

DRAFT MINISTERIAL ORDER NO. ... FOR THE YEAR 2002 IN RESPECT OF HAZARDOUS WASTE MANAGEMENT

The Minister of Municipal and Environment Affairs:

In pursuance of Decree No. 3 for the year 1975 on Public Health, as amended;

Decree No. 21 for the year 1996 on the Environment as amended by Decree No. 8, for the year 1997;

Decree No. 14 for the year 2001 in respect of Ministerial Appointments;

Order No. 1 for the year 1998, of the Minister of Housing, Municipalities and Environment;

Order No. 10 for the year 1998, of the Minister of Housing, Municipalities and Environment, on the fees of the licences and services rendered by the Environment Affairs;

Order No. 10, for the year 1999, of the Minister of Housing, Municipalities and Environment, on environmental (air and water) standards, as amended by law No. 2 for the year 2001, as amended by Order No. 3 for the year 2001 and in accordance with the recommendation made by the Director-General of the Environment Affairs;

hereby decides as follows:

Chapter I

Definitions

Article 1

For implementation of this Decree, the following terms and phrases shall have the meanings assigned against each, unless the text requires otherwise.

1. Wastes

These are the wastes to be disposed of for any of the reasons provided for in Appendix 1 or by exercising any of the processes provided for in Appendix 2.

- 2. Waste Management**

All processes that wastes undergo from the time they are generated until they are disposed of, including gathering, storage, transportation, treatment and subsequent care at disposal or burial sites.
- 3. Transportation Forms**

The form related to hauling wastes from the producer to the treatment to the disposal site, providing for all the data and conditions made by the Environment Authority.
- 4. Peak Time**

The time frame during which trucks and heavy machinery traffic is prohibited or regulated on all or some roads as determined by the Traffic & Licensing Directorate.
- 5. Chemical Wastes**

These are solid, liquid or gaseous chemicals residual from industrial or laboratory activities or used for cleaning purposes if they cause corrosion to other substances or if their pH is less than 2 or more than 12.
- 6. Incineration of Wastes**

The process of controlled burning of solid, liquid and gaseous wastes produce gases and traces of non-combustible substances.
- 7. Treatment Unit**

The facility where modification of the biological, physical or chemical properties of the wastes takes place during the appropriate technology to minimize the hazards of such wastes.
- 8. Storage**

The temporary preservation of wastes at specific locations in accordance with the conditions set by the Environment Authority for the purpose of gathering them prior to hauling or treatment.
- 9. Carrier**

The natural or legal entity operating in the field of waste transportation.
- 10. Producer**

Any installation whose activity will probably or could result in generating wastes.
- 11. Disposal**

The processes that do not lead to extraction of substance or recycling such as burial, biological, physical or chemical treatment or permanent storage or incineration.

- 12. Person**
Any establishment, company, organisation, Ministry, municipality or government agency.
- 13. Facility**
Any facility (including the earth and the changes made therein) for the purpose of storing, treating or disposing of wastes.
- 14. MSDS**
The waste related form which embodies all data such as physical and chemical properties, methods of handling, storage, transportation and disposal and safety procedures.
- 15. Installation**
Any factory or government or private organisation, research center or laboratory.
- 16. Hazardous Wastes**
Waste that belongs to any of the categories of Schedule III and characterised by any of the properties listed in Schedule IV of it is a mixture of hazardous wastes and other substances or if the Environment Authority specifically designated as hazardous materials.
- 17. Domestic Wastes**
Wastes generated by homes, including individual and mass residences, hotels, commercial complexes and recreation centres, which do not contain hazardous wastes, as specified in Schedule III.
- 18. Inert wastes**
Wastes that are chemically or biologically non-reactive in the natural environment. They usually include glass, reinforced cement building debris, plastic, wood, rubber, wires, metal sheets, and unpolluted soils with no plants.
- 19. Industrial and Commercial Wastes**
These wastes are similar to domestic or inert wastes but do not include wastes, which contain solvents, degreasers, inks, putty sediments, acids, alkalines or other wastes of the non-domestic types.
- 20. Agricultural wastes**
The various wastes resulting from crop raising and harvesting and which are returned to the soil as fertilizers, but do not include pesticide wastes or weeds.

21. Animal Wastes

Wastes resulting from animal husbandry and which are returned to the soil as fertilizers.

Chapter II

Objective and Scope of the Order

Article 2

This Order is intended to establish a monitoring and control system suitable for the processes involving hazardous wastes production, storage, transportation, treatment and disposal, a system also designed to manage such wastes and prevent the spread of their detrimental effects to health and the environment until they are disposed of in an environmentally friendly manner.

The Order also aims at encouraging and developing treatment processes for this type of wastes in a way conducive to the protection of the public health and prevention of environmental pollution.

Article 3

The Order shall apply to every producer, carrier, and waste treatment or disposal unit once their activity relates totally or partially to hazardous wastes. The Order excludes industrial, commercial, home, inert, agro and animal wastes. The Environment Authority may exclude any wastes if found to be non-hazardous or whose treatment or recycling is not possible.

Article 4

The Environment Authority shall interpret and define the scope of the articles provided for herein as well as of any developments or amendments that may be introduced hereto.

Article 5

Pursuant to the provisions of Article 14 of Decree No. 21, for the year 2001 and without prejudice to the schedules provided for therein, the Director General of the Environment Authority shall issue the periodic instructions and conditions and the necessary controls for the management of industrial