακοί χάλυβες (εκτός για αέρια της Κατηγορίας 2, 7° και 8°)·

2. Λεπτόκκοκοι αμιγείς χάλυβες, μέχρι θερμοκρασία -60°Κ·

3. Χάλυβες νικελίου (με περιεκτικότητα νικελίου από 0.5 μέχρι 9 στα εκατό), μέχρι θερμοκρασία -196°Κ, ανάλογα με την περιεκτικότητα νικελίου·

4. ωστενιτικοί χάλυβες χρωμίου - νικελίου, μέχρι θερμοκρασία -270°Κ.

(β) αλουμίνιο καθαρότητας όχι κάτω του 99.5 στα εκατό, ή κράματα αλουμινίου (βλέπε περιθωριακό 214 266)·

(γ) αποξειδωμένος χαλκός καθαρότητας όχι κάτω του 99.9 στα εκατό, ή κράματα χαλκού με περιεκτικότητα χαλκού πάνω από 56 στα εκατό (βλέπε περιθωριακό 214 267).

(1) Περιβλήματα κατασκευασμένα από χάλυβα, αλουμίνιο ή κράματα αλουμινίου θα είναι είτε χωρίς ραφή είτε κολλημένα. 214 252

(2) Περιβλήματα κατασκευασμένα από ωστενικό χάλυβα, χαλκό ή κράματα χαλκού μπορεί να είναι σκληρής συγκολλήσεως (HARD-SOLDERED).

Ο εξοπλισμός και τα εξαρτήματα μπορεί να είναι βιδωμένα στα περιβλήματα ή να στερεώνονται εκεί όπως παρακάτω: 214 253

(α) περιβλήματα κατασκευασμένα από χάλυβα, αλουμίνιο ή κράμα αλουμινίου: με συγκόλληση·

(β) περιβλήματα κατασκευασμένα από ωστενιτικό χάλυβα, χαλκό ή κράμα χαλκού: με συγκόλληση ή σκληρή συγκόλληση.

Η κατασκευή των περιβλημάτων και η προσάρτησή τους στο όχημα, στο πλαίσιο υποστηρίξεως ή στο πλαίσιο του κοντέηνερ θα είναι τέτοια ώστε να αποκλείει με βεβαιότητα οποιαδήποτε μείωση της θερμοκρασίας των φερόντων το φορτίο μερών που θα ήταν πιθανό να τα καταστήσει εύθραυστα. Τα μέσα προσάρτησης των περιβλημάτων θα είναι τα ίδια έτσι σχεδιασμένα ώστε ακόμη και αν το περίβλημα είναι στη χαμηλότερη θερμοκρασία λειτουργίας του θα εξακολουθούν να έχουν τις αναγκαίες μηχανικές ιδιότητες. 214 254

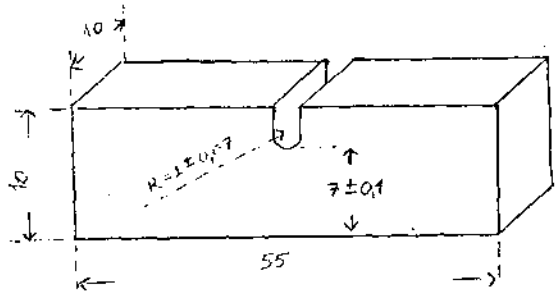
214 255
-214 264

1. Υλικά και περιβλήματα

(α) Χαλύβδινα περιβλήματα

Τα υλικά που χρησιμοποιούνται για την κατασκευή περιβλημάτων και οι σταγόνες συγκολλήσεως, στη χαμηλότερη θερμοκρασία λειτουργίας τους, αλλά τουλάχιστον στους -20°Κ, θα καλύπτουν τουλάχιστο τις παρακάτω προϋποθέσεις όσον αφορά την αντοχή κρούσεως. Οι δοκιμές μπορεί να γίνονται με τεμάχια δοκιμής που έχουν εγκοπή είτε σε σχήμα U είτε σε σχήμα V. 214 265

Υλικό	Αντοχή κρούσεως[1]/ [2]/ μεταλλικού φύλλου και σταγόνων συγκολλήσεως στη χαμηλότερη θερμοκρασία λειτουργίας j/cm² [3]/	j/cm² [4]/
Μαλακός χάλυβας και λεπτόκκοκος χάλυβας, εξουδετερωμένος	34.3	27.5
Χάλυβας φερριτικού κράματος Ni < 5%	34.3	21.6
Χάλυβας φερριτικού κράματος 5% ≤ Ni ≤ %	44.1	34.3
Ωστενιτικός χάλυβας GR-Ni	39.2	31.4



Στην περίπτωση ωστενιτικών χαλύβων, μόνο η συγκόλληση χρειάζεται να υποβληθεί σε δοκιμή αντοχής κρούσεως.

Για θερμοκρασίας λειτουργίας κάτω από -196°Κ η δοκιμή αντοχής κρούσεως δεν γίνεται στη χαμηλότερη θερμοκρασία λειτουργίας αλλά στους -196°Κ.

(β) Περιβλήματα αλουμινίου ή κραμάτων αυτού

Οι ραφές συγκολλήσεως των περιβλημάτων θα καλύπτουν τις προϋποθέσεις που ορίζει η αρμόδια αρχή. 214 266

(γ) Περιβλήματα χαλκού ή κράματος χαλκού

[1]/ Αντοχές κρούσεως προσδιοριζόμενες με διαφορετικά τεμάχια δοκιμής δεν συγκρίνονται μεταξύ τους.

[2]/ Βλέπε περιθωριακά 214 275 μέχρι 214 277.

[3]/ Οι τιμές αφορούν τεμάχια δοκιμής με εγκοπή σε σχήμα U όπως απεικονίζεται παρακάτω.

[4]/ Οι τιμές αφορούν τεμάχια δοκιμής με εγκοπή σε σχήμα V σύμφωνα με το ISO R 148.

Δεν χρειάζεται να γίνουν δοκιμές για να προσδιοριστεί αν η 214 267
αντοχή κρούσεως είναι αρκετή.

214 268
-214 274

2. Δοκιμές

(α) Δοκιμές αντοχής κρούσεως

Οι αντοχές κρούσεως που αναφέρονται στο περιθωριακό 214 275
214 265 αναφέρονται σε τεμάχια δοκιμής διαστάσεων 10 X 10 χιλ. και έχουν εγκοπή σε σχήμα U ή σχήμα V.

ΣΗΜΕΙΩΣΕΙΣ: 1. Σχετικά με το σχήμα του τεμαχίου δοκιμής, βλέπε περιθωριακό 214 265 (πίνακα) υποσημειώσεις $^{3}/$ και $^{4}/$.

2. Για φύλλα πάχους κάτω των 10 χιλ. αλλά όχι κάτω των 5 χιλ., θα χρησιμοποιούνται τεμάχια δοκιμής με διατομή 10Χε χιλ., όπου το "ε" αντιπροσωπεύει το πάχος του φύλλου. Αυτές οι δοκιμές αντοχής κρούσεως γενικά αποδίδουν υψηλότερες τιμές από ότι οι δοκιμές σε συνήθη τεμάχια δοκιμών.

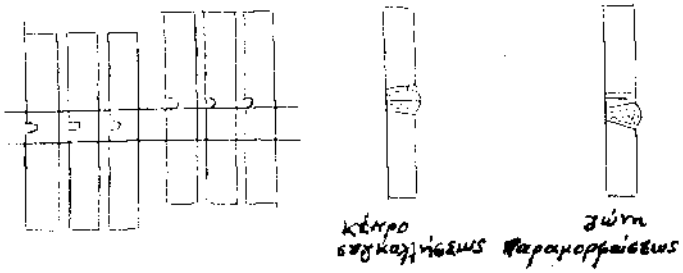
3. Δεν θα διεξάγεται δοκιμή αντοχής κρούσεως πάνω σε φύλλα πάχους κάτω των 5 χιλ., ή πάνω στις ραφές τους.

Για τη δοκιμή φύλλων η αντοχή κρούσεως θα προσδιορί- 214 276
ζεται πάνω σε τρία τεμάχια δοκιμής. Τα τεμάχια δοκιμής με εγκοπή σε σχήμα U θα λαμβάνονται σε ορθές γωνίες προς την κατεύθυνση ελάσεως και τα τεμάχια με εγκοπή σε σχήμα V προς την κατεύθυνση ελάσεως.

(2) Για τη δοκιμή των ραφών τα τεμάχια δοκιμής θα λαμβάνονται όπως παρακάτω:

$$\varepsilon \leq 10$$

τρία τεμάχια δοκιμής από το κέντρο της συγκολλήσεως· τρία τεμάχια δοκιμής από τη ζώνη παραμορφώσεως που δημιουργείται από τη συγκόλληση (η εγκοπή θα είναι τελείως έξω από την περιοχή τήξεως αλλά όσο το δυνατό πλησιέστερο προς αυτήν)·

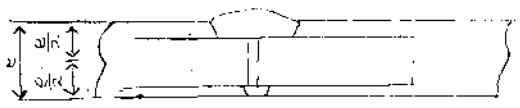


δηλ. συνολικά έξη τεμάχια δοκιμής.

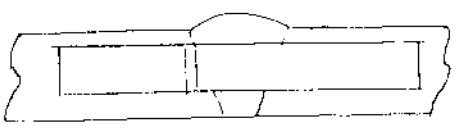
Τα τεμάχια δοκιμής θα είναι έτσι επεξεργασμένα μηχανικώς ώστε να έχουν το ανώτατο δυνατό πάχος.

$$10 < \varepsilon \leq 20$$

τρία τεμάχια δοκιμής από το κέντρο της συγκόλλησης· τρία τεμάχια δοκιμής από τη ζώνη παραμορφώσεως·



Κέντρο συγκολλήσεως

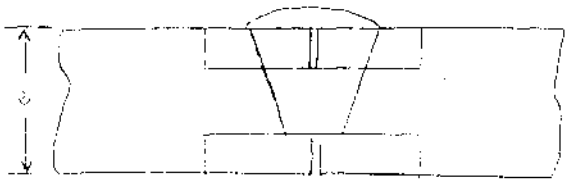


Ζώνη παραμορφώσεως

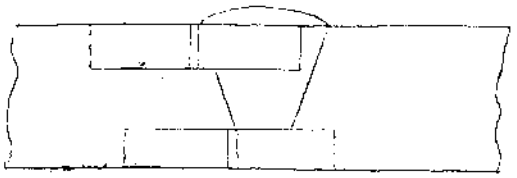
δηλ. συνολικά έξη τεμάχια δοκιμής

ε 20.

Δύο σειρές των τριών τεμαχίων δοκιμής (μία σειρά στην πάνω όψη, μία σειρά στην κάτω όψη) σε κάθε ένα από τα σημεία που δείχνονται παρακάτω:



Κέντρο συγκολλήσεως



Ζώνη παραμορφώσεως

δηλ. συνολικά δώδεκα τεμάχια δοκιμής.

(1) Για φύλλα, ο μέσος όρος των τριών δοκιμών μπορεί να 214 277
καλύπτει τις κατώτες τιμές που αναφέρονται στο περιθωριακό 214 265· καμμία από τις τιμές δεν μπορεί να είναι περισσότερο από 30 στο εκατό κάτω από το αναφερόμενο ελάχιστο όριο.

(2) Για συγκολλήσεις, οι μέσες τιμές που επιτυγχάνονται από τα τεμάχια δοκιμής που πάρθηκαν σε διάφορα σημεία, κέντρο συγκολλήσεως και ζώνη παραμορφώσεως, θα αντιστοιχών στις αναφερόμενες ελάχιστες τιμές. Καμμία από τις τιμές δεν μπορεί να είναι περισσότερο από 30 στα εκατό κάτω από το αναφερόμενο ελάχιστο όριο.

214 278

(β) Προσδιορισμός του συντελεστή κάμψεως -214 284

(1) Ο συντελεστής κάμψεως K που αναφέρεται στο περιθωριακό 214 266 ορίζεται όπως παρακάτω:

$$K = 50 \frac{\varepsilon}{R}$$

όπου ε = πάχος φύλλου σε χιλ., και

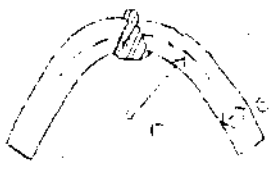
R = μέση ακτίνα καμπυλότητας σε χιλ. του τεμαχίου δοκιμής όταν εμφανίζεται το πρώτο ρήγμα στη ζώνη τάσεως.

(2) Ο συντελεστής κάμψεως K θα προσδιορίζεται για τη ραφή. Το πλάτος του τεμαχίου δοκιμής θα είναι ίσο προς 3 ε.

(3) Θα γίνουν τέσσερες δοκιμές πάνω στη ραφή, δύο με τη ρίζα στη ζώνη συμπιέσεως (εικ. 1) και δύο με τη ρίζα στη ζώνη τάσεως (εικ. 2)· όλες οι λαμβανόμενες χωριστές τιμές θα καλύπτουν τις απαιτήσεις ελάχιστων τιμών του περιθωριακού 214 266.



Εικ. 1



Εικ. 2

214 286
219 999

Παράρτημα Β.2

ΗΛΕΚΤΡΙΚΟΣ ΕΞΟΠΛΙΣΜΟΣ

Ο ηλεκτρικός εξοπλισμός των οχημάτων θα καλύπτει τις παρακάτω προϋποθέσεις:

Προϋποθέσεις για τον ηλεκτρικό εξοπλισμό στο σύνολο

(α) Σύστημα ηλεκτρικών καλωδίων: Τα καλώδια θα έχουν γενναιόδωρες διαστάσεις ώστε να αποφεύγεται η υπερθέρμανση. Θα έχουν κατάλληλη μόνωση. Τα κυκλώματα θα προστατεύονται για υπέρταση με ασφάλειες ή αυτόματους διακόπτες. Τα καλώδια θα είναι σταθερά στερεωμένα και τοποθετημένα κατά τρόπο ώστε οι αγωγοί να προστατεύονται από προσκρούσεις, προεξέχοντες βράχους και από τη θερμότητα που εκπέμπεται από το σύστημα εξατμίσεως.

(β) 1. Γενικός διακόπτης μπαταρίας: Στην περίπτωση οχημάτων που χρησιμοποιούνται για τη μεταφορά εύφλεκτων επικίνδυνων εμπορευμάτων σε δεξαμενές (σταθερές ή αποσυναρμολογούμενες) ή σε συστοιχίες δοχείων θα τοποθετείται όσο το δυνατό πλησιέστερο προς την μπαταρία, διακόπτης για όλα τα ηλεκτρικά κυκλώματα. Θα είναι εγκαταστημένο άμεσο ή τηλεκατευθυνόμενο σύστημα ελέγχου στο κουβούκλιο του οδηγού και έξω από το όχημα. Θα είναι εύκολα προσιτό και ευδιάκριτα σημασμένο. Ο διακόπτης θα είναι ανοιγόμενος όταν ο κινητήρας βρίσκεται σε λειτουργία χωρίς τη δημιουργία επικίνδυνης ορμητικής κινήσεως προς τα εμπρός. Η ηλεκτρική παροχή προς τον ταχογράφο μπορεί, όμως, να έχει κύκλωμα συνδεμένο απευθείας στη μπαταρία. Εκτός από την περίπτωση οχημάτων που χρησιμοποιούνται για τη μεταφορά υδρογόνου της Κατηγορίας 2, 1° (β) και 7° (β), ή CARBON DISULPHIDE της Κατηγορίας 3, 1° (α), ο κεντρικός διακόπτης μπαταρίας, ο ταχογράφος και τα αντίστοιχα κυκλώματά τους θα είναι πραγματικά ασφαλής κατηγορία EX IB για την Ομάδα 11 B T4 (7.8 στα εκατό αιθυλένιο σε αέρα). Στην περίπτωση υδρογόνου ή CARBON DISULOGUDE, ο εξοπλισμός αυτός και τα σχετικά κυκλώματα θα είναι πραγματικά ασφαλής κατηγορία EX IB για την Ομάδα 11 C (20 στα εκατό υδρογόνο σε αέρα) [1].

2. Αποθήκευση μπαταριών: Αν οι μπαταρίες βρίσκονται σε άλλο μέρος από κάτω το καπώ της μηχανής, θα εξασφαλίζονται σε αεριζόμενο κιβώτιο από μέταλλο ή άλλο υλικό ισότιμης ισχύος, με μονωμένα εσωτερικά τοιχώματα.

Απαιτήσεις που έχουν εφαρμογή για το μέρος του ηλεκτρικού εξοπλισμού που βρίσκεται πίσω από το κουβούκλιο του οδηγού

(γ) Ολόκληρος αυτός ο εξοπλισμός θα είναι σχεδιασμένος, εγκαταστημένος και προστατευμένος ώστε να μη μπορεί να προκαλέσει ανάφλεξη, ή βραχυκύκλωμα υπό ομαλές συνθήκες χρήσεως των οχημάτων και να μειώνει στο ελάχιστο τον κίνδυνο τέτοιου συμβάντος σε περίπτωση κρούσεως ή παραμορφώσεως

Ειδικότερα:

1. Σύστημα ηλεκτρικών καλωδίων: Οι αγωγοί θα συνίστανται από καλώδια προστατευόμενα από περιβλήματα (κουτιά) χωρίς ραφές και ανοξείδωτα.

2. Φωτισμός: Δεν θα χρησιμοποιούνται βιδωτά καλύμματα λάμπας. Αν οι λάμπες στο πλαίσιο του οχήματος δεν είναι στερεωμένες σε μέρη των τοιχωμάτων ή της οροφής τόσο στερεά ώστε να προστατεύονται από οποιαδήποτε μηχανική βλάβη πρέπει να προστατεύονται από ισχυρό κλωβό ή πλέγμα

220 001

Τα εύφλεκτα αέρια και είδη της Κατηγορίας 2 που αναφέρο-220 002
νται στο περιθωριακό 10 251 (α) είναι τα εξής:

(α) Συμπιεσμένα αέρια
Υδρογόνο του 1° (β)
Μεθάνιο του 1° (β)
Μονοξείδιο του άνθρακα του 1° (ΒΤ)
Μίγματα αερίων του 2° (β)
Συνθετικά αέρια του 2° (ΒΤ)
Φωταέριο του 2° (ΒΤ)
Υδραέριο του 2° (ΒΤ)
(β) Υγροποιημένα αέρια
Βουτάνιο του 3° (β)
1-BUTYLENE του 3° (β)
Κυκλοπροπάνιο του 3° (β)
DIMETHYL ETHER του 3° (β)
Ισοβουτάνιο του 3° (β)
Ισοβουτυλένιο του 3° (β)
Προπάνιο του 3° (β)
Προπυλένιο του 3° (β)
ETHYL CHLORIDE του 3° (ΒΤ)
METHYL CHLORIDE του 3° (ΒΤ)
Αιθυλαμίνη του 3° (ΒΤ)
Θειούχο υδρογόνο του 3° (ΒΤ)
Μεθυλαμίνη του 3° (ΒΤ)
METHYL MERCAPTAN του 3° (ΒΤ)
Τριμεθυλαμίνη του 3° (ΒΤ)
Βουταδιένια του 3°
VINYL CHLORIDE του 3° (γ)
VINYL BROMIDE του 3° (CT)
CYANOGEN CHLORIDE του 3° (CT)
ETHYLENE OXIDE του 3° (CT)
Αεριώδη μίγματα Α, ΑΟ, Α1, Β ή Γ του 4° (β)
Αιθάνιο του 5° (β)
Αιθυλένιο του 5° (β)
(γ) Υγροποιημένα αέρια βαθειάς καταψύξεως
Τα αέρια του 7° (β) και 8° (β)
(δ) Αέρια διαλυμένα υπό πίεση
Ασετυλίνη του 9° (γ)
ε) Είδη περιέχοντα αέριο
Δοχεία AEROSOL του 10° (β) και (ΒΤ)

220 003
-229 999

Παράρτημα Β.3

(Βλέπε περιθωριακό 10 282)

230 000

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΓΚΡΙΣΕΩΣ ΓΙΑ ΟΧΗΜΑΤΑ ΜΕ--239 999
ΤΑΦΕΡΟΝΤΑ ΟΡΙΣΜΕΝΑ ΕΠΙΚΙΝΔΥΝΑ ΕΜΠΟΡΕΥΜΑΤΑ

1. ΠΙΣΤΟΠΟΙΗΤΙΚΟ Νο. .....

2. που πιστοποιεί ότι το όχημα που καθορίζεται παρακάτω εκπληρώνει τους όρους που προβλέπονται από την Ευρωπαϊκή Σύμβαση σχετικά με τη Διεθνή Μεταφορά Επικινδύνων Εμπορευμάτων Οδικώς (ADR) για να γίνει δεκτό για τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων οδικώς.

3. Ισχύει μέχρι .....

4. Το παρόν πιστοποιητικό πρέπει να επιστραφεί στην εκδίδουσα υπηρεσία όταν το όχημα αποσύρεται της υπηρεσίας· αν το όχημα μεταβιβάζεται σε άλλο ιδιοκτήτη· κατά τη λήξη της ισχύος του πιστοποιητικού· και αν υπάρξει ουσιαστική αλλαγή σε ένα ή περισσότερα χαρακτηριστικά του οχήματος.

5. Τύπος οχήματος: κλειστό όχημα, ανοικτό όχημα, όχημα δεξαμενή με/χωρίς κλειστό/ανοικτό συρόμενο/επικαθήμενο (αβύστε όποιες λέξεις δεν έχουν εφαρμογή)
.....
.....

6. Όνομα και διεύθυνση μεταφορέα (ιδιοκτήτη) .....
.....

7. Αριθμός εγγραφής (αν δεν υπάρχει: αριθμ. πλαισίου)
.....

8. Το όχημα που περιγράφεται παραπάνω έχει υποστεί την .....την επιθεώρηση που προβλέπεται από την ADR, Προσάρτημα Β, περιθωριακό 10 282 και πληροί τους όρους που απαιτούνται για να γίνει αποδεκτό για διεθνή μεταφορά οδικώς επικίνδυνων εμπορευμάτων των Κατηγοριών .....
.....
αριθμοί ειδών .....

[1] Βλέπε Ευρωπαϊκά Πρότυπα EN 50 014 και 50 020.

9. Παρατηρήσεις .....
.....
.....
.....
10. .....19 . .
11. Υπογραφή και σφραγίδα εκδίδουσας αρχής εις ...
12. Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέχρι .....
13. Υπογραφή και σφραγίδα εκδίδουσας αρχής εις ...
14. Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέχρι .....
15. Υπογραφή και σφραγίδα εκδίδουσας αρχής εις ...
16. Η ισχύς του παρόντος πιστοποιητικού παρατείνεται μέχρι .....
17. Υπογραφή και σφραγίδα εκδίδουσας αρχής εις ...

ΣΗΜΕΙΩΣΕΙΣ: 1. Οι διαστάσεις του πιστοποιητικού θα είναι 210 × 297 χιλ. (σχήμα Α 4). Θα χρησιμοποιείται τόσο η εμπρόσθια όσο και η οπίσθια όψη. Το χρώμα θα είναι λευκό, με μία ροζ διαγώνια λωρίδα.

2. Κάθε συρόμενο θα είναι αντικείμενο χωριστού πιστοποιητικού εκτός αν καλύπτεται από το πιστοποιητικό του οχήματος στο οποίο είναι συζευγμένο.

3. Όπου εκδίδεται πιστοποιητικό σύμφωνα με το άρθρο 4, παράγραφος 2, της Συμβάσεως για όχημα του οποίου η κατασκευή δεν ανταποκρίνεται τελείως στις προϋποθέσεις που αναγράφονται στο Προσάρτημα Β, η ισχύς του πιστοποιητικού δεν θα επεκτείνεται πέρα από τη διάρκεια της παρατάσεως που παρέχεται από το προαναφερόμενο άρθρο 4, το δε κείμενο της παραγράφου 8 του πιστοποιητικού εγκρίσεως θα αντικαθίσταται από τα παρακάτω: «Το όχημα που περιγράφεται παραπάνω δεν ανταποκρίνεται πλήρως στις απαιτήσεις του Προσαρτήματος Β, αλλά δικαιούται του πλεονεκτήματος των διατάξεων του άρθρου 4, παράγραφος 2, της Συμβάσεως».

Παράρτημα Β.4

ΠΙΝΑΚΕΣ ΠΟΥ ΑΦΟΡΟΥΝ ΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΤΗΣ ΚΑΤΗΓΟΡΙΑΣ 7· ΕΤΙΚΕΤΤΑ ΠΟΥ ΠΡΕΠΕΙ ΝΑ ΤΟΠΟΘΕΤΗΘΕΙ ΣΕ ΟΧΗΜΑΤΑ ΜΕΤΑΦΕΡΟΝΤΑ ΑΥΤΕΣ ΤΙΣ ΟΥΣΙΕΣ.

Οι κατώτατες αποστάσεις που αναφέρονται στον παρακάτω πίνακα μεταξύ ραδιενεργών ουσιών και περιοχών των οχημάτων που προορίζονται για το προσωπικό οδηγήσεως και συνοδείας ανταποκρίνονται στις διατάξεις του περιθωριακού 3659(8). 240 000

Συνολικό ποσό του δείκτη μεταφοράς	Ελάχιστες αποστάσεις σε μέτρα, χωρίς μεσολάβηση προστατευτικού υλικού, από στεγαστικές διευκολύνσεις ή τακτικά καταλαμβανόμενο χώρο εργασίας
	Εφαρμοστέα στοιχεία στην περίπτωση χρόνου εκθέσεως που δεν υπερβαίνει τις 250 ώρες το χρόνο
Λιγότερο από 2	1.0
2 μέχρι 4	1.5
4 μέχρι 8	2.5
8 μέχρι 12	3.0
12 μέχρι 20	4.0
20 μέχρι 30	5.0
30 μέχρι 40	5.5
40 μέχρι 50	6.5

Οι ελάχιστες αποστάσεις ασφαλείας που αναφέρονται στο περιθωριακό 3657 για τη φόρτωση και αποθήκευση δεμάτων που φέρουν ετικέττα «FOTO» μαζί με δέματα της Κατηγορίας II - YELLOW - ή της Κατηγορίας III - YELLOW δίνονται στο παρακάτω πίνακα. 240 001

Αποστάσεις διαχωρισμού για τη φόρτωση και αποθήκευση δεμάτων που φέρουν ετικέττα με τη λέξη FOTO μαζί με δέματα των Κατηγοριών II- YELLOW ή III - YELLOW

Συνολικό ποσό των δεμάτων της κατηγορίας		Συνολικό ποσό του μεταφορικού δείκτη	Διάρκεια ταξειδίου ή αποθήκευσης, ώρες							
YELLOW III	YELLOW II		1	2	4	10	24	48	120	240
			Ελάχιστες αποστάσεις σε μέτρα							
		0.2	0.5	0.5	0.5	0.5	1	1	2	3
		0.5	0.5	0.5	0.5	1	1	2	3	5
	1	1	0.5	0.5	1	1	2	3	5	7
	2	2	0.5	1	1	1.5	3	4	7	9
	4	4	1	1	1.5	3	4	6	9	13
	8	8	1	1.5	2	4	6	8	13	18
1	10	10	1	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

240 002
-240 009

Η ετικέττα που θα τοποθετηθεί στα τοιχώματα των οχημάτων βάσει των διατάξεων των περιθωριακών 3659(6) και 71 500 (2) θα είναι σύμφωνη με το υπόδειγμα No. 7D που παριστάνεται παρακάτω: 240 010



(Ελάχιστο μήκος πλευρά: 15 εκ.)
Σύμβολο και επιγραφή μαύρα
σε λευκό φόντο

240 011
-249 999

Παράρτημα Β.5

Πίνακας ουσιών και αριθμοί αναγνωρίσεως 250 000

(1) Ο αριθμός αναγνωρίσεως κινδύνου αποτελείται από δύο ή τρία ψηφία: Γενικά οι αριθμοί δείχνουν τους παρακάτω κινδύνους:

2 Εκπομπή αερίου λόγω πιέσεως ή χημικής αντιδράσεως

3 Το εύφλεκτο των υγρών (ατμών) και αερίων
4 Το εύφλεκτο των στερεών
5 Οξειδωτική (εντατικοποίηση πυρός) επίδραση
6 Τοξικότητα
8 Διαβρωτικότητα
9 Κίνδυνος αιφνίδιας βίαιης αντιδράσεως.

Ο διπλασιασμός ψηφίου δείχνει εντατικοποίηση αυτού του συγκριμένου κινδύνου.

Όπου ο κίνδυνος που σχετίζεται με μία ουσία μπορεί ικανοποιητικά να καταδειχθεί με ένα μόνο ψηφίο, αυτό ακολουθείται από μηδέν.

Οι παρακάτω συνδυασμοί ψηφίων, εντούτοις, έχουν ειδική έννοια:

33 333, 423, 44 και 539 (βλέπε το 2 παρακάτω).

Αν ένας αριθμός αναγνωρίσεως κινδύνου έχει μπροστά το γράμμα «Χ», αυτό δείχνει ότι η ουσία θα αντιδράσει επικίνδυνα με το νερό.

(2) Οι αριθμοί αναγνωρίσεως κινδύνου που αναφέρονται στην παράγραφο (3) έχουν τις παρακάτω έννοιες:

20 αδρανές αέριο
22 καταψυγμένο αέριο
223 καταψυγμένο εύφλεκτο αέριο
225 καταψυγμένο οξειδωτικό (που εντατικοποιεί τη φωτιά) αέριο
23 εύφλεκτο αέριο
236 εύφλεκτο αέριο, τοξικό
239 εύφλεκτο αέριο, το οποίο μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
25 οξειδωτικό (εντατικό της φωτιάς) αέριο
26 τοξικό αέριο
265 τοξικό αέριο, οξειδωτικό (εντατικό της φωτιάς)
266 πολύ τοξικό αέριο
268 τοξικό αέριο, διαβρωτικό
286 διαβρωτικό αέριο, τοξικό
30 εύφλεκτο υγρό (σημείο αναφλέξεως μεταξύ 21° K και 100° K)
33 πολύ εύφλεκτο υγρό (σημείο αναφλέξεως κάτω από 21° K)
X333 αιφνίδια εύφλεκτο υγρό, που μπορεί να αντιδράσει επικίνδυνα με το νερό
336 πολύ εύφλεκτο υγρό, τοξικό
338 πολύ εύφλεκτο υγρό, διαβρωτικό
X338 πολύ εύφλεκτο υγρό, διαβρωτικό, που αντιδρά επικίνδυνα με το νερό.
339 πολύ εύφλεκτο υγρό που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
39 εύφλεκτο υγρό, το οποίο μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
40 εύφλεκτο στερεό
X423 εύφλεκτο στερεό που αντιδρά επικίνδυνα με το νερό, αναδύοντας εύφλεκτα αέρια
44 εύφλεκτο στερεό, σε λυωμένη κατάσταση σε υψωμένη θερμοκρασία
446 εύφλεκτο στερεό, τοξικό, σε λυωμένη κατάσταση σε υψωμένη θερμοκρασία
46 εύφλεκτο στερεό, τοξικό
50 οξειδωτική (εντείνουσα τη φωτιά) ουσία
539 εύφλεκτο οργανικό υπεροξείδιο
558 πολύ οξειδωτική (εντείνουσα τη φωτιά) ουσία, διαβρωτική
559 πολύ οξειδωτική (εντείνουσα τη φωτιά) ουσία που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
60 τοξική και επιβλαβής ουσία
63 τοξική ή επιβλαβής ουσία, εύφλεκτη (σημείο αναφλέξεως μεταξύ 21° και 55° K)
638 τοξική ή επιβλαβής ουσία, εύφλεκτη (σημείο αναφλέξεως μεταξύ 21°K και 55°K) διαβρωτική
66 πολύ τοξική ουσία
663 πολύ τοξική ουσία, εύφλεκτη (σημείο αναφλέξεως όχι πάνω από 55° K)
68 τοξική ή επιβλαβής ουσία, διαβρωτική
69 τοξική ή επιβλαβής ουσία, που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
80 διαβρωτική ή ελαφρά διαβρωτική ουσία
X80 διαβρωτική ή ελαφρά διαβρωτική ουσία, που αντιδρά επικίνδυνα με το νερό
83 διαβρωτική ή ελαφρά διαβρωτική ουσία, εύφλεκτη (σημείο αναφλέξεως μεταξύ 21° και 55° K)
839 διαβρωτική ή ελαφρά διαβρωτική ουσία, εύφλεκτη (σημείο αναφλέξεως μεταξύ 21° K και 55° K) που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση.
85 διαβρωτική ή ελαφρά διαβρωτική ουσία οξειδωτική (εντείνουσα τη φωτιά)
856 διαβρωτική ή ελαφρά διαδιαβρωτική ουσία, οξειδωτική (εντείνουσα τη φωτιά) και τοξική
86 διαβρωτική ή ελαφρά διαβρωτική ουσία, τοξική
88 πολύ διαβρωτική ουσία
X88 πολύ διαβρωτική ουσία, που αντιδρά επικίνδυνα με το νερό
883 πολύ διαβρωτική ουσία, εύφλεκτη (σημείο αναφλέξεως μεταξύ 21°K και 55°K)
885 πολύ διαβρωτική ουσία, οξειδωτική (εντείνουσα τη φωτιά)
886 πολύ διαβρωτική ουσία, τοξική
X886 πολύ διαβρωτική ουσία, τοξική, που αντιδρά επικίνδυνα με το νερό
89 διαβρωτική ή ελαφρά διαβρωτική ουσία, που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση

(3) Οι αριθμοί αναγνωρίσεως που αναφέρονται στο περιθωριακό 10 500 αναγράφονται λεπτομερώς στους παρακάτω πίνακες I και II.

ΣΗΜΕΙΩΣΕΙΣ: 1. Οι αριθμοί αναγνωρίσεως που θα εμφανίζονται στις πορτοκαλλιές πλάκες πρέπει να αναζητηθούν πρώτα στον πίνακα I. Αν στην περίπτωση ουσιών των Κατηγοριών 3, 6.1 και 8 η ονομασία της ουσίας που πρόκειται να μεταφερθεί ή η συλλογική επικεφαλίδα που την καλύπτει δεν αναφέρεται στον Πίνακα I, ο αριθμός αναγνωρίσεως θα ληφθεί από τον Πίνακα II.

2. Οι ετικέττες κινδύνου που προβλέπονται στα περιθωριακά 10 130 και 10 500 (6) έχουν προτεραιότητα πάνω στις ετικέττες που αναφέρονται στη στήλη (ε) των πινάκων I και II.

Παράρτημα B.5

Πίνακ 1

Ουσίες αναγραφόμενες με τη χημική τους ονομασία ή υπό συλλογικές επικεφαλίδες στις οποίες δίνεται συγκριμένος «αριθμός αναγνωρίσεως ουσίας» (στήλη δ). Για διαλύματα και μίγματα ουσιών, βλέπε επίσης το περιθωριακό 2002 (8) και (9). Ο παρών πίνακας περιλαμβάνει επίσης ουσίες που δεν εμφανίζονται στους πίνακες κατηγορίας ουσιών, αλλά οι οποίες όμως εμπίπτουν στις κατηγορίες και τους αριθμούς ειδών που αναγράφονται στη στήλη (β). Για ουσίες των Κατηγοριών 3, 6.1 και 8 που δεν περιλαμβάνονται στον παρόντα πίνακα, βλέπε τον Πίνακα II.

Οι ουσίες αναγράφονται κατά αλφαβητική σειρά.

Το σημείο «++» στη στήλη (ε) σημαίνει: Η επικόλληση ετικέττας σε δεξαμενο-κοντέηνερ και συστοιχίες δοχείων είναι σύμφωνη με τις απαιτήσεις του περιθωριακού 21 130, η επικόλληση πινακίδων (ετικεττών) σε οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές είναι σύμφωνη με τις απαιτήσεις του περιθωριακού 21 500. Το σημείο «–» στήλη (3) σημαίνει: Δεν προβλέπεται ετικέττα.

Ονομασία ουσίας (α)	Κατηγορία και αριθμός είδους (β)	Αριθ. αναγνωρίσεως κινδύνου (άνω μέρος) (γ)	Νο αναγνωρίσεως ουσίας (κάτω μέρος) (δ)	Ετικέττα (ε)
ACETAL (I,I-DIETHOXIETHANE)	3, 3°(Β)	33	1088	3
Ακεταλδεΰδη (Αλδεΰδη)	3, 1°(α)	33	1089	3
Οξικό οξύ κρυσταλικά και υδατοδιαλύματα οξικού οξέος που περιέχουν πάνω από 80 στα εκατό καθαρό οξύ	8 32°(β)	83	2789	8 + 3
Οξικό οξύ που περιέχει πάνω από 50 μέχρι 80 στα εκατό καθαρό οξύ	8, 32°(γ)	80	2790	8
Οξικός ανυδρίτης	8, 32°(β)	83	1715	8 + 3
ACETOIN (ACETYLMETHYLCARBINOL)	3, 31°(γ)	30	2621	3
Ακετόνη (ασετόν)				
ACETONE CYANOHYDRIN	6.1, 11°(α)	66	1541	6.1
ACETONITRILE	3, 11°(β)	336	1648	3 + 6.1
ACETYL ACETONE: Βλέπε PENTAN-2,4-DIONE				
ACETYL BROMIDE	8, 36°(β)	80	1716	8
ACETYL CHLORIDE	3, 25°(β)	X338	1717	3 + 8
ACETYLENE TETRABROMIDE: Βλέπε 1,1,2,2- TETRABROMOETHANE				
ACETYLMETHYLCARBINOL: Βλέπε ACETOIN				
ACROLEIN	3, 17°(α)	336	1092	3 + 6.1
ACRYLAMIDE	6.1, 12°(γ)	60	2074	6.1A
ACRYLAMIDE, διάλυμα	6.1, 12°(γ)	60	2074	6.1A
Ακρυλικό οξύ	8, 32°(β)	89	2218	6 + 3
ACRYLONITRILE	3, 11°(α)	336	1093	3 + 6.1
ADIPONITRILE	6.1, 12°(γ)	60	2205	6.1A
Αέρας, υγρό, βαθειάς καταψύξεως	2, 8°(α)	225	1003	5
Οινοπνεύματα, υγρά, μη τοξικά καθαρά ή σε μίγματα, μη καθοριζόμενα διαφορετικά στο παρόν Παράρτημα				
-που έχουν σημείο αναφλέξεως μεταξύ 21°K και 55°K (περιλαμβανόμενων των οριακών τιμών)	3, 31°(γ)	30	1987	3
-που έχου σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)	30	1987	-
Αλδεΰδη: βλέπε Ακεταλδεΰδη				
Αλδεΰδες που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα.				
-που έχουν σημείο αναφλέξεως κάτω από 21°K	3, 3°(β)	33	1989	3
-που έχουν σημείο αναφλέξεως μεταξύ 21°K και 55°K (περιλαμβανόμενων των οριακών τιμών)	3, 31°(γ)	30	1989	3
-που έχουν σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)	30	1989	-
ALDOL (BETA-HYDROXYBUTYRALDE-HYDE)	6.1, 13°(β)	60	2839	6.1
Αλκαλικές ανόργανες ουσίες, διαλύματα, που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα				
-διαβρωτικές	8, 42°(β)	80	1719	8
-ελαφρά διαβρωτικές	8, 42°(γ)	80	1719	8
ALKYL PHENOIS, με αλύσεις C_2-C_8, που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα	6.1, 14°(γ)	60	2430	6.1A
AKYL SULPHONIC ACIDS, που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα				
-που περιέχουν πάνω από 55 στα εκατό ελεύθερο θειϊκό οξύ	8, 1°(β)	80	2584	8
-που δεν περιέχουν πάνω από 5 στα εκατό θειϊκό οξύ, διαβρωτικά	8, 34°(β)	80	2586	8
-που δεν περιέχουν πάνω από 5 στα εκατό ελεύθερο θειϊκό οξύ, ελαφρά διαβρωτικά	8, 34°(γ)	80	2586	8
ALLYL ACETANE	3, 17°(β)	336	2333	3 + 6.1
ALLYL ALCOHOL	6.1, 13°(α)	663	1098	6.1 + 3
ALLYLAMINE	3, 15°(α)	336	2334	3 + 6.
ALLYL BROMIDE	3, 16°(α)	336	1099	3 + 6.1
ALLYL CHLORIDE	3, 16°(α)	336	1100	3 + 6.1
ALLYL CHLOROFORMATE	8, 64°(α)	88	1722	8
ALLYL ETHYL ETHER	3, 17°(β)	336	2335	3 + 6.1
ALLYL FORMATE	3, 17°(α)	336	2336	3 + 6.1
ALLYL GLYCIDYL ETHER (1 ALLYLOXY-2,3-EPOXY-PROPANE)	3, 31°(γ)	30	2219	3
ALLYL ISOTHIOCYANATE	6.1, 20°(β)	69	1545	6.1 + 3
1-ALLYLOXY-2,3-EPOXYPROPANE: βλέπε ALLYL CLYCIDYL ETHER				
ALLYL TRICHLOROSILANE	8, 37°(β)	839	1724	8 + 3

(α)	(β)	(γ)	(δ)	(ε)
ALUMINIUM ALKYL HALIDES, διαλύματα	4.2,3°	X333	2220	4.2 + 4.3
ALUMINIUM ALKYL HALIDES	4.2, 3°	X333	2221	4.2 + 4.3
Αλκύλια Αλουμινίου	4.2			
– ALUMINIUM TRIETHYL	4.2, 3°	X333	1102	4.2 + 4.3
– ALUMINIUM TRISOBUTYL	4.2, 3°	X333	1930	4.2 + 4.3
– ALUMINIUM TRIMETHYL	4.2, 3°	X333	1103	4.2 + 4.3
ALUMINIUM BROMIDE, άνυδρο	8, 22(β)	80	1725	8
ALUMINIUM BROMIDE, υδατοδιαλύματα	8, 5°(γ)	80	2580	8
ALUMINIUM BROMIDE, άνυδρο	8,22°(β)	80	1726	8
ALUMINIUM CHLORIDE, υδατοδιαλύματα	8, 5°(γ)	80	2581	8
N–AMINOETHYLPIPERAZINE	8, 53°(γ)	80	2515	8
Αμινοφαινόλες	6.1, 12°(γ)	60	2512	6.1A
Αμμωνία	2, 3°(AT)	268	1005	++
Αμμωνία διαλυμένη σε νερό που περιέχει πάνω από 40 στα εκατό αλλά όχι πάνω από 50 στα εκατό αμμωνία κατά βάρος	2, 9°(AT)	268	2073	++
Αμμωνία διαλυμένη σε νερό με πάνω από 35 στα εκατό αλλά όχι πάνω από 40 στα εκατό αμμωνία (NH3) κατά βάρος	2, 9°(AT)	268	2073	++
Διαλύματα αμμωνίας που περιέχουν όχι λιγότερο από 10 στα εκατό και όχι πάνω από 35 στα εκατό αμμωνία	8, 43°(γ)	80	2672	8
AMMONIUM BIFLUORIDE	8, 26°(β)	80	1727	8 + 6.1
AMMONIUM BIFLUORIDE, διαλύματα	8, 26°(β)	80	2817	8 + 6.1
AMMONIUM BISULPHATE που περιέχει 3 στα εκατό ή περισσότερο ελεύθερο θειϊκό οξύ	8, 23°(β)	80	2506	8
AMMONIUM FLUORIDE	6.1, 65°(γ)	60	2505	6.1A
AMMONIUM POLYSULPHIDE, διαλύματα	8, 45°(β)	86	2818	8
AMMONIUM SILICOFLUORIDE	6.1, 66°(γ)	60	2854	6.1A
AMMONIUM SULPHIDE, διαλύματα	8, 45°(β)	86	2683	8
AMYL ACETATES	3, 31°(γ)	30	1104	3
N-AMYL ALCOHOL	3, 31°(γ)	30	1105	3
SEC-AMYL ALCOHOL	3, 31°(γ)	30	1105	3
AMYL ALCOHOL, τριτοβάθμιο	3, 3°(β)	33	1105	3
N-AMYLAMINE	3, 22°(β)	338	1106	3 + 8
AMYL BUTYRATES	3, 31°(γ)	30	2620	3
AMYL CHLORIDE	3, 3°(β)	33	1107	3
AMYLENE, κανονικό (1-PENTENE)	3, 1°(α)	33	1108	3
AMYL MERCAPTAN	3, 3°(β)	33	1111	3
AMYL METHYL KETONE	3, 31°(γ)	30	1112	3
AMYL NITRATE	3, 31°(γ)	30	1112	3
AMYLTRICHLOROSILANE	8, 37°(β)	80	1728	8
Ανιλίνη	6.1, 11°(β)	60	1547	6.1
Ανισιντίνες	6.1, 12°(γ)	60	2431	6.1A
ANISOLE: βλέπε PHENYL METHYL ETHER				
ANISOYL CHLORIDE	8, 35°(β)	80	1729	8
ANTIMONY PENTACHLORIDE ($SBOL_5$)	8, 21°(β)	80	1730	8
ANTIMONY PENTACHLORIDE, μη υδατικά διαλύματα	8, 21°(β)	80	1731	8
ANTIMONY PENTAFLUORIDE	8, 26°(β)	86	1732	8 + 6.1
ANTIMONY TRICHLORIDE ($SBCL_3$	8, 22°(β)	80	1733	8
Αργόν, υγρό, βαθειάς κατάψυξης	2, 7°(α)	22	1951	–
Αρσενικό οξύ, υγρό	6.1, 7°(α)	66	1553	6.1
Αρσενικό οξύ, στερεό	6.1, 51°(β)	60	1554	6.1
Αρσενικές ενώσεις, υγρές, ανόργανες, μη καθοριζόμενες διαφορετικά στο παρόν Παράρτημα	6.1, 51°(α)	66	1556	6.1
ARSENIC BROMIDE	6.1, 51°(β)	60	1555	6.1
ARSENIC CHLORIDE	6.1, 51°(α)	66	1560	6.1
ARSENIC PENTOXIDE	6.1, 51°(β)	60	1559	6.1
ARSENIC TRIOXIDE (Λευκό)	6.1, 51°(β)	60	1561	6.1
ARYL SULPHONIC ACIDS, μη καθοριζόμενα διαφορετικά στο παρόν Παράρτημα				
– περιέχοντα πάνω από 5% θειϊκό οξύ	8, 1°(β)	80	2584	8
– περιέχοντα όχι πάνω από 5% ελεύθερο θειϊκό οξύ, διαβρωτικό	8, 34°(β)	80	2586	8
– περιέχοντα όχι πάνω από 5% ελεύθερο θειϊκό οξύ, ελαφρά διαβρωτικό	8, 34°(β)	80	2586	8
BARIUM CARBONATE	6.1, 60(γ)	60	1564	6.1A
BARIUM OXIDE (Οξείδιο του)	6.1, 60(γ)	60	1884	6.1A
Βενζόλιο	3, 3°(β)	33	1114	3
BENZENE SULFONYL CHLORIDE	3, 36°(γ)	80	2225	8
BENZONITRILE	6.1, 11°(β)	60	2224	6.1
BENZOQUINONE	6.1, 14°(β)	60	2587	6.1
BENZOTRICHLORIDE (TRICHLOROMETHYLBENZENE	8, 66°(β)	80	2226	8

(α)	(β)	(γ)	(δ)	(ε)
BENZOTRIFLUORIDE	3, 3°(β)	33	2338	3
BENZYL CHLORIDE	8, 36°(β)	80	1736	8
BENZYL BROMIDE	6.1, 15°(β)	60	1737	6.1
BENZYL CHLORIDE	6.1, 15°(β)	60	1738	6.1
BENZYL CHLOROFORMATE	8, 64°(α)	88	1739	8
BENZYL CYANIDE (PHENYLACETONITRILE)	6.1, 12°(γ)	60	2470	6.1A
BENZYL DIMETHYLAMINE	8, 52°(β)	83	2619	8 + 3
BENZYLIDENE CHLORIDE	6.1, 17°(β)	68	1886	6.1
BICYCLOHEPTADIENE	3, 3°(β)	33	2251	3
BIS-AMINOPROPYLAMINE (DIPROPYLENETRIAMINE, 3,3'-IMINOBISPROPYLAMINE)	8, 53°(γ)	80	2269	8
1,2 BIS (DIMETHYLAMINO) ETHANE (TETRAMETHYLENEDIAMINE)	3, 31°(γ)	30	2372	3
BORON TRIBROMIDE (BORON BROMIDE) (BBR_3)	8, 21°(α)	X88	2692	8
BORON TRIFLUORIDE σύμπλεγμα οξικού οξέος	8, 33°(β)	80	1742	8
BORON TRIFLUORIDE ETHER, σύμπλεγμα	8, 33°(β)	83	2604	8 + 3
BORON TRIBLUORIDE PROPIONIC ACID, σύμπλεγμα	8, 33°(β)	80	1743	8
BORON TRIFLUORIDE DIHYDRATE	8, 33(β)	80	2851	8
Βρωμίδιο	8, 24°	886	1744	8 + 6.1
BROMINE PENTAFLUORIDE	8, 26°(α)	856	1745	8 + 6.1
BROMINE TRIFLUORIDE	8, 26°(α)	856	1746	8 +1 6.1.
BROMACETIC ACID	8, 31°(β)	80	1938	8
BROMOACETONE	6.1, 16°(β)	60	1569	6.1.
ωμέγα-BROMOACETOPHENONE: βλέπε PEHENACYL BROMIDE	8, 36°(β)	X80	2513	8
BROMOACETYL BROMIDE	8, 36°(B)	X80	2513	8
BROMOBENZEN E	3, 31°(γ)	30	2514	3
άλφα-BROMOBENZYL CYANIDE	6.1, 17°(α)	66	1694	6.1
2-BROMOBUTANE	3, 3°(β)	33	2339	3
BROMOCHLORODIFLUOROMETHANE (R 1281)	2, 3°(α)	20	1974	–
BROMOCHLOROMETHANE	6.1, 15°(β)	60	1887	6.1
I-BROMO-3-CHLOROPROPANE	6.1, 15(γ)	60	2688	6.1A
2-BROMOETHYL ETHYL ETHER	3, 3°(β)	33	2340	3
BROMOFORM	6.1, 15°(γ)	60	2515	6.1A
I-BROMO-3-METHYLBUTANE	3, 3°(β)	33	2341	3
BROMOETHYLPROPANES	3, 3°(β)	33	2342	3
2-BROMOPENTHANE	3, 3°(β)	33	2343	3
BROMOPROPANES	3, 3°(β)	33	2344	3
BROMOTRIFLUOROMETHAN E (R1381)	2, 5°(α)	20	1009	–
Βουταδιένια	2, 3°(γ)	239	1010	3
Βουτάνιο	3, 3°(β)	23	1011	3
BUTANEDIONE (DIACETYL)	3, 3°(β)	33	2346	3
BUTANOL: βλέπε Βουτυλική αλκοόλη				
N-BUTANOL-2: βλ. Βουτυλική αλκοόλη				
BUTANOL, τριτογενές (τριτογενής βουτυλική αλκοόλη)	3, 3°(β)	33	1120	3
I-BUTENE: βλ. I-BUTYLENE				
CIS-2-BUTENE, βλ. CIS-2-BUTYLENE				
TRANS-2-BUTENE: βλ. TRANS-2-BUTYLENE				
BUTOXYL (METHOXYBUTYL ACETATE)	3,31°(γ)	30	2708	3
N-BUTYL ACETATE	3,31°(γ)	30	1123	3
BUTYL ACETATE, δευτερογενές	3, 3°(β)	33	1123	3
BUTYL ACID PHOSPHATE	8,38°(γ)	80	1718	8
N-BUTYL ACRYLATE	3,31°(γ)	39	2348	3
N-BUTYL ALCOHOL (Βουτανόλη)	3,31°(γ)	30	1120	3
SEC-BUTYL ALCOHOL (N-BUTANOL-2)	3,31°(γ)	30	1120	3
BUTYL ALCOHOL, τριτογενής: βλ. Βουτανόλη, τριτογενής				
N-BUTILAMINE	3,22°(β)	338	1125	3 + 8
N-BUTILANILINES	6.1, 12°(β)	60	2738	6.1
BUTYL BENZENES	3,31°(γ)	30	2709	3
BUTYL BROMIDE, κανονικό	3, 3°(β)	33	1126	3
BUTYL CHLORIDES (CHLOROBUTANES)	3,3°(β)	33	1127	3
N-BUTYLCHLOROFORMATE	6.1, 16°(β)	638	2743	6.1 + 3 + 8
TERT-BUTYLCYCLOHEXYLCHLOROFORMATE	6.1, 17°(γ)	68	2747	6.1A + 8
1-BUTYLENE (1-BUTENE)	2, 3°(β)	23	1012	3
CIS-2-BUTYLENE (CIS-2-BUTENE)	2, 3°(β)	23	1012	3
TRANS-2-BUTYLENE (TRANS-2-BUTENE)	2, 3°(β)	23	1012	3
N-BUTYL ETHER: βλέπε DI-N-BUTYL ETHER				
N-BUTYL FORMATE	3, 3°(β)	33	1128	3
N,N-BUTYL IMIDAZOLE	6.1, 12°(β)	60	2690	6.1
BUTYL ISOCYANATE, κανονικό	3, 14°(β)	336	2485	3 +6.1
BUTYL MERCAPTAN	3, 3°(β)	33	2347	3
N-BUTYL METHACRYLATE	3, 31°(γ)	39	2227	3

(α)	(β)	(γ)	(δ)	(ε)
BUTYL METHYL ETHER	3. 3°(γ)	33	2350	3
BUTYLPHENOLS, σε λυωμένη κατάσταση	6.1. 14°(γ)	60	2229	6.1A
BUTYLPHENOLS υγρό	6.1. 14°(γ)	60	2228	6.1A
BUTYL PROPIONATE	3. 31°(γ)	30	19134	3
BUTYL TOLUENES	3. 32°(γ)	30	2667	–
BUTYLTRICHLOROSILANE	8. 37°(β)	83	1747	8+3
BUTYL VINYL ETHER	3. 3°(β)	339	2352	3
BUTYNE: βλέπε CROTONYLENE				
Βουτυραλδεΐδη	3. 3°(β)	33	1129	3
BUTYRALDOXIME	3. 32°(γ)	30	2840	–
N-Βουτυρικό οξύ	8. 32°(γ)	80	2820	8
Βουτυρικός ανυδρίτης	8. 32°(γ)	80	2739	8
BUTYRONITRILE	3. 11°(β)	336	2411	3+6.1
BUTYRYL CHLORIDE	3. 25°(β)	338	2353	3+8
CAESIUM HYDROXIDE	8. 41°(β)	80	2682	8
CAESIUM HYDROXIDE υδατικά διαλύματα	8. 42°(β)	80	2681	8
CALCIUM ARSENATE	6.1. 51°(β)	60	1573	6.1
CALCIUM CHLORATE, διαλύματα	5.1. 4°(α)	50	2429	5
Διοξείδιο του άνθρακα	2. 5°(α)	20	1013	–
Διοξείδιο του άνθρακα, υγρό, βαθειάς καταψύξεως	2. 7°(α)	22	2187	–
Διοξείδιο του άνθρακα, που περιέχει πάνω από 6 στα εκατό αλλά όχι πάνω από 35 στα εκατό ETHYLENE OXIDE κατά μάζα	2. 6°(γ)	239	1041	++
Διοξείδιο του άνθρακα, που δεν περιέχει πάνω από 6 στα εκατό ETHYLENE OXIDE κατά μάζα	2. 6°(γ)		1952	++
Διοξείδιο του άνθρακα, που δεν περιέχει όχι κάτω από 1 στα εκατό και όχι πάνω από 10 στα εκατό οξυγόνο κατά μάζα	2. 6°(α)	20	1014	–
CARBON DISULPHIDE	3. 18°(α)	336	1131	3+6.1
CARBON TETRABROMIDE	6.1. 15°(γ)	60	2516	6.1A
Καυστική ποτάσα: βλέπε POTASSIUM HYDROXIDE				
Καυστική σόδα: βλέπε SODIUM HYDROXIDE				
CHLORAL βλ.TRICHLOROACETAL DEHYDE				
Χλωρίνη	2. 3°(AT)	266	1017	++
CHLOROACETALDEHYDE	6.1. 16°(β)	60	2232	6.1
CHLOROACETIC ACID (MONOCHLOROACETIC ACID), στερεό	8. 31°(β)	80	1751	8
CHLOROACETIC ACID (MONOCHLOROACETIC ACID), λυωμένο	8. 31°(β)	80	1750	8
CHLOROACETIC ACIDS, μίγματα	8. 32°(β)	80	1750	8
CHLOROACETIC ACID (MONOCHLOROACETIC ACID), διαλύματα	8. 32°(β)	80	1750	8
CHLOROACETONE	6.1. 16°(β)	60	1695	6.1
ωμέγα-CHLOROACETOPHENONE: βλ. PHENACYL CHLORIDE CHLOROACETYL CHLORIDE	8. 36°(β)	X80	1752	8
CHLOROANISIDINES	6.1. 17°(γ)	60	2233	6.1A
CHLOROBENZENES (PHENYL CHLORIDE)	3.31°(γ)	30	1134	3
CHLOROBENZOTRIFLUORIDES	3. 31°(γ)	30	2234	3
CHLOROBENZYL CHLORIDES	6.1. 17°(γ)	60	2235	6.1A
CHLOROBUTANES: βλέπε BUTYL CHLORIDES				
CHLOROBCRESOLS	6.1. 14°(β)	60	2669	6.1
1-CHLORO-1,1-DIFLUOROETHANE (R 142β)	2. 3°(β)	23	2517	++
CHLORODIFLUOROMETHANE (R22)	2. 3°(α)	20	1018	–
CHLORODINITROBENZENE	6.1.12°(β)	60	1577	6.1
2-CHLOROETHANOL: βλ. ETHYLENE CHLOROHYDRIN				
Χλωροφόρμιο	6.1. 15°(β)	60	1888	6.1
CHLOROMETHYLCHLOROFORMATE	6.1. 16°(β)	638	2745	6.1+3+8
CHLOROMETHYL ETHYL ETHER	3, 16°(β)	336	2354	3 + 6.1
3-CHLORO-4-METHYLPHENYL ISOCYANATE	6.1, 19°(β)	60	2236	6.1
CHLORONITROANALINES	6.1, 17°(γ)	60	2237	6.1A
CHLORONITROBENZENES	6.1, 12°(β)	60	1578	6.1
CHLORONITROTOLUENES	6.1, 17°(γ)	60	2433	6.1A
CHLOROPENTAFLUOROETHANE (R115)	1, 3°(α)	20	1020	-
2-CHLOROPHENOL	6.1, 16°(γ)	68	2021	6.1A
3-CHLOROPHENOL	6.1, 17°(γ)	60	2020	6.1A
4-CHLOROPHENOL	6.1, 17(γ)	60	2020	6.1A
CHLOROPHENYL TRICHLOROSILANE	8, 37°(β)	80	1753	8
CHLOROPICRIN	6.1, 16°(α)	66	1580	6.1
CHLOROPRENE	3, 16°(α)	336	1991	3 + 6.1
1-CHLOROPROPANE (PROPYL CHLORIDE)	3, 2°(β)	33	1278	3
2-CHLOROPROPANE (ISOPROPYL CHLORIDE)	3, 2°(β)	33	2356	3

(α)	(β)	(γ)	(δ)	(ε)
3-CHLOROPROPANE-1,2 DIOL,βλ. CLYCEROL ALPHA-MONOCHLOROHYDRIN				
3-CHLORO-1-PROPANOL	6.1, 16°(γ)	60	2849	6.1A
1-CHLORO-2-PROPANOL	6.1, 16°(β)	63	2611	6.1 + 3
2-CHLOROPROPENE	3,1°(α)	33	2456	3
2-CHLOROPROPIONIC ACID	8, 32°(γ)	80	2511	8
2-CHLOROPYRIDINE	6.1, 11°(β)	60	2822	6.1
CHIATROSILANES που δεν αναδίδουν εύφλεκτα αέρια σε επαφή με το νερό, που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα	3, 21°(α)	X338	2985	3 – 8
-με σημείο αναφλέξεως κάτω από 21°K	3, 21°(α)	X338	2985	3 + 8
-με σημείο αναφλέξεως μεταξύ 21°K και 55°K	8, 37°(β)	83	2986	8 + 3
-με σημείο αναφλέξεως πάνω από 55°K	8, 37°(β)	80	2987	8
CHLOROSULPHONIC ACID(SO_2(OH)CL)	8, 21°(α)	88	1754	8
CHLOROTOLUENES	3, 31°(γ)	30	2238	3
CHLOROTOLUIDINES	6.1, 17°(γ)	60	2239	6.1A
1-CHLORO-2,2,2-TRIFLUORO-ETHANE (R 133α)	2, 3°(α)	20	1983	-
CHLOROTRIFLUOROMETHANE (R13)	2, 5°(α)	20	1022	-
CHROMIC ACID, διαλύματα	8, 11°(β)	80	1755	8
CHROMIC FLUORIDE	8, 26°(β)	80	1756	8 + 6.1
CHROMIC FLUORIDE, διαλύματα	8, 26°(β)	80	1757	8 + 6.1
CHROMIUM OXYCHLORIDE: βλέπε CHROMYL CHLORIDE				
CHROMOSULPHURIC ACID	8, 1°(α)	88	2240	8
CHROMYL CHLORIDE (CHROMIUM OXYCHLORIDE) (CRO_2CL_2)	8, 21°(α)	88	1758	8
Κολλόδια, Ημι-κολλόδια, διαλύματα και άλλα διαλύματα νιτροελουλόζης				
-με σημείο αναφλέξεως κάτω από 21°K και σημείο βρασμού όχι πάνω από 35°K	3, 4°(α)	33	2059	3
-με σημείο αναφλέξεως κάτω από 21°K και σημείο βρασμού πάνω από 35°K	3, 4°(β)	33	2059	3
-με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 33°(γ)	30	2060	3
-με σημείο αναφλέξεως πάνω από 55°K	3, 34°(γ)	30	2060	-
Κρεσόλη	6.1, 14°(β)	60	2076	6.1
CRESYLIC ACID	6.1, 14°(β)	60	2022	6.1
CROTONIC ALDEHYDE (CROTON-ALDEHYDE)	3, 3°(β)	33	1143	3
CROTONYLENE (2-BUTYNE)	3, 1°(α)	339	1144	3
CUMENE (ISOPROPYBLENENE)	3, 31°(γ)	30	1918	3
CUMYL HYDROPEROXIDE: βλέπε άλφα, άλφα DIMETHYLBENZYL HYDROPEROXIDE				
CUPRIETHYLENEDIAMINE, διαλύματα	8, 53°(β)	86	1761	8
CYANIDES, ανόργανα διαλύματα	6.1, 41°(α)	66	1935	6.1
CYANURIC CHLORIDE	8, 27°(γ)	80	2670	8
CYCLOBUTYL CHLOROFORMATE	6.1, 16°(β)	638	2744	6.1 + 3 + 8
1,5,9-CYCLODODECATRIENE	6.1, 24°(γ)	60	2518	6.1A
CYCLOHEPTANE	3, 3°(β)	33	2241	3
CYCLOHEPTENE	3, 3°(β)	33	2242	3
CYCLOHEXANE	3, 3°(β)	33	1145	3
CYCLOHEXANONE	3, 31°(γ)	30	1915	3
CYCLOHEXENE	3, 3°(β)	33	2256	3
CYCLOHEXENYLTRICHLOROSILANE	8, 37°(β)	33	2256	3
CYCLOHEXYL ACETANE	3, 32°(γ)	30	2243	-
CYCLOHEXILAMINE	8, 53°(β)	83	2357	8 + 3
CYCLOEXYL ISOCYANATE	6.1, 18°(β)	63	2488	6.1 + 3
CYCLOHEXYLTRICHLOROSILANE	8, 37°(β)	80	1763	8
CYCLOOCTADIENE	3, 31°(γ)	30	2520	3
CYCLOOCTATETRAENE	3, 31°(γ)	30	2358	3
CYCLOPENTANE	3, 3°(β)	33	1146	3
CYCLOPENTANOL	3, 31°(γ)	30	2244	3
CYCLOPENTANONE	3, 31°(γ)	30	2245	3
CYCLOPENTENE	3, 2°(β)	33	2246	3
CYCLOPROPANE	2, 3°(β)	23	1027	3
CYMENES (METHYL ISOPROPYL BENZENES)	3, 31°(γ)	30	2046	3
DECAHYDRONAPHTHALENE (DECALIN)	3, 32°(γ)	30	1147	-
N-DECAN E	3, 31°(γ)	30	2247	3
DIACETONE ALCOHOL, τεχνικό	3, 3°(β)	33	1148	3
DIACETYL: βλέπε BUTANEDIONE				
DIALLYLAMINE	3, 22°(β)	338	2359	3 + 8
DIALLYL ETHER	3, 17°(β)	336	2360	3 + 6.1
DIAMINODIPHENYL METHANE: Σε λυωμένη κατάσταση	6.1, 12°(γ)	60	2651	.1A
DI-N-AMYLAMINE	6.1, 12°(γ)	60	2841	6.1A

(α)	(β)	(γ)	(δ)	(ε)
DIBENZYLDICHLOROSILANE	8, 37°(β)	80	2434	8
DIBROMOBENZENES	3, 32°(γ)	30	2711	-
1,2-DIBROMOBUTAN-3-ένα	6.1, 16°(β)	60	2648	6.1
1,2-DIBROMO-3-CHLOROPROPANE	6.1, 15°(γ)	60	2872	6.1A'
SYM. DIBROMOETHANE: βλέπε ETHYLENE DIBROMIDE DIBROMOMETHANE: βλέπε METHYLENE BROMIDE				
DI-(N-BUTYL) AMINE	8, 53°(β)	83	2248	8 + 3
DIBUTYLAMINOETHANOL	6.1, 12°(γ)	60	2873	6.1A
DI-N-BUTYL ETHER (N-BUTYL ETHER)	3,31°(γ)	30	1149	3
DICHLOROACETIC ACID	8, 32°(β)	80	1764	8
SYM.-DICHLOROACETONE	6.1,16°(β)	63	2649	6.1 + 3
DICHLOROACETYL CHLORIDE	8, 36°(β)	X80	1765	8
DICHLOROANILINES	6.1, 12°°(β)	60	1590	6.1
1,2-DICHLOROBENZENES	6.1, 15°(γ)	60	1591	6.1A
2,2-DICHLORODIETHYL ETHER	6.1, 16°(β)	63	1916	6.1 + 3
DICHLORODIFLUOROMETHANE (R12)	2, 3°(α)	20	1028	-
DICHLORODIFLUOROMETHANE που περιέχει 12 στα εκατό ETHYLENE OXIDE κατά μάζα	2, 4°(CT)	236	1028	+ +
1,1-DICHLOROETHANE (ETHYLIDENE) CHLORIDE	3, 3°(β)	33	2362	3
1,2-DICHLOROETHANE (ETHYLENE CHLORIDE)	3, 16°(β)	336	1184	3 + 6.1
1,2-DICHLOROETHYLENE	3, 3°(β)	33	1150	3
DICHLOROFLUOROMETHANE (R21)	2, 3°(α)	20	1029	-
1,3-DICHLOROHYDRIN 1,3-DICHLORO-2-PROPANOL)	6.1, 16°(β)	60	2750	6.1
DICHLOROISOPROPYL ETHER	6.1, 16°(β)	60	2490	6.1
DICHLOROMETHANE: βλ. METHYLENE CHLORIDE				
1,1-DICHLORO-1-NITROETHANE	6.1, 16°(β)	60	2650	6.1
DICHLOROPENTANES	3, 31°(γ)	30	1152	3
3,4-DICHLOROPHENYL ISOCYANATE	6.1,19°(β)	60	2250	6.1
DICHLOROPHENYLTRICHLOROSILANE	8, 37°(β)	80	1766	8
1,3-DICHLORO-2-PROPANOL: βλέπε 1,3-DICHLORHYDRIN				
1,3-DICHLOROPROPENE	3, 31°(γ)	30	2047	3
1,2-DICHLORO-1,1,2-2-TETRA-FLUOROETHANE (R 114)	2,3°(α)	20	1958	-
DICYCLOHEXYLAMINE	8, 53°(γ)	80	2565	8
DICYCLOPENTADIENE	3, 31°(γ)	30	2048	3
1,1-DIEXOXYETHANE: βλέπε ACETAL				
1,2-DIETHOXYETHANE (ETHYLENE) GLYCOL DIETHYL ETHER)	3, 31°(γ)	30	1153	3
DIETHOXYMETHANE	3, 3°(β)	33	2373	3
3,3-DIETHOXYPROPENE	3, 3°(β)	33	2374	3
DIETHYLAMINE	3,22°(β)	338	1154	3 + 8
DIETHYLAMINOETHANOL (N, N-DIETHYLETHANOLAMINE)	3, 32°(γ)	30	2686	-
DIETHYLAMINOPROPYLAMINE	8,53°(γ)	80	2684	8
N,N-DIETHYLANILINE	6.1, 12°(γ)	60	2432	6.1A
DIETHYLBENZENES	3, 32°(γ)	30	2049	-
DIETHYL CARBONATE (ETHYL CARBONATE)	3, 31°(γ)	30	2366	3
DIETHYLDICHLOROSILANE	8, 37°(β)	83	1767	8 + 3
DIETHYLENEDIAMINE (PIPERAZINE)	8, 52°(γ)	80	2579	8
DIETHYLENETRIAMINE	8, 53°(β)	80	2079	8
N,N-DIETHYLETHANOLAMINE: βλέπε DIETHYLAMINOETHANOL				
N,N-DIETHYLETHYLENEDIAMINE	8, 53°(β)	83	2685	8 + 3
DIETHYL KETONE	5, 3°(β)	33	1156	3
DIETHYL SULPHATE	6.1, 14°(β)	60	1594	6.1
DIETHYLTHIOPHOSPHORYL CHLORIDE	8, 36°(β)	80	2751	8
I,I-DIEFLUOROETHYLENE (VINYLIDENE FLUORIDE)	2,5°(γ)	239	1959	3
I,I-DIFLUOROETHANE (R 152α)	2, 3°(β)	23	1030	+ +
DIFLUOROPHOSPHORIC ACID, ανυδρο	8, 10°(β)	80	1768	8
2,3-DIHYDROPYRAN	3, 3°(β)	33	2376	3
DIISOBUTYLAMINE	3, 31°(γ)	30	2361	3
DIISOBUTYLENES	3, 3°(β)	33	2050	3
DIISOBUTYL KETONE	3, 31°(γ)	30	1157	3
DIISOOCTYL ACID PHOSPHATE	8, 38°(γ)	80	1902	8
DIISOPROPYLAMINE	3,22°(β)	338	1158	3 + 8
DIISOPROPYLBENZENE HYDROPEROXIDE (ISOPROPYL CUMYL HYDROPEROXIDE) με 45 στα εκατό μίγματος οινοπνεύματος και κετόντις	5.2, 18°	539	2171	5

(α)	(β)	(γ)	(δ)	(ε)
N,N-DIISOPROPYLETHANOLAMINE	8, 53°(γ)	80	2825	8
DIISOPROPYL ETHER	3, 3°(β)	33	1159	3
DIKETONE	3, 31°(γ)	39	2521	3
1,1-DIMETHOXYETHANE	3, 3°(β)	33	2377	3
1,2-DIMETHOXYETHANE	3, 3°(β)	33	2252	3
DIMETHOXYMETHANE (METHYLAL)	3, 2°(β)	33	1234	3
DIMETHYLAMINE, άνυδρη	2, 3°(BT)	236	1032	3 + 6.1
DIMETHYLAMINE, υδατοδιαλύματα				
– με σημείο βρασμού όχι πάνω από 35° K	3, 22°(α)	338	1160	3 + 8
– με σημείο βρασμού όχι πάνω από 35° K	3, 22°(β)	338	1160	3 + 8
DIMETHYLAMINOACETONITRILE	6.1, 11°(β)	63	2378	6.1 + 3
DIMETHYLAMINOETHANOL: βλέπε DIMETHYLE-THANOLAMINE				
DIMETHYLAMINOETHYL METHACRYLATE	6.1, 11°(β)	69	2522	6.1
N,N-DIMETHYLANILINE	6.1, 11°(β)	60	2253	6.1
DIMETHYLBENZENES: βλ. XYLENES. άλφα, άλφα – DIMETHYLBENZYL HYDROPEROXIDE (CUMYL HYDROPEROXIDE) με περιεκτικότητα υπεροξειδίου όχι πάνω από 95 στα εκατό	5,2 10°	539	2116	5
1,3-DIMETHYBUTYLAMINE	3, 3°(β)	33	2379	3
N, N-DIMETHYLCARBAMOYL CHLORIDE	8, 36°(β)	80	2262	8
DIMETHYL CARBONATE	3, 3°(β)	33	1161	3
DIMETHYCYCLOHEXANES	3, 3°(β)	33	2263	3
N,N-DIMETHYLCYCLOHEXYLAMINE	8, 33°(β)	83	2264	8 + 3
DIMETHYLDICHLOROSILANE	3, 21°(α)	X338	1162	3 + 8
DIMETHYLDIETHOXYLANE	3, 3°(β)	33	2380	3
DIMETHYLDIOXANES				
– με σημείο αναφλέξεως κάτω από 21°K	3, 3°(β)	33	2707	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31°(γ)	30	2707	3
– με σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)	30	2707	–
DIMETHYL DISULPHIDE	3, 3°(β)	33	2381	3
DIMETHYLETHANOLAMINE (DIMETHYL-AMINOE-THANOL)	3, 31°(γ)	30	2051	3
DIMETHYL ETHER	2, 3°(β)	23	1033	3
N,N-DIMETHYLFORMAMIDE	3, 32°(γ)	30	2265	–
1,1-DIMETHYLHYDRAZINE	3, 23°(α)	338	1163	3 + 8
1,2-DIMETHYHYDRAZINE	3, 15°(α)	336	2382	3 + 6.1
DIMETHYL-N-PROPYLAMINE	3, 22°(β)	338	2266	3 + 8
DIMETHYL SULPHATE	6,1 13°(α)	66	1595	6.1
DIMETHYL SULPHIDE	3, 2°(β)	33	1164	3
DIMETHYL THIOPHOSPHORYL CHLORIDE	8, 36°(γ)	80	2267	8
DINITROANILINES	6.1 12°(β)	60	1596	6.1
DINITROBENZENES	6.1 12°(β)	60	1597	6.1
DINITRO-ORTHOCRESOL	6.1 75°(β)	60	1598	6.1
DINITROTOLUENES, στερεά	6.1 12°(β)	60	2038	6.1
DINITROTOLUENES, λυωμένα	6.1 12°(β)	60	1600	6.1
DIOXANE	3, 3°(β)	33	1165	3
DIOXOLANE	3, 3°(β)	33	1166	3
DIPENTENE	3, 31°(β)	30	2052	3
DIPHENYLDICHLOROSILANE	8, 37°(β)	80	1769	8
4,4'-DIPHENYLMETHANE DIISOCYANATE	6.1, 19°(γ)	60	2489	6.1A
DIPHENYLMETHYL BROMIDE	8, 65°(β)	80	1770	8
DIPROPYLAMINE	3, 22°(β)	338	2383	3 + 8
DIPROPYLENETRIAMINE: βλέπε BIS-AMINOPROPYL-AMINE				
DIPROPYL ETHER	3, 3°(β)	33	2384	3
DIPROPYL KETONE	3,31°(γ)	30	2710	3
DISULPHUR DICHLORIDE (S_2OL_2	8.21°(α)	88	1828	8
DITERTIARY BUTYL PEROXIDE	5.2, 1°	539	2102	5
DODECYLTRICHLOROSILANE	8.37°(β)	80	1771	8
ENAMELS (βερνίκια)				
– με σημείο αναφλέξεως κάτω από 21°K	3, 5°	33	1263	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3,31°(γ)+/	30	1263	3
– με σημείο αναφλέξεως πάνω από 55°K	3.32°(γ)+/	30	1263	–
ERIBROMOHYDRIN	6.1,16°(α)	66	2558	6.1
EPICHLOROHYDRIN	6.1.16°(β)	63	2523	6.1 + 3
1,2-EPOXY-3-ETHOXYPROPANE	3,31°(γ)	30	2752	3
ETHANE	2, 5°(B)	23	1035	+ +
ETHANE, υγρό, βαθειάς κατάψυξης	2, 7°(β)	223	1961	+ +
ETHANOL (ETHYL ALCOHOL) και τα υδατικά της διαλύματα περιέχοντα πάνω από 70 στα εκατό οινόπνευμα	3, 3°(β)	33	1170	3

(α)	(β)	(γ)	(δ)	(ε)
ETHANOL (ETHYL ALCOHOL) υδατικά διαλύματα από 24 στα εκατό μέχρι και 70 στα εκατό	3.31°(γ)	30	1170	3
+/Βλέπε, όμως, ΣΗΜΕΙΩΣΗ υπό Παράγραφο Δ του περιθωριακού 2301.				
ETHANOLAMINE και διαλύματά της	8.54°(γ)	80	2491	8
2-ETHOXYETHANOL (ETHYLENE GLYCOL MONOETHYL ETHER)	3.31°(γ)	30	1171	3
2-ETHOXYETHYL ACETATE (ETHYLENE GLYCOL MONOETHYL ETHER ACETATE)	3.31°(γ)	30	1172	3
ETHYL ACETATE	3. 3°(β)	33	1173	3
ETHYL ACRYLATE	3. 3°(β)	339	1917	3
ETHYL ALCOHOL: βλ. ETHANOL				
ETHYLAMINE, άνυδρη	2. 3°(BT)	236	1036	3 + 6.1
ETHYLAMINE, υδατοδιαλύματα				
– με σημείο βρασμού όχι πάνω από 35°K	3.22°(α)	338	2270	3 + 8
– με σημείο βρασμού πάνω από 35°K	3.22°(β)	338	2270	3 + 8
ETHYL AMYL KETONE	3.31°(γ)	30	2271	3
2-ETHYLANILINE	6.1.12°(γ)	60	2273	6.1A
N-ETHYLANILINE	6.1.12°(γ)	60	2272	6.1A
ETHYLBENZENE, τεχνική	3. 3°(β)	33	1175	3
N-ETHYL-N-BENZYLANILINE	6.1.12°(γ)	60	2274	6.1A
ETHYL BROMIDE	6.1.15°(β)	60	1891	6.1
ETHYL BROMOACETATE	6.1.16°(β)	63	1603	6.1 + 3
2-ETHYLBUTANOL	3.32°(γ)	30	2275	–
2-ETHYLBUTYL ACETATE	3.31°(γ)	30	1177	3
ETHYL BUTYL ETHER	3. 3°(β)	33	1179	3
ETHYL BUTYRATE	3.31°(γ)	30	1180	3
ETHYL CARBONATE: βλ. DIETHYL CARBONATE				
ETHYL CHLORIDE	2. 3°(BT)	236	1037	+ +
ETHYL CHLOROACETATE	6.1.16°(β)	63	1181	6.1 + 3
ETHYL CHLOROFORMATE	3.16°(α)	336	1182	3 + 6.1
ETHYL CROTONATE	3. 3°(β)	33	1862	3
ETHYL CYANOACETATE	6.1.12°(γ)	60	2666	6.1A
ETHYL DICHLOROSILANE	4.3. 4°(β)	X338	1183	4.3 + 3 + 8
ETHYLENE	2. 5°(β)	23	1962	3
ETHYLENE, υγρό, βαθειάς καταψύξεως	2. 7°(β)	223	1038	3
ETHYLENE CHLOROHYDRIN (2-CHLOROETHANOL)	6.1.16°(β)	60	1135	6.1
ETHYLENEDIAMINE	8.53°(β)	83	1604	8 + 3
ETHYLENE DIBROMIDE (SYM.-DIBROMOETHANE)	6.1.15°(β)	60	1605	6.1
ETHYLENE DICHLORIDE: βλέπε 1,2-DICHLOROETHANE				
ETHYLENE GLYCOL DIETHYL ETHER: βλ. 1,2-DIETHOXYETHANE				
ETHYLENE GLYCOL MONOBUTYL ETHER	6.1.13°(γ)	60	2369	6.1A
ETHYLENE GLYCOL MONOETHYL ETHER: βλ. 2-ETHOXYETHANOL				
ETHYLENE GLYCOL MONOETHYL ETHER ACETATE: βλέπε 2-ETHOXYETHYL ACETATE				
ETHYLENE GLYCOL MONOETHYL ETHER ACETATE:	3.31°(γ)	30	1189	3
ETHYLENEIMINE	3. 12°	336	1185	3 + 6.1
ETHYLENE OXIDE περιέχον όχι πάνω από 10 στα εκατό διοξείδιο του άνθρακα κατά μάζα	2, 4°(CT)	236	1041	3 +6.1
ETHYLENE OXIDE περιέχον πάνω από 10 στα εκατό αλλά όχι πάνω από 50 στα εκατό διοξείδιο του άνθρακα κατά μάζα	2, 6°(CT)	236	1041	3 +6.1
ETHYLENE OXIDE περιέχον διοξείδιο του άνθρακα: βλέπε Διοξείδιο του άνθρακα περιέχον ETHYLENE OXIDE				
ETHYLENE OXIDE με άζωτο	2, 4°(CT)	236	1040	3 + 6.1
ETHYL ETHER	3, 2°(α)	33	1155	3
ETHYL ρευστό	6.1, 31°(α)	66	1649	6.1
ETHYL FORMATE	3, 3°(β)	33	1190	3
2-ETHYL HELALDEHYDE	3, 31°(γ)	30	1191	3
2-ETHYLHEXYLAMINE	8, 53°(γ)	83	2276	8 + 3
2-ETHYLHEXYL CHLOROFORMATE	6.1, 16°(β)	68	2748	6.1 + 8
ETHYLIDENE CHLORIDE: βλέπε 1,1-DICHLOROETHANE				
ETHYL ISOBUTYRATE	3, 3°(β)	33	2385	3
ETHYL LACTATE	3, 31°(γ)	30	1192	3
ETHYL MERCAPTAN	3, 18°(β)	336	2363	3 + 6.1
ETHYL METHACRYLATE	3, 3°(β)	339	2277	3
ETHYL METHYL KETONE	3, 3°(β)	33	1193	3

(α)	(β)	(γ)	(δ)	(ε)
ETHYL ORTHOFORMATE	3, 31°(γ)	30	2524	3
ETHYL OXALATE	6.1, 13°(γ)	60	2525	6.1A
ETHYL PHENYL DICHLOROSILANE	8, 37°(β)	83	2435	8 + 3
1–ETHYLPIPERIDINE	3, 3°(β)	33	2386	3
ETHYL PROPRIONATE	3, 3°(β)	33	1195	3
ETHYL PROPYL ETHER	3, 3°(β)	33	2615	3
ETHYL SULPHIDE	3, 18°(β)	336	2375	3 + 6.1
ETHYLSULPHURIC ACID	8, 34°(β)	80	2571	8
ETHYLTOLUIDINES	6.1, 12°(β)	60	2754	6.1
ETHYLTRICHLOROSILANE	3, 21°(α)	X338	1196	3 + 8
FERRIC CHLORIDE (IRON TRICHLORIDE) άνυδρο ($FECL_3$)	8, 22°(γ)	80	1773	8
FERRIC CHLORIDE (IRON TRICHLORIDE) υδατοδιαλύματα	8, 5°(γ)	80	2582	8
FLUOBORIC ACID. υδατοδιαλύματα περιέχον όχι πάνω από 78 στα εκατό καθαρό οξύ (HBF_4)	8, 8°(β)	80	1775	8
FLUOROBENZENE	3, 3°(β)	33	2387	3
FLUOROPHOSPHORIC ACID, άνυδρο	8, 10°(β)	80	1776	8
FLUOROSULPHONIC ACID	8, 10°(α)	88	1777	8
FLUOROTOLUENES	3, 3°(β)	33	2388	3
FLUOROSILICIC ACID (HYDROFLUOSILICIC ACID) (H_2SIF_6)	8, 9°(β)	80	1778	8
FORMALDEHYDE. υδατοδιαλύματα (π.χ. FORMALIN), περιέχουσα όχι πάνω από 5 στα εκατό FORMALDEHYDE, περιέχουσα επίσης όχι πάνω από 35% μεθανόλη				
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	8, 63°(γ)	83	1198	8 + 3
– με σημείο αναφλέξεως πάνω από 55°K	8, 63°(γ)	80	2209	8
FORMIC ACID περιέχον πάνω από 70 στα εκατό καθαρό οξύ	8,32°(β)	80	1779	8
FORMIC ACID περιέχον από 50 μέχρι 70 στα εκατό καθαρό οξύ	8,32°(γ)	80	1779	8
FUMARYL CHLORIDE	8,36°(β)	80	1780	8
FURAN	3, 1°(α)	33	2389	3
FURFUAL (FURFURALDEHYDE)	3,32°(γ)	30	1199	–
FURFURYLAMINE	8,53°(γ)	83	2526	8 + 3
FURFURYL ALCOHOL	6.1,13°(γ)	60	2874	6.1A
Μίγμα αερίου R 500	2, 4°(α)	20	2602	–
Μίγμα αερίου R 502	2, 4°(α)	20	1973	–
Μίγμα αερίου R 503	2, 6°(α)	20	2599	–
GLUCEROL άλφα-MONOCHLORYDRIN (3-CHLOROPROPANE-1,2-DIOL)	6.1,17°(γ)	60	2689	6.1A
GLYCIDALDEHYDE	6.1,13°(β)	63	2622	6.1 + 3
HELIUM, υγρό, βαθειάς καταψύξεως	2, 7°(α)	22	1963	–
HEPTANES	3, 3°(β)	33	1206	3
HEPTENES	3, 3°(β)	33	2278	3
HEXACHLOROACETONE	6.1,17°(γ)	60	2661	6.1A
HEXACHLOROBENZENE	6.1,17°(γ)	60	2729	6.1A
HEXACHLOROBUTADIENE	6.1,17°(γ)	60	2279	6.1A
HEXACHLOROCYCLOPENTADIENE	6.1,17°(α)	66	2646	6.1
HEXADECYLTRICHLOROSILANE	8,37°(β)	80	1781	8
HEXADIENES	3, 3°(β)	33	2458	3
HEXAFLUOROACETONE HYDRATE	6.1,17°(β)	60	2552	6.1
HEXAFLUOROETHANE (R 116)	2, 5°(α)	20	2193	–
HEXAFLUOROPHOSPHORIC ACID	8,10°(β)	80	1782	8
HEXAFLUOROPROPYLENE (R 1216)	2, 3°(AT)	26	1858	+ +
HEXALDEHYDE	3,31°(γ)	30	1207	3
HEXAMETHYLENEDIAMINE	8,52°(γ)	80	2280	8
HEXAMETHYLENEDIAMINE διαλύματα	8,53°(β)	80	1783	8
HEXAMETHYLEN E DIISOCYANATE	6.1,19°(β)	60	2281	6.1
HEXAMETHYLENEIMINE	3,32°(β)	338	2493	3 + 8
HEXANES	3, 3°(β)	33	1208	3
I–HEXANE	3, 3°(β)	33	2370	3
HEXYLTRICHLOROSILANE	8,37°(β)	80	1784	8
HYDRAZINE, υδατοδιαλύματα, περιέχοντα όχι πάνω από 64 στα εκατό HYDRAZINE	8,44°(β)	86	2030	8 + 6.1
HYDRIODIC ACID, διαλύματα	8, 5°(β)	80	1787	8
HYDROBROMIC ACID, διαλύματα	8, 5°(β)	80	1788	8
Υδρογονάνθρακες, υγροί, καθαροί ή σε μίγματα, που δεν καθορίζονται διαφορετικά στο παρόν Παράτημα				
– με σημείο αναφλέξεως κάτω από 21°K	3, 3°(β)	33	1203	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3,31°(γ)	30	1223	3
– με σημείο αναφλέξεως πάνω από 55°K	3,32°(γ)	30	1202	–

(α)	(β)	(γ)	(δ)	(ε)
HYDROCHLORIC ACID, διαλύματα	8, 5°(β)	80	1789	8
HYDROCYANIC ACID, υδατοδιαλύματα περιέχοντα όχι πάνω από 20 στα εκατό καθαρό οξύ	6.1, 2°	663	1613	6.1 + 3
HYDROFLUORIC ACID και SULPHURIC ACID, μίγματα	8, 7°(α)	886	1786	8 + 6.1
HYDROFLUORIC ACID άνυδρο (HYDROGEN FLUORIDE)	8, 6°	886	1052	8 + 6.1
HYDROFLUORIC ACID υδατοδιαλύματα, περιέχοντα πάνω από 85 στα εκατό άνυδρο υδροφθορικό οξύ	8, 6°	886	1790	8 + 6.1
HYDROFLUORIC ACID υδατοδιαλύματα, περιέχοντα πάνω από 60 στα εκατό αλλά όχι πάνω από 85 στα εκατό άνυδρο υδροφθορικό οξύ	8, 7°(α)	886	1790	8 + 6.1
HYDROFLUORIC ACID υδατοδιαλύματα, περιέχοντα πάνω από 60 στα εκατό άνυδρο υδροφθορικό οξύ	8, 7°(β)	886	1790	8 + 6.1
HYDROFLUOSILICIC ACID: βλέπε FLUOSILICIC ACID				
HYDROGEN, υγρό, βαθειάς καταψύξεως	2, 7°(β)	223	1966	+ +
HYDROGEN, BROMIDE	2, 3°(AT)	286	1048	8 + 6.1
HYDROGEN, CHLORIDE	2, 5°(AT)	286	1050	8 + 6.1
HYDROGEN, FLUORIDE: βλέπε HYDROFLUORIC ACID, άνυδρο				
HYDROGEN PEROXIDE, σταθεροποιημένο και σε υδατοδιαλύματα περιέχοντα πάνω από 60 στα εκατό HYDROGEN PEROXIDE, σταθεροποιημένο	5.1, 1°	559	2015	5
HYDROGEN PEROXIDE, υδατοδιαλύματα περιέχοντα όχι κάτω από 20 στα εκατό αλλά όχι πάνω από 60 στα εκατό HYDROGEN PEROXIDE,	8,62°(β)	85	2014	8 + 5
HYDROGEN PEROXIDE, υδατοδιαλύματα περιέχοντα όχι κάτω από 8 στα εκατό αλλά κάτω από 20 στα εκατό HYDROGEN PEROXIDE,	8,62°(β)	85	2984	8 + 5
HYDROGEN SULPHIDE,	2, 3°(BT)	236	1053	3 + 6.1
HYDROGEN SULPHIDES, υδατοδιαλύματα που δεν καθορίζονται διαφορετικά στο παρόν Παράρτημα	8,45°(γ)	80	1719	8
HYDROQUINONE	6.1,14°(γ)	60	2662	6.1A
βήτα-HYDROXYBUTYRALDEHYDE: βλέπε ALDOL				
HYDROXYLAMINE SULPHATE	8,27°(γ)	80	2865	8
HYPOCHLORITE, διαλύματα περιέχοντα όχι λιγότερο από 16 στα εκατό διαθέσιμη χλωρίνη	8,61°(β)	85	1791	8
HYPOCHLORITE, διαλύματα περιέχοντα πάνω από 5 στα εκατό αλλά κάτω από 16 στα εκατό διαθέσιμη χλωρίνη	8,61°(γ)	85	1791	8
3,3'-IMINO-BIS-PROPYLAMINE: βλ. BIS-AMINOPROPYLAMINE				
IRON PENTACARBONYL	6.1, 3°	663	1994	6.1 + 3
IRON TRICHLORIDE: βλέπε FERRIC CHLORIDE				
ISOAMYL FORMATE	3, 31°(γ)	30	1109	3
ISOBUTANE	2, 3°(β)	23	1969	3
ISOBUTANOL: βλ. ISUBUTYL ALCOHOL				
ISOBUTENE: βλ. ISOBUTYLENE				
ISOBUTYL ACETATE	3, 3°(β)	33	1213	3
ISOBUTYL ACRYLATE	3, 31°(γ)	39	2527	3
ISOBUTYL ALCOHOL (ISOBUTANOL)	3, 31°(γ)	30	1212	3
ISOBUTYLAMINE	3, 22°(β)	338	1214	3 + 8
ISOBUTYLENE (ISOBUTENE)	2, 3°(β)	23	1055	3
ISOBUTYLENE TRIMER: βλέπε TRIISOBUTYLENE				
ISOBUTYL FORMATE	3, 3°(β)	33	2393	3
ISOBUTYL ISOBUTYRATE	3, 31°(γ)	30	2528	3
ISOBUTYL ISOCYANATE	3, 14°(β)	336	2486	3 + 6.1
ISOBUTYL METHACRYLATE	3, 31°(γ)	39	2283	3
ISOBUTYL PROPIONATE	3, 31°(γ)	30	2394	3
ISOBUTYRALDEHYDE	3, 3°(β)	33	2045	3
ISOBUTYRIC ACID	8, 32°(γ)	80	2595	8
ISOBUTYRIC ANHYDRIDE	8, 32°(γ)	80	2530	8
ISOBUTYRONITRILE	3, 11°(β)	336	2284	3 + 6.1
ISOBUTYRYL CHLORIDE	3, 25°(β)	338	2395	3 + 8
ISOCYANATES, διαλύματα, με σημείο αναφλέξεως κάτω από 21°K	3, 14°(β)	336	2478	3 + 6.1
ISOCYANATOBENZOTRIFLUORIDES	6.1, 18°(β)	60	2285	6.1
3-ISOCYANATOMETHYL-3,5, 5- TRIMETHYLCYCLOHEXYL ISOCYANATE: βλέπε ISOPHORONE DIISOCYANATE				
ISODODECANE: βλ. PENTAMETHYLHEPTANE				
ISOPENTANE	3, 1°(α)	33	1265	3

(α)	(β)	(γ)	(δ)	(ε)
ISOPHORONEDIAMINE	8, 53°(γ)	80	2289	8
ISOPHORONE DIISOCYANATE (3- ISOCYANATOMETHYL -3,5,5- TRIMETHYLCYCLOHEXYL ISOCYANATE)	6.1, 19°(γ)	60	2290	6.1A
ISOPRENE	3, 2°(α)	339	1218	3
ISOPROPANOL (ISOPROPYL ALCOHOL)	3, 3°(β)	33	1219	3
ISOPROPENYL ACETATE	3, 3°(β)	33	2403	3
ISOPROPYL ACETATE	3, 3°(β)	33	1220	3
ISOPROPYL ACID PHOSPHATE	8, 38°(γ)	80	1793	8
ISOPROPYL ALCOHOL: βλ. ISOPROPANOL ISOPROPYLAMINE	3, 22°(α)	338	1221	3 + 8
ISOPROPYLBENZENE: βλ. CUMENE				
ISOPROPYL BUTYRANE	3, 3°(β)	33	2405	3
ISOPROPYCHLORIDE: βλ. 2-CHLOROPROPANE				
ISOPROPYL CUMYL HYDROPEROXIDE: βλ. DIISOPROPYLBENZENE HYDROPEROXIDE ISOPROPYLETHYLENE: βλ. 3-METHYL-I-BUTENE ISOPROPYL				
ISOBUTYRATE	3, 3°(β)	33	2406	3
ISOPROPYL ISOCYANATE	3, 14°(α)	336	2483	3 + 6.1
ISOPROPYL NITRATE	3, 3°(β)	33	1222	3
ISOPROPYL PROPIONATE	3, 3°(β)	33	2409	3
KRYPTON, υγρό, βαθειάς κατάψυξης	2, 7°(α)	22	1970	-
LEAD ACETATE	6.1, 62°(γ)	60	1616	6.1A
LEAD ALKYLS με αλογονομένες οργανικές ενώσεις, μίγματα	6.1, 31°(α)	66	1649	6.1
LEAD ενώσεις, πού δεν καθορίζονται διαφορετικά, στο παρόν Παράρτημα	6.1, 62°(γ)	60	2291	6.1A
LEAD SULPHATE περιέχον 3 στα εκατό ή περισσότερα ελεύθερα θειϊκό οξύ	8, 23°(β)	80	1794	8
LITHIUM HYDROXIDE	8, 41°(β)	80	2680	8
MAGNESIUM ARSENATE	6.1, 51°(β)	60	1622	6.1
MALEIC ANHYDRIDE	8, 31°(γ)	80	2215	8
MALONONITRILE	6.1, 12°(β)	60	2647	6.1
p-METHANYL HYDROPEROXIDE με περιεκτικότητα υδροπεροξειδίου μη υπερβαίνουσα το 95 στα εκατό	5.2, 14°	539	2125	5
MERCAPTOETHANOL (THIOGLYCOL)	6.1 20°(β)	60	2966	6.1
MERCURIC CHLORIDE	6.1, 52°(β)	60	1624	6.1
MERCURY ACETATE	6.1, 52°(β)	60	1629	6.1
MESITYLENE (1,3,5-TRIMETHYL- BENZENE)	3, 31°(γ)	30	2325	3
MESITYL OXIDE	3, 31°(γ)	30	1229	3
METHACRYLALDEHYDE	3,17°(β)	336	2396	3 + 6.1
RETHACRYLIC ACID	8, 32°(γ)	89	2531	8
METHALLYL ALCOHOL	3, 31°(γ)	30	2614	3
METHANE, υγρό βαθειάς καταψύξεως	2, 7°(β)	223	1972	3
METHANOL (METHYL ALCOHOL)	3, 17°(β)	336	1230	3 + 6.1
METHOXYBUTYL ACETATE, βλ. BUTUXYL 4- METHOXY -4- METHYLPENTAN -2- ONE	3, 31°(γ)	30	2293	3
METHOXYETHANOL	3, 31°(γ)	30	1188	3
METHOXYMETHYL ISOCYNATE	3, 14°(α)	336	2605	3 + 6.1
METHYL ACETATE	3, 3°(β)	33	1231	3
METHYL ACRYLATE	3, 3°(β)	339	1919	3
METHYLAL: βλ. DIMETHOXYMETHANE				
METHYL ALCOHOL: βλ. METHANOL				
METHYL ALLYL CHLORIDE	3, 3°(β)	33	2554	3
METHYLAMINE, άνυδρη	2, 3°(BT)	236	1061	+ +
METHYLAMINE, υδατοδιαλύματα				
-με σημείο βρασμού όχι πάνω από 35°K	3, 22°(α)	338	1235	3 + 8
-με σημείο βρασμού πάνω από 35°K	3, 22°(β)	338	1235	3 + 8
METHYL AMYL ACETATE	3, 31°(γ)	30	1233	3
METHYL AMYL ALCOHOL (METHYL ISOBUTYL CARBINOL)	3, 31°(γ)	30	2053	3
N-METHYLANILINE	6.1, 11°(γ)	60	2294	6.1A
METHYL BROMIDE	2, 3°(AT)	26	1062	6.1
METHYL BROMOACETATE	6.1, 16°(β)	63	2643	6.1 + 3
3-METHYL BUTAN-2-ONE	3, 3°(β)	33	2397	3
I–METHYL–I–BUTENE	3, 1°(α)	33	2459	3
3–METHYL–I–BUTENE (ISOPROPYLETHYLENE)	3, 1°(α)	33	2561	3
2–METHYL–2–BUTENE	3, 2°(β)	33	2460	3
METHYL TERT – BUTYL ETHER	3, 3°(β)	33	2398	3
METHYL BUTYRATE	3, 3°(β)	33	1237	3
METHYL CHLORIDE	2, 3°(BT)	236	1063	3 + 6.1

(α)	(β)	(γ)	(δ)	(ε)
METHYL CHLOROACETATE	6.1, 16°(β)	63	2295	6.1 + 3
METHYL CHLOROFORMATE	3, 16°(α)	336	1238	3 + 6.1
METHYL CHLOROMETHYL ETHER	3, 16°(β)	336	1239	3 + 6.1
METHYLCYCLOHEXANE	3, 3°(β)	33	2296	3
METHYLCYCLOHEXANONE	3, 31°(γ)	30	2297	3
METHYLCYCLOPENTANE	3, 3°(β)	33	2298	3
METHYL DICHLOROACETATE	6.1, 16°(γ)	60	2299	6.1A
METHYLDICHLOROSILANE	4.3, 4°(β)	X338	1242	4.3 + 3 + 8
METHYLENE BROMIDE (DIBROMOMETHANE)	6.1, 15°(γ)	60	2664	6.1A
METHYLENE CHLORIDE (DICHLOROMETHANE)	6.1, 15°(γ)	60	1593	6.1A
5-METHYL-5-ETHYL PYRIDINE	6.1, 11°(γ)	60	2300	6.1A
METHYL FORMATE	3, 1°(α)	33	1243	3
2-METHYLFURAN	3, 3°(β)	33	2301	3
5-METHYLHEXAN-2-ONE	3, 31°(γ)	30	2302	3
METHYLHYDRAZINE	3, 23°(α)	338	1244	3 + 8
METHYL IODIDE	6.1, 15°(β)	60	2644	6.1
METHYL ISOBUTYL CARBINOL: βλ. METHYL AMYL ALCOHOL				
METHYL ISOBUTYL KETONE	3, 3°(β)	33	1245	3
METHYL ISOPROPYL BENZENES: βλέπε CYMENES				
METHYL ISOTHIOCYANATE	6.1, 20°(γ)	63	2477	6.1A + 3
METHYL ISOVALERATE	3, 3°(β)	33	2400	3
METHYL MERCAPTAN	2, 3°(BT)	236	1064	6.1 + 3
METHYL METHACRYLATE	3, 30°(β)	339	1247	3
METHYLMORPHOLINES				
– με σημείο αναφλέξεως κάτω από 21°K	3, 22°(β)	338	2535	3 + 8
– με σημείο αναφλέξεως 21°K και πάνω	8, 53°(β)	83	2535	8 + 3
METHYL ORTHOSILICATE (TETRAMETHOXYSILANE)	3, 17°(α)	336	2606	3 + 6.1
METHYLPENTADIENES	3, 3°(β)	33	2461	3
3-METHYL-2-PENTENE-4-YNE-1-OI: βλέπε 1-PENTOL				
METHYLPHENYLDICHLOROSILANE	8, 37°(β)	83	2437	8 + 3
1-METHYL PIPERIDINE	3, 3°(β)	33	2399	3
METHYL PROPIONATE	3, 3°(β)	33	1248	3
METHYL PROPYL ETHER	3, 2°(β)	33	2612	3
METHYL PROPYL KETONE	3, 3°(β)	33	1249	3
METHYLPIRIDINES: βλ. PICOLINES				
άλφα-METHYLSTYRENE	3, 31°(γ)	30	2303	3
METHYLTETRAHYDROFURAN	3, 3°(β)	33	2536	3
METHYL TRICHLOROACETATE	6.1, 16°(γ)	60	2533	6.1A
METHYLTRICHLOROSILANE	3, 21°(α)	X338	1250	3 + 8
2-METHYL VALERALDEHYDE	3, 3°(β)	33	2367	3
2-METHYL VINYL ETHER	2, 3°(ΨΤ)	236	1087	+ +
2-METHYL VINYL KETONE	3, 3°(β)	339	1251	3
Μίγματα F1, F2 και F3	2, 4°(α)	20	1078	–
Μίγματα 1, 3 BUTADIENE και υδρογονανθράκων	2, 4°(γ)	239	1010	– +
Μίγματα καυστικής σόδας και σβυσμένης ασβέστου: βλέπε SODA LIME				
Μίγματα υδρογονανθράκων (υγροποιημένο αέριο) (Μίγματα A, AO, A1, B και 1)	2, 4°(β)	23	1965	3
Μίγματα METHYLACETYLENE και PROPADIENE με υδρογονάνθρακες (Μίγματα P1 και P2)	2, 4°(γ)	239	1060	3
Μίγματα METHYL BROMIDE και CHLOROPICRIN (υγροποιημένο αέριο)	2, 4°(AT)	26	1581	– :
Μίγματα METHYL CHLORIDE και CHLOROPICRIN (υγροποιημένο αέριο)	2, 4°(BT)	236	1582	+ :
Μίγματα METHYL CHLORIDE και METHYLENE CHLORIDE (υγροποιημένο αέριο)	2, 4°(BT)	236	1912	+ :
Μίγματα SULPHURIC ACID και πάνω από 30 στα εκατό καθαρό νιτρικό οξύ	8, 3°(α)	885	1796	8
Μίγματα θειϊκού οξέος και όχι πάνω από 30 στα εκατό νιτρικό	8, 3°(β)	88	1796	8
MOLYBDENUM PENTACHLORIDE ($MoCl_5$)	8, 22°(γ)	80	2508	8
MONOCHLOROACETIC ACID, στερεό: βλ. CHLOROACETIC ACID, στερεό				
MONOCHLOROACETIC ACID σε λυωμένη κατάσταση: βλέπε CHLOROACETIC ACID, σε λυωμένη κατάσταση				
MONOCHLOROACETIC ACID διαλύματα: βλ. CHLOROACETIC ACID, διαλύματα:				
MONOCHLOROACETONITRILE	6.1, 11°(β)	60	2668	6.1
MONOCHLOROANILINES, υγρό	6.1, 12°(β)	60	2019	6.1

(α)	(β)	(γ)	(δ)	(ε)
MONOCHLOROANILINES, στερεό	6.1, 12°(β)	60	2018	6.1
MONONITROANILINES,	6.1, 12°(β)	60	1661	6.1
MONONITROTOLUENES,	6.1, 12°(β)	60	1664	6.1
MORPHOLINE	3, 31°(γ)	30	2054	3
NAPHTHALENE σε λυωμένη κατάσταση	4.1, 11°(γ)	44	2304	4.1
βήτα NAPHTHALAMINE	6.1, 12°(β)	60	1650	6.1
NATURAL GAS (φυσικό αέριο) υγρό, βαθειάς κατάψυξης	2, 8°(β)	223	1972	3
NEON, υγρό, βαθειάς κατάψυξης	2, 7°(α)	22	1913	–
NICKEL TETRAVARBONYL	6.1, 3°	663	1259	6.1+3
NICOTINE SYLPHATE	6.1, 77°(β)	60	1658	6.1
NITRATING ACID μίγματα	8, 3°(β)	80	1826	8
NITRIC ACID ερυθμός ατμός	8, 2°(α)	856	2032	8
NITRIC ACID περιέχον πάνω από 70 στα εκατό καθαρό νιτρικό οξύ	8, 2°(α)	885	2032	8
NITRIC ACID, μίγματα με θειϊκό οξύ: βλέπε Μίγματα θειϊκού οξέος και νιτρικού οξέος				
NITROANISOLES	6.1, 12°(γ)	60	2730	6.1A
NITROBENZENE	6.1, 12°(β)	60	1662	6.1
NITROBENZENESULPHONIC ACID	8, 34°(β)	80	2305	8
NITROBENZOTRIFLUORIDES	6.1, 12°(β)	60	2306	6.1
NITROBROMOBENZENES	6.1, 12°(γ)	60	2732	6.1A
NITROCELLULOSE διαλύματα: βλ. COLLODIONS, διαλύματα				
3-NITRO-4-CHLOROBENZOTRI-FLUORIDE	6.1, 12°(β)	60	2307	6.1
NITROCRESOLS	6.1, 12°(γ)	60	2446	6.1A
NITROETHANE	3, 31°(γ)	30	2842	3
NITROGEN υγρό, βαθειάς καταψύξεως	2, 7°(α)	22	1977	–
NITROGEN DIOXIDE NO_2 (NITROGEN PEROXIDE, NITROGEN TETROXIDE N_2O_4)	2, 3°(AT)	265	1067	5–6.1
NITROPHENOLS	6.1, 12°(γ)	60	1663	6.1A
NITROPROPANES	3, 31°(γ)	30	2608	3
NITROSYLSULPHURIC ACID	8, 1°(β)	88	2308	8
NITROUS OXIDE N_2O	2, 3°(α)	25	1070	5
NITROUS OXIDE N_2O,βαθειάς καταψύξεως	2, 7°(α)	225	2201	5
NITROXYLENES	6.1, 12°(β)	60	1665	6.1
NONANE	3, 31°(γ)	30	1920	3
NONYLTRICHLOROSILANE	8, 37°(β)	80	1799	8
OCTADECYLTRICHLOROSILANE	8, 37°(β)	80	1800	8
OCTADIENES				
– με σημείο αναφλέξεως κάτω από 21°K	3, 3°(β)	33	2309	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31°(γ)	30	2309	3
OCTAFLUOROCYCLOBUTANE (RC 318)	2, 3°(α)	20	1976	–
OCTANES	3, 3°(β)	33	1262	3
OCTYLTRICHLOROSILANE	8, 37°(β)	83	1801	8 + 3
OLEUM (Πυροθειϊκό οξύ)	8, 1°(α)	X886	1831	8 + 6.1
OXALATES, διαλυτά στο νερό	6.1, 67°(γ)	60	2449	6.1A
ΟΞΥΓΟΝΟ, υγρό, βαθείας καταψύξεως	2, 7°(α)	225	1073	5
PAINTS (χρώματα)				
– με σημείο αναφλέξεως κάτω από 21°K	3, 5	33	1263	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31(γ)±/	30	1263	3
– με σημείο αναφλέξεως πάνω από 55°K	3, 32(γ)±/	30	1263	–
PARALDEHYDE	3, 31°(γ)	30	1264	3
PENTACHLOROETHANE	6.1, 15°(β)	60	1669	6.1
PENTAMETHYLHEPTANE (ISODODECANE)	3, 31°(γ)	30	2286	3
PENTAN–2, 4–DIONE (ACETYL ACETON)	3, 31°(γ)	30	2310	3
PENTANE, κανονική	3, 2°(β)	33	1265	3
I–PENTEN E: βλέπε AMYLENE, κανονική				
I–PENTOL (3–METHYL–2–PENTENE–4YNE–I–01)	8, 66°(β)	80	2705	8
±/Βλέπε, όμως, ΣΗΜΕΙΩΣΗ της παραγράφου Δ του περιθωριακού 2301.				
PERCHLORIC ACID, υδατοδιαλύματα περιέχοντα πάνω από 50 στα εκατό αλλά όχι πάνω από 72.5 στα εκατό καθαρό οξύ ($HClO_4$)	5.1, 3°	558	1873	5 + 8
PERCHLORIC ACID, υδατοδιαλύματα περιέχοντα πάνω από 50 στα εκατό καθαρό οξύ ($HClO_4$)	8, 4°	85	1802	8
PERCHLOROETHYLENE: βλέπε TETRACHLOROETHYLENE				
PERCHLOROMETHYLMERCAPTAN	6.1, 16°(α)	66	1670	6.1
PESTICIDES (ζιζανιοκτόνα) οργανοφωσφορικές ενώσεις–	6.1, 71°(α)	66	2783	6.1
– στερεά	6.1, 71°(β)	60	2783	6.1
	6.1, 71°(γ)	60	2783	6.1
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2784	3 + 6.1
	6°	33	2784	3 + 6.1A

(α)	(β)	(γ)	(δ)	(ε)
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 71°(α)	663	3017	6.1 + 3
	71°(β)	63	3017	6.1 + 3
	71°(γ)	63	3017	6.1A + 3
PESTICIDES, χλωρισμένοι υδρογονάνθρακες,				
– στερεά	6.1, 72°(α)	66	2761	6.1
	72°(β)	60	2761	6.1
	72°(γ)	60	2761	6.1
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2762	3 + 6.1
	6°	33	2762	3 + 6.1A
– υγρά, με σημείο αναφλέξεως 21°K – 55°K	6.1, 72°(α)	663	2995	6.1 + 3
	72°(β)	63	2995	6.1 + 3
	72°(γ)	63	2995	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 72°(α)	66	2996	6.1
	72°(β)	60	2996	6.1
	72°(γ)	60	2996	6.1A
PESTICIDES, Χλωρο-φαινοξυοξικά παράγωγα				
– στερεά	6.1, 73°(α)	66	2765	6.1
	73°(β)	60	2765	6.1
	73°(γ)	60	2765	6.1A
– υγρά με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2766	3 + 6.1
	6°	33	2766	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 73°(α)	663	2999	6.1 + 3
	73°(β)	63	2999	6.1 + 3
	73°(γ)	63	2999	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 73°(α)	66	3000	6.1
	73°(β)	60	3000	6.1
	73°(γ)	60	3000	6.1A
– PESTICIDES, CARBAMATES				
– στερεά	6.1, 76°(α)	66	2757	6.1
	76°(β)	60	2757	6.1
	76°(γ)	60	2757	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2758	3 + 6.1
	6°	33	2758	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 76°(α)	663	2991	6.1 + 3
	76°(β)	63	2991	6.1 + 3
	76°(γ)	63	2991	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 76°(α)	66	2992	6.1
	76°(β)	60	2992	6.1
	76°(γ)	60	2992	6.1A
– PESTICIDES, THIOCARBAMATES	6.1, 76°(α)	66	2771	6.1
	76°(β)	60	2771	6.1
	76°(γ)	60	2771	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2772	3 + 6.1
	6°	33	2772	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 76°(α)	663	3005	6.1 + 3
	76°(β)	63	3005	6.1 + 3
	76°(γ)	63	3005	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 76°(α)	66	3006	6.1
	76°(β)	60	3006	6.1
	76°(γ)	60	3006	6.1A
PESTICIDES, ORGANOTIN COMPOUNDS				
– στερεά	6.1, 79°(α)	66	2786	6.1
	79°(β)	60	2786	6.1
	79°(γ)	60	2786	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2787	3 + 6.1
	6°	33	2787	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 79°(α)	663	3019	6.1 + 3
	79°(β)	63	3019	6.1 + 3
	79°(γ)	63	3019	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 79°(α)	66	3020	6.1
	79°(β)	60	3020	6.1
	79°(γ)	60	3020	6.1A
– PESTICIDES, παράγωγα του BIPYRIDYL	6.1, 82°(α)	66	2781	6.1
	82°(β)	60	2781	6.1
	82°(γ)	60	2781	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2782	3 + 6.1
	6°	33	2782	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 82°(α)	663	3015	6.1 + 3
	82°(β)	63	3015	6.1 + 3
	82°(γ)	63	3015	6.1A + 3

(α)	(β)	(γ)	(δ)	(ε)
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 82°(α)	66	3016	6.1
	82°(β)	60	3016	6.1
	82°(γ)	60	3016	6.1A
PESTICIDES, ανόργανες ενώσεις αρσενικού				
– στερεά	6.1, 84°(α)	66	2759	6.1
	84°(β)	60	2759	6.1
	84°(γ)	60	2759	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2760	3 + 6.1
	6°	33	2760	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 84°(α)	663	2993	6.1 + 3
	84°(β)	63	2993	6.1 + 3
	84°(γ)	63	2993	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 84°(α)	66	2994	6.1
	84°(β)	60	2994	6.1
	84°(γ)	60	2994	6.1A
PESTICIDES, ανόργανες ενώσεις υδραργύρου				
– στερεά	6.1, 86°(α)	66	2777	6.1
	86°(β)	60	2777	6.1
	86°(γ)	60	2777	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2778	3 + 6.1
	6°	33	2778	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 86°(α)	663	3011	6.1 + 3
	86°(β)	63	3011	6.1 + 3
	86°(γ)	63	3011	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, 86°(α)	66	3012	6.1
	86°(β)	60	3012	6.1
		60	3012	6.1A
PESTICIDES, ανόργανες ενώσεις χαλκού				
– στερεά	6.1, 87°(α)	66	2775	6.1
	87°(β)	60	2775	6.1
	87°(γ)	60	2775	6.1A
– υγρά, με σημείο αναφλέξεως κάτω από 21°K	3, 19°	336	2776	3 + 6.1
	6°	33	2776	3 + 6.1A
– υγρά, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, 87°(α)	663	3009	6.1 + 3
	87°(β)	63	3009	6.1 + 3
	87°(γ)	63	3009	6.1A + 3
– υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1,87°(α)	66	3010	6.1
	87°(β)	60	3010	6.1
		60	3010	6.1A
PHENACYL BROMIDE (ωμέγα - BROMOACE–TO-PHENONE)	6.1,17°(β)	60	2645	6.1
PHENACYL CHLORIDE (ωμέγα -CHLOROACETOP-HENONE)	6.1,17°(β)	60	1697	6.1
PHENETIDINES	6.1,12°(γ)	60	2311	6.1A
PHENOL σε λυωμένη κατάσταση	6.1,13°(β)	68	2312	6.1
PHENOL διαλύματα	6.1,13°(β)	68	2821	6.1
PHENOSULPHONIC ACID, υγρό	8,34°(β)	80	1803	8
PHENYLACETONITRILE: βλ. BENZYL CYANIDE				
PHENYLACETYL CHLORIDE	8,36°(β)	80	2577	8
PHENYLCARBYLAMINE CHLORIDE	6.1,17°(α)	66	1672	6.1
PHENYL CHLORIDE: βλέπε CHLOROBENZENE				
PHENYLCHLOROFORMATE	6.1,16°(β)	68	2746	6.1 + 8
PHENYLENEDIAMINES	6.1,12°(γ)	60	1673	6.1A
PHENYLHYDRAZINE	6.1,12°(β)	60	2572	6.1
PHENYL ISOCYANATE	6.1,18°(β)	63	2487	6.1 + 3
PHENYL METHYL ETHER (ANISOLE)	3,31°(γ)	30	2222	3
PHENYL PHOSPHORUS DICHLORIDE	8,36°(β)	80	2798	8
PHENYLTHIOPHOSPHORYL DICHLORIDE	8,36°(β)	80	2799	8
PHENYLTRICHLOROSILANE	8,37°(β)	80	1804	8
PHOSGENE	2, 3°(AT)	266	1076	5 + 6.1
PHOSPHORIC ACID	8,11°(γ)	80	1805	8
PHOSPHORIC ACID, άνυδρο: βλέπε PHOSPHOROUS PENTOXIDE				
PHOSPHOROUS, λευκός & κίτρινος				
– σε λυωμένη κατάσταση	4.2, 1°	446	2447	4.2
– στερεός	4.2, 1°	46	1381	4.2
PHOSPHOROUS OXYBROMIDE ($POBr_3$)	8,22°(β)	80	1939	8
PHOSPHOROUS OXYBROMIDE ($POBr_3$), λυωμένος	8,22°(β)	80	2576	8
PHOSPHOROUS OXYCHLORIDE (PHOSPHORYL CH-LORIDE ($POCl_3$)	8,21°(β)	80	1810	8
PHOSPHOROUS PENTACHLORIDE (PCl_5)	8,22°(β)	80	1806	8
PHOSPHOROUS PENTASULPHIDE	4.1, 8°	40	1340	4.1

(α)	(β)	(γ)	(δ)	(ε)
PHOSPHOROUS PENTOXIDE (φωσφορικό οξύ, άνυδρο)	8,27°(β)	80	1807	8
PHOSPHOROUS SESQUISULPHIDE	4.1, 8°	40	1341	4.1
PHOSPHOROUS TRIBROMIDE (PBR_3)	8,21°(β)	80	1808	8
PHOSPHOROUS TRICHLORIDE (PCL_3)	8,21°(β)	80	1809	8
PHOSPHORYL, CHLORIDE: βλέπε PHOSPHORUS OXYCHLORIDE				
PHTHALIC ANYDRIDE	8,31°(γ)	80	2214	8
PICOLINES (METHYLPYRIDINES)	3,31°(γ)	30	2313	3
PINANE HYDROPEROXIDE (PINANYL HYDROPEROXIDE): βλέπε 2,6,6–TRIMETHYL NORPINANYL HYDROPEROXIDE				
άλφα–PINENE	3,31°(γ)	30	2368	3
PIPERAZINE: βλ. DIETHYLENEDIAMINE PIPERIDINE	3,22°(β)	338	2401	3 + 8
PIVALOYL CHLORIDE (TRIMETHYL ACETYL CHLORIDE)	8,36°(β)	83	2438	8 + 3
POTASH LYE (διάλυμα): βλέπε POTASSIUM HYDROXIDE (διαλύματα)				
POTASSIUM (Κάλλιο)	4.3, 1°(α)	X423	2257	4.3
POTASSIUM ARSENATE	6.1,51°(β)	80	1677	6.1
POTASSIUM ARSENATE	6.1,51°(β)	60	1678	6.1
POTASSIUM BIFLUORIDE	8,26°(β)	80	1811	8 + 6.1
POTASSIUM BISULPHATE, που περιέχει 3 στα εκατό ή περισσότερο ελεύθερο θειϊκό οξύ	8,23°(β)	80	2509	8
POTASSIUM CHLORATE, διαλύματα	5.1, 4°(α)	50	2427	3
POTASSIUM FLUORIDE	6.1,65°(γ)	60	1812	6.1A
POTASSIUM HYDROXIDE (Καυστικό Κάλλιο)	8,41°(β)	80	1813	8
POTASSIUM HYDROXIDE, διαλύματα (διάλυμα καλλίου)	8,42°(β)	80	1814	8
POTASSIUM OXIDE	8,41°(β)	80	2033	8
POTASSIUM SULPHIDE περιέχον όχι λιγότερο από 30 στα εκατό νερό κρυσταλλώσεως	8,45°(β)	80	1847	8
POTASSIUM SULPHIDE υδατοδιαλύματα	8,45°(γ)	80	1847	8
PRINTERS INKS, (μελάνες)				
– με σημείο αναφλέξεως κάτω από 21°K	3, 5°	33	1210	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31°(γ)±/	30	1210	3
– με σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)±/	30	1210	–
PROPANE	2, 3°(β)	23	1973	3
N–PROPANOL, τεχνικό	3, 3°(β)	33	1274	3
PROPIONALDEHYDE	3, 3°(β)	33	1275	3
PROPIONIC ACID περιέχον όχι λιγότερο από 50 στα εκατό καθαρό οξύ	8, 32°(γ)	80	1848	8
PROPIONIC ANHYDRIDE	8, 32°(γ)	80	2496	8
PROPIONITRILE	3, 11°(β)	336	2404	3 + 6.1
PROPIONYL CHLORIDE	3, 25°(β)	338	1815	3 + 8
PROPYL ACETATE	3, 3°(β)	33	1276	3
N–PROPYLAMINE	3, 22°(β)	338	1277	3 + 8
N–PROPYLBENZENE	3, 31°(γ)	30	2364	3
PROPYL CHLORIDE: βλ. 1–CHLOROPROPANE				
PROPYLENE	2, 3°(β)	23	1077	3
PROPYLENEDIAMINE	8, 53°(β)	83	2258	8 + 3
PROPYLENE DICHLORIDE	3, 3°(β)	33	1279	3
PROPYLENEIMINE	3, 12°	336	1921	3 + 6.1
PROPYLENE OXIDE	3, 2°(α)	33	1280	3
PROPYLENE TETRAMER: βλέπε TETRAPROPYLENE				

±/Βλέπε, όμως, ΣΗΜΕΙΩΣΗ της παραγράφου Δ του περιθωριακού 2301.

PROPYLE TRIMER: βλέπε TRIPROPYLENE				
PROPYL FORMATES	3, 3°(β)	33	1281	3
PROPYL ISOCYANATE, κανονικό	3, 14°(α)	336	2482	3 + 6.1
PROPYL MERCAPTAN	3, 3°(β)	33	2402	3
PROPYLTRICHLOROSILANE	8, 37°(β)	83	1816	8 + 3
PYRIDINE	3, 15°(β)	336	1282	3 + 6.1
PYROSULPHURYL CHLORIDE (S_2O_5CL2)	8, 21°(β)	80	1817	8
PYRROLIDINE	3, 22°(β)	338	1922	3 + 8
QUINOLINE	6,1, 12°(γ)	60	2656	6.1A
R 12: βλ. DICHLORODIFLUOROMETHANE				
R 12BI: βλ. BROMOCHLORODIFLUOROMETHANE				
R 13: βλ. CHLOROTRIFLUOROMETHANE				
R 13BI: BROMOTRIFLUOROMETHANE				
R 21: βλ. DICHLOROFLUOROMETHANE				
R 22: βλ. CHLORODIFLUOROMETHANE				
R 23: βλ. TRIFLUOROMETHANE				
R 114: βλ. 1,2–DICHLORO–1, 1,2–, 2– TETRAFLUOOROMETHANE				

(α)	(β)	(γ)	(δ)	(ε)
R 115: βλ. CHLOROPENTAFLUOROETHANE				
R 116: βλ. HEXAFLUOROETHANE				
R 133α: βλ. I-CHLORO-2,2,2-TRIFLUOROETHANE				
R 142β: βλ. I-CHLORO-I,I-DIFLUOROETHANE				
R 152α: βλ. I,I-DIFLUOROETHANE				
R 500: Μίγμα αερίου R 500				
R 502: βλ. Μίγμα αερίου R 502				
R 503: βλ. Μίγμα αερίου R 503				
R 1113: βλ. TRIFLUOROCHLOROETHYLENE				
R 1216: βλ. HEXAFLUOROETHYLENE				
R 318: βλ. OCTAFLUOROCYCLOBYTANE				
RESINS (Ρητίνες) σε διάλυση σε εύφλεκτα υγρά				
– με σημείο αναφλέξεως κάτω από 21°K	3, 5°	33	1866	3
– με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3.31°(γ)=/	30	1866	3
– με σημείο αναφλέξεως πάνω από 55°K	3.32°(γ)=/	30	1866	3
RESORCINOL	6.1.14°(γ)	60	2876	6.1A
SELENATES	6.1.55°(α)	66	2630	6.1
SELENIC ACID	8.11°(α)	88	1905	8
SELENITES	6.1.55°(α)	66	2630	6.1
SELENIUM DISULPHIDE	6.1.55°(β)	60	2657	6.1
SELENIUM μέταλλο	6.1.55°(γ)	60	2658	6.1A
SILICOCHLOROFORM: βλ. TRICHLOROSILANE				
SILICON TETRACHLORIDE (SiCL4)	8.21°(β)	80	1818	8
SODA LIME (Μίγματα καυστικής σόδας και ασβέστης)	8.41°(γ)	80	1907	8
SODA LYE: βλέπε SODIUM HYDROXIDE διαλύματα				
SODIUM	4.3, 1°(α)	X423	1428	4.3
SODIUM ALUMINATE, διαλύματα	8.42°(β)	80	1819	8
SODIUM ARSENITE	6.1.51°(β)	60	1685	6.1
SODIUM ARSENATE υδατοδιαλύματα				
– τοξικά	6.1.51°(β)	60	1686	6.1
– επιβλαβή	6.1.51°(γ)	60	1686	6.1A
SODIUM BIFLUORIDE	8.26°(β)	80	2439	8 + 6.1
SODIUM BISULPHATE, υδατοδιαλύματα	8, 6°(β)	80	2837	8
SODIUM BISULPHATE, περιέχον 3 στα εκατό ή περισσότερο ελεύθερο θειϊκό οξύ	8.23°(β)	80	1821	8
SODIUM CHLORATE, στερεό	5.1, 4°(α)	50	1495	5
SODIUM CHLORATE, διαλύματα	5.1, 4°(γ)	50	2428	5
SODIUM CHLORITE, διαλύματα	5.1, 4°(γ)	50	1908	5
SODIUM FLUORIDE	6.1.65°(γ)	60	1690	6.1A
SODIUM HYDROGEN SULPHIDE που περιέχει όχι λιγότερο από 25 στα εκατό νερό κρυσταλλώσεως	8.45°(β)	80	2949	8
SODIUM HYDROXIDE (Καυστική σόδα)	8.41°(β)	80	1823	8
SODIUM HYDROXIDE διαλύματα	8.42°(β)	80	1824	8
SODIUM METHYLATE αλκολικά διαλύματα	3.24°(β)	338	1829	3 + 8
SODIUM OXIDE	8.41°(β)	80	1825	8
SODIUM PENTACHLOROPHENATE	6.1.17°(β)	60	2567	6.1
SODIUM POTASSIUM κράματα	4.3, 1°(α)	X423	1422	4.3
SODIUM SULPHIDE, περιέχον όχι λιγότερο από 30 στα εκατό νερό κρυσταλλώσεως	8.45°(β)	80	1849	8
SODIUM SULPHIDE, υδατοδιαλύματα	8, 45°(γ)	80	1849	8
STANNIC CHLORIDE, άνυδρο ($SNCL_2$)	8, 21°(β)	80	1827	8
STANNIC CHLORIDE PENTAHYDRATE ($SNCL_4$-$5H_2O$	8, 22°(γ)	80	2440	8
STYRENE (VINYLBENZENE)	3, 31°(γ)	39	2055	3
SULPHIDES, υδατοδιαλύματα, μη προσδιοριζόμενα διαφορετικά στο παρόν Παράρτημα	8, 45°(γ)	80	1719	8
SULPHIR (θείο)	4.1, 2°(α)	40	1350	4.1
SULPHUR σε λυωμένη κατάσταση	4.1, 2°(β)	44	2448	4.1
SULPHUR DIOXIDE	2, 3°(AT)	26	1079	+ +
SULPHUR HEXAFLUORIDE	2, 5°(α)	20	1080	-
SULPHURIC ACID (θειϊκό οξύ)	8, 1°(β)	80	1830	8
SULPHURIC ACID, αναθυμιάζον: βλέπε OLEUM (ατμίζον θειϊκό οξύ)				
SULPHURIC ACID, μίγματα με νιτρικό οξύ: Βλέπε Μίγματα θειϊκού & νιτρικού οξέος				
SULPHURIC ACID, απορρίματα	8, 1°(β)	80	1832	8
SULPHUR TRIOXIDE	8, 1°(α)	X88	1829	8
SULPHURYL CHLORIDE (SO_2CL_2)	8, 21°(α)	X88	1834	8
TARS (πίσσες) υγρές	3, 32°(γ)	30	1999	-
TERRENE υδρογονάνθρακες, που δεν προσδιορίζονται διαφορετικά στο παρόν Παράρτημα				
-με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31°(γ)	30	2319	3
-με σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)	30	2319	-

(α)	(β)	(γ)	(δ)	(ε)
TERPINOLENE	3, 31°(γ)	30	2541	3
1,1,2,2-TETRABROMOETHANE (ACETYLENE TETRABROMIDE)	6.1, 17°(γ)	60	2504	6.1A
1,1,2,2-TETRACHLOROETHANE (ACTYLENETETRACHLORIDE)	6.1, 15°(β)	60	1702	6.1
TETRACHLOROETHYLENE (PERCHLOROETHYLENE)	6.1,15°(γ)	60	1897	6.1A
TETRACHLOROPHENOLS	6.1, 17°(γ)	60	2020	6.1A
TETRAETHYLENEPENTAMINE	8, 53°(γ)	80	2320	8
TETRAETHYL LEAD (μόλυβδος)	6.1, 31°(α)	66	1649	6.1
1,2,3,6-TETRAHYDROBENZALDEHYDE	3, 32°(γ)	30	2498	-
TETRAHYDROFURAN	3, 3°(β)	33	2056	3
TETRAHYDROPHTHALIC ANHYDRIDE	8, 31°(γ)	80	2698	8
1,2,3,6-TETRAHYDROPYRIDINE	3, 3°(β)	33	2410	3
TETRAHYDROTHIOPHENE	3, 3°(β)	33	2412	3
TETRAMETHOXYSILANE: βλέπε METHYL ORTHOSILICATE				
TETRAMETHYLAMMONIUM HYDROXIDE	8, 51°(β)	80	1835	8
TETRAMETHYLETHYLENEDIAMINE: βλ. 1,2-BIS (DIMETHYLAMINO) ETHANE				
TETRAMETHYL LEAD (μόλυβδος)	6.1, 31°(α)	663	1649	6.1 + 3
TETRAMETHYLSILANE	3, 1°(α)	33	2749	3
TETRANITROMETHANE, απαλλαγμένη από καύσιμες ξένες ύλες	5.1, 2°	559	1510	5
TETRAPROPYLENE (PROPYLENE TETRAMER)	3,32°(γ)	30	2850	-
TETRAPROPYLORTHOTITANATE	3, 31°(γ)	30	2413	3
4-THIAPENTANAL	6.1, 20(γ)	60	2785	6.1A
THIOACETIC ACID	3, 3°(β)	33	2436	3
THIOGLYCOL: βλ.MERCAPTOETHANOL				
THIOGLYCOLIC ACID	8, 32°(β)	80	1940	8
THIONYL CHLORIDE ($SOCL_2$)	8, 21°(α)	X88	1836	8
THIOPHENE	3, 3°(β)	33	2414	3
THIOPHENOL	6.1, 20°(α)	663	2337	6.1 + 3
THIOPHOSGENE	6.1, 20°(β)	60	2474	6.1
THIOPHOSPHORYL CHLORIDE ($PSCL_3$)	8, 21°(β)	80	1837	8
TITANIUM TETRACHLORIDE ($TiCL_4$)	8, 21°(β)	80	1838	8
TITANIUM TRICHLORIDE, μίγματα, μη πυροφορικά	8, 22°(β)	80	2869	8
TOLUENE	3, 3°(β)	33	1294	3
TOLUENE SULPHONIC ACIDS, στερεά	8, 34°(γ)	80	2585	8
TOLUENE SULPHONIC ACIDS, διαλύματα	8, 34°(γ)	80	2586	8
TOLUIDINES	6.1, 12°(β)	60	1708	6.1
2,4-TOLUYLENEDIAMINE	6.1, 12°(γ)	60	1709	6.1A
2,4-TOLUYLENE DIISOCYANATE και ισομερή μίγματα	6.1, 19°(β)	60	2078	6.1
TRIALLYLAMINE	3, 31°(γ)	30	2610	3
TRIALLYL BORATE	6.1, 13°(γ)	60	2609	6.1A
TRIBUTYLAMINE	8, 53°(γ)	80	2542	8
TRICHLOROACETALDEHYDE (CHLORAL)	6.1, 16°(β)	60	2075	6.1
TRICHLOROACETIC ACID	8, 31°(β)	80	1839	8
TRICHLOROACETIC ACID, διαλύματα	8, 32°(β)	80	2564	8
TRICHLOROACETYL CHLORIDE	8, 36°(β)	X80	2442	8
TRICHLOROBENZENES	6.1, 17°(γ)	60	2321	6.1A
TRICHLOROBUTENE	6.1, 17°(β)	60	2322	6.1
1,1,1-TRICHLOROETHANE	6.1,15°(γ)	60	2831	6.1A
TRICHLOROETHYLENE	6.1, 15°(γ)	60	1710	6.1A
TRICHLOROMETHYLBENZENE: βλέπε BENZOTRICHLORIDE				
TRICHLOROPHENOLS	6.1, 17°(γ)	60	2020	6.1A
TRICHLOROSILANE (SILICOCHLOROFORM)	4.3, 4°(α)	X338	1295	4.3 + 3 + 8
TRICRESYLPHOSPHATE με πάνω από 3 στα εκατό ορθό ισομερή	6.1, 23°(β)	60	2574	6.1
TRIETHYLAMINE	3, 22°(β)	338	1296	3 + 8
TRIETHYL BORATE	3, 3°(β)	33	1176	3
TRIETHYLENETETRAMINE	8, 53°(β)	80	2259	8
TRIETHYL PHOSPHITE	3, 31°(γ)	30	2323	3
TRIFLUOROACETIC ACID	8, 32°(α)	88	2699	8
TRIFLUOROCHLOROETHYLENE (R11132)	2, 3°(CT)	236	1082	+ +
1,1,1,-TRIFLUOROETHANE	2, 3°(β)	23	2035	+ +
TRIFLUOROMETHANE (R23)	2, 5°(α)	20	1984	-
TRIISOBUTYLENE (ISOBUTYLENE TRIMER)	3, 11°(γ)	30	2324	3
TRIMETHYL ACETYL CHLORIDE: βλ. PIVALOYL CHLORIDE				
TRIMETHYLAMINE, άνυδρη	2, 3°(BT)	236	1083	3 + 6.1
TRIMETHYLAMINE υδατοδιάλυματα -με σημείο βρασμού όχι πάνω από 35°K	3, 22°(α)	338	1297	3 + 8

(α)	(β)	(γ)	(δ)	(ε)
-με σημείο βρασμού πάνω από 35°K	3, 22°(β)	338	1297	3 + 8
1,3,5-TRIMETHYLBENZENE: βλέπε MESITYLENE				
TRIMETHYL BORATE	3, 3°(β)	33	2416	3
TRIMETHYLCHLOROSILANE	3, 21°(α)	X338	1298	3 + 8
TRIMETHYLCYCLOHEXYLAMINE	8, 53°(γ)	80	2326	8
TRIMETHYLHEXAMETHYLENEDIAMINES	8, 53°(γ)	80	2327	8
TRIMETHYLHEXAMETHYLENE DIISOCYANATE και ισομερή μίγματα	6.1, 19°(γ)	60	2328	6.1A
2,6,6-TRIMETHYL NORPINANYL HYDROPEROXIDE (PINANYL HYDROPEROXIDE? PINATE HYDROPEROXIDE) με περιεκτικότητα υπεροξειδίου όχι πάνω από 95 στα εκατό	5.2, 15°	539	2162	5
TRIMETHYL PHOSPHITE	3, 31°(γ)	30	2329	3
TRIPROPYLAMINE	8, 53°(β)	83	2260	8 + 3
TRIPROPYLENE (PROPYLENE TRIMER)	3, 31°(γ)	30	2057	3
TURPENTINE (Νέφτι)	3, 31°(γ)	30	1299	3
UNDECANE	3, 32°(γ)	30	2330	-
VALERALDEHYDE	3, 3°(β)	33	2058	3
VALERYL CHLORIDE	8,36°(β)	80	2502	8
VANADIUM OXYTRICHLORIDE ($VOCL_3$)	8, 21°(β)	80	2443	8
VANADIUM OXYTRICHLORIDE ($VOCL_3$), υδατοδιαλύματα	8, 5°(β)	80	2443	8
VANADIUM PENTOXIDE	6.1, 58°(β)	60	2862	6.1
VANADIUM TETRACHLORIDE (VCL_4)	8, 21°(α)	88	2444	8
VANADIUM TRICHLORIDE (VCL_3)	3, 22°(γ)	80	2475	8
VARNISHES (Βερνίκια)				
-με σημείο αναφλέξεως κάτω από 21°K	3, 5°	33	1263	3
-με σημείο αναφλέξεως μεταξύ 21°K και 55°K	3, 31°(γ)Ξ/	30	1263	3
-με σημείο αναφλέξεως πάνω από 55°K	3, 32°(γ)Ξ/	30	1263	-
VINYL ACETATE	3, 3°(β)	339	1301	3
VINYLBENZENE: βλέπε STYRENE				
VINYL BROMIDE	2, 3°(CT)	236	1085	- -
VINYL BUTYRATE	3,3°(β)	339	2838	3
VINYL CHLORIDE	2, 3°(γ)	239	1086	3
VINYL CHLOROACETATE	6.1, 16°(β)	60	2589	6.1
VINYL ETHYL ETHER	3, 2°(β)	339	1302	3
VINYL FLORIDE	2, 5°(γ)	239	1860	+ +
VINYLIDENE CHLORIDE	3, 1°(α)	339	1303	3
VINYLIDENE FLUORIDE: βλέπε 1,1-DIFLUOROETHYLENE				
VINYL ISOBUTYL ETHER	3, 3°(β)	339	1304	3
VINYL ISOBUTYL ETHER VINYL TOLUENE, μικτά ισομερή	3, 31°(γ)	39	2618	3
VINYLTRICHLOROSILANE	3, 21°(α)	X338	1305	3 + 8
WHITE ARSENIC: βλέπε ARSENIC TRIOXIDE				
XENON	2, 5°(α)	20	2036	-
XENON, υγρό βαθειάς κατάψυξης	2, 7°(α)	22	2591	-
XYLENES (DIMETHYLBENZENES)	3, 31°(γ)	30	1307	3
XYLENOIS	6.1, 14°(β)	60	2261	6.1
XYLIDINES	6.1, 12°(β)	60	1711	6.1
XYLYL BROMIDE	6.1, 17°(β)	60	1701	6.1
ZINC CHLORIDE ($ZNCL_2$)	8, 22°(γ)	80	2331	8
ZINC CHLORIDE ($ZNCL_2$) υδατοδιαλύματα	8, 5°(γ)	80	1840	8
ZIRCONIUM TETRACHLORIDE ($ZRCL_4$)	8, 22°(γ)	80	2503	8

Παράρτημα Β.5

Πίνακας ΙΙ

Πίνακας ουσιών των Κατηγοριών 3, 6.1 και 8 που δεν αναφέρονται ονομαστικά στον Πίνακα Ι και δεν εμπίπτουν κάτω από τις συλλογικές επικεφαλίδες που περιλαμβάνονται σ' εκείνο τον Πίνακα, αλλά οι οποίες όμως πρέπει να περιληφθούν στις παρούσες Κατηγορίες και στις οποίες δεν δίδεται συγκεκριμένος «αριθμός αναγνωρίσεως ουσίας». Οι ουσίες συγκεντρώνονται σε ομάδες και σύμφωνα με τον αριθμό είδους που αντιστοιχεί στους κινδύνους που παρουσιάζονται στη διάρκεια της μεταφοράς.

ΣΗΜΕΙΩΣΗ: Ο παρών πίνακας έχει εφαρμογή μόνο για ουσίες των Κατηγοριών 3, 6.1., και 8 που δεν περιλαμβάνονται στον Πίνακα Ι.

Ξ/ Βλέπε, όμως ΣΗΜΕΙΩΣΗ της παραγράφου Δ του περιθωριακού 2301

Ομάδα Ουσιών (α)	Αριθ. Κατηγορίας και είδους (β)	Αριθ. αναγνωρίσεως κινδύνου (άνω μέρος) (γ)	Αριθ. αναγνωρίσεως ουσίας (κάτω μέρος) (δ)	Ετικέτα (ε)
Εύφλεκτα υγρά με σημείο αναφλέξεως κάτω από 21°K, μη τοξικά και μη διαβρωτικά	3, 1°-5°	33	1993	3
Επιβλαβείς ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα με σημείο αναφλέξεως κάτω από 21°K	3, 6°	33	3021	3 + 6.1A
Τοξικά εύφλεκτα υγρά με σημείο αναφλέξεως κάτω από 21°K	3,11°,14°, 18°, 20°	336	1992	3 + 6.1
Πολύ τοξικές ή τοξικές ουσίες και παρασκευάσματα χρησιμοποιούμενα σαν ζιζανιοκτόνα, ευφλεκτα, με σημείο αναφλέξεως κάτω από 21°K	3. 19°	336	3021	3 + 6.1
Διαβρωτικά εύφλεκτα υγρά με σημείο αναφλέξεως κάτω από 21°K	3. 21°-26°	338	2924	3 + 8
Εύφλεκτα υγρά, μη τοξικά και μη διαβρωτικά, με σημείο αναφλέξεως μεταξύ 21°K και 100°K	3. 31°	30	1993	3
	3, 32°	30	1993	–
Πολύ τοξικά υγρά, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (α) των ειδών 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	63	2929	6.1 + 3
Τοξικά υγρά, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (β) των ειδών 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	63	2929	6.1 + 3
Επιβλαβή υγρά, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (γ) των ειδών 11°, 13°, 15°, 16°, 18°, 20°, 22°, 24°	63	2929	6.1A + 3
Πολύ τοξικά υγρά, εύφλεκτα, με σημείο αναφλέξεως πανω από 55°K	6.1, γράμμα (α) των ειδών 11°-24°, 51°, 55°, 68°	66	2810	6.1
Τοξικά υγρά, άφλεκτα ή με σημείο αναφλέξεως πανω από 55°K	6.1, το γράμμα (β) των ειδών 11°-24°, 55°, 35°, 57°-68°	60	2810	6.1
Επιβλαβή υγρά, άφλεκτα ή με σημείο αναφλέξεως πάνω από 55°K	6.1, γράμμα (γ) των ειδών 11°-24°, 51°-55°, 57-68°	60	2810	6.1A
Πολύ τοξικά στερεά, καύσιμα	6.1, γράμμα (α) των ειδών 11°-24°	66	2930	6.1
Τοξικά στερεά, καύσιμα	6.1, γράμμα (β) των ειδών 11°-24°	60	2930	6.1
Επιβλαβή στερεά, καύσιμα	6.1, γράμμα (γ) των ειδών 11°-24°	60	2930	6.1A
Πολύ τοξικά στερεά, άκαυστα	6.1, γράμμα (α) των ειδών 51°, 55°, 68°	66	2811	6.1
Τοξικά στερεά, άκαυστα	6.1, γράμμα (β) των ειδών 51°-55°, 57°-68°	60	2811	6.1
Επιβλαβή στερεά, άκαυστα	6.1, γράμμα (γ) των ειδών 51°-55°, 57°-68°	60	2811	6.1A
Πολύ τοξικές υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (α) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	663	2903	6.1 + 3

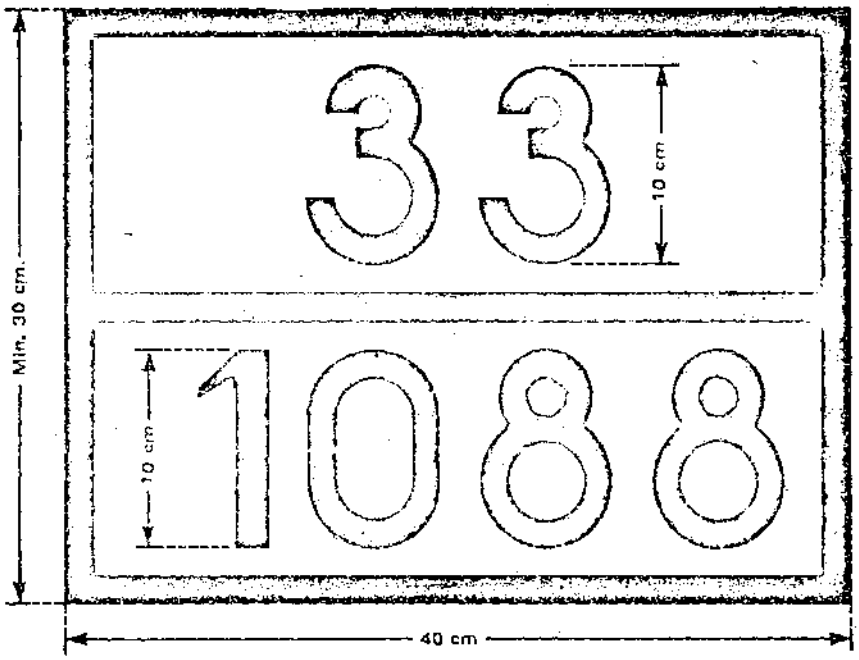
(α)	(β)	(γ)	(δ)	(ε)
Τοξικές υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (β) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	63	2903	6.1 + 3
Επιβλαβής υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα, εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	6.1, γράμμα (β) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	63	2903	6.1A + 3
Πολύ τοξικές υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα άφλεκτα, με σημείο αναφλέξεως πάνω από 55°K	6.1, γράμμα (α) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	66	2902	6.1
Τοξικές υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα άφλεκτα, ή με σημείο αναφλέξεως πάνω από 55°K	6.1, γράμμα (β) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2902	6.1
Επιβλαβείς υγρές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα άφλεκτα, ή με σημείο αναφλέξεως πάνω από 55°K	6.1, γράμμα (γ) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2902	6.1A
Πολύ τοξικές στερεές ουσίες και παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα	6.1, γράμμα (α) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2588	6.1
Τοξικές στερεές ουσίες ή παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα	6.1, γράμμα (β) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2588	6.1
Επιβλαβείς στερεές ουσίες ή παρασκευάσματα που χρησιμοποιούνται σαν ζιζανιοκτόνα	6.1, γράμμα (γ) των ειδών 74°, 75°, 77°, 78°, 80°, 81°, 83°, 85°, 88°	60	2588	6.1A
Πολύ διαβρωτικά υγρά εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	8, γράμμα (α) των ειδών 32°, 33°, 36°, 37°, 64°, 66°	883	2920	8 + 3
Διαβρωτικά ή ελαφρά διαβρωτικά υγρά εύφλεκτα, με σημείο αναφλέξεως μεταξύ 21°K και 55°K	8, γράμματα (β) και (γ) των ειδών 32°, 34°, 36°, 39°, 51°, 53°, 54°, 64°, 66°	83	2920	8 + 3
Πολύ διαβρωτικά υγρά άφλεκτα, ή με σημείο αναφλέξεως πάνω από 55°K	8, γράμμα (α) των ειδών 1°, 3°, 10°, 11°, 21°, 27°, 32°, 33°, 37°, 37°, 64°, 66°	88	1760	8
	8, 26°(α)	88	1760	8 + 6.1
Διαβρωτικά ή ελαφρά διαβρωτικά υγρά μη έφλεκτα, ή με σημείο αναφλέξεως πάνω από 55°K	8, γράμματα (β) και (γ) των ειδών 1°, 3°, 5°, 10°, 11°, 21°, 23°, 27°, 32°, 34°, 36°-39°, 51°, 53°, 54°, 64°, 66°	80	1760	8
	8, 26°(β) ή (γ)	80	1760	8 + 6.1

(α)	(β)	(γ)	(δ)	(ε)
Πολύ διαβρωτικά στερεά καύσιμα	8, γράμμα (α) των ειδών 64°, 65°	88	2921	8
Διαβρωτικά ή ελαφρά διαβρωτικά στερεά, καύσιμα	8, γράμματα (β) και (γ) των ειδών 31°, 33°, 35°, 37°, 39°, 51°, 52°, 54°, 64°, 65°	80	2921	8
Πολύ διαβρωτικά στερεά, μή καύσιμα	8, γράμμα (α) των ειδών 8°, 11°, 27°, 65°	88	1759	8
	8, 26°(α)	88	1759	8 + 6.1
Διαβρωτικά ή ελαφρά διαβρωτικά στερεά άκαυστα	8, γράμματα (β) και (γ) των ειδών 11°, 22°, 26°, 27°, 31°, 33°, 35°, 37°, 39°, 41°, 45°, 65°	80	1759	8
	8, 26°(β) ή (γ)	80	1759	8 + 6.1

Appendix B.5

250 001

Identification numbers shall be shown on the plate as indicated below:
Οι αριθμοί αναγνωρίσεως θα αναγράφονται στην πινακίδα όπως αναφέρεται παρακάτω



Identification number of danger (2 ou 3 figures)
Αριθμός αναγνωρίσεως κινδύνου (2 ή 3 ψηφία)

Identification number of substance (4 figures)
Αριθμός αναγνωρίσεως ουσίας (4 ψηφία)

Background orange.
Border, horizontal line and figures black, 15 mm thickness.

Φόντο πορτοκαλλί
Περίγραμμα, οριζόντια γραμμή και αριθμοί μαύρα, πάχος 15 χιλ

250 002
259 999

Παράρτημα Β.6

(βλέπε περιθωριακό 10 381)

Το πιστοποιητικό ικανότητας για οδηγούς οχημάτων που μεταφέρουν επικίνδυνα εμπορεύματα εκδιδόμενα σύμφωνα με τα προβλεπόμενα απ[illegible] το περιθωριακό 10 315 θα έχει τη διάταξη που εμφανίζεται στο παρακάτω υπόδειγμα. Συνιστάται όπως το σχήμα είναι το ίδιο με εκείνο της Ευρωπαϊκής εθνικής άδειας οδηγήσεως, δηλαδή A7 (7,4 × 105 χιλ.) ή διπλό φύλλο που μπορεί να διπλώνεται σ' αυτό το σχήμα.

(για υπόδειγμα πιστοποιητικού βλέπε όπισθεν)

1

ADR - ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΚΠΑΙΔΕΥΣΕΩΣ ΟΔΗΓΩΝ ΟΧΗΜΑΤΩΝ ΠΟΥ ΜΕΤΑΦΕΡΟΥΝ ΕΠΙΚΙΝΔΥΝΑ ΕΜΠΟΡΕΥΜΑΤΑ

Πιστοποιητικό Νο. .....

Διακριτικό σημείο εκδίδοντος κράτους .....

Ισχύει για τις κατηγορίες [1]/
1α, 1β, 1γ
2
3
4.1, 4.2, 4.3
5.1, 5.2
6.1, 6.2
7
8
μέχρι (ημερομηνία) - [3]/ .....

[1]/ Σβύσε όσα δεν ισχύουν
[2]/ Για επέκταση σε άλλες κατηγορίες βλ. σελ. 3
[3]/ Για ανανέωση βλ. σελ. 2

2

Επώνυμο .....
Όνομα .....
Ημερ. γεννήσεως .....
Εθνικότητα .....
Υπογραφή κατόχου .....
Εξεδόθη υπό .....
Ημερομηνία .....
Υπογραφή [4]/ .....
Ανανεώνεται μέχρι .....
Υπό .....
Ημερομηνία[4]/ .....

[4]/ ή/και σφραγίδα εκδίδουσας αρχής

3 ΕΠΕΚΤΕΙΝΕΤΑΙ ΣΤΙΣ ΚΑΤΗΓΟΡΙΕΣ [5]/	4 Για εθνικές διατάξεις μόνο
1α, 1β, 1γ, 2, 3, 4.1, 4.2, 4.3 5.1, 5.2, 6.1, 6.2, 7, 8	Ημερομηνία ..... Υπογραφή ή/και σφραγίδα .....
1α, 1β, 1γ, 2, 3, 4.1, 4.2, 4.3 5.1, 5.2, 6.1, 6.2, 7, 8	Ημερομηνία ..... Υπογραφή ή/και σφραγίδα .....
α, 1β, 1γ, 2, 3, 4.1, 4.2, 4.3 .1, 5.2, 6.1, 6.2, 7, 8	Ημερομηνία ..... Υπογραφή ή/και σφραγίδα .....

[5]/ Σβύστε όσα δεν ισχύουν.

Η ισχύς της απόφασης αυτής, αρχίζει από τη δημοσίευσή της στην Εφημερίδα της Κυβερνήσεως.

Αθήνα, 5 Ιανουαρίου 1990

Ο ΥΠΟΥΡΓΟΣ
Α. ΤΣΟΧΑΤΖΟΠΟΥΛΟΣ

ΑΠΟ ΤΟ ΕΘΝΙΚΟ ΤΥΠΟΓΡΑΦΕΙΟ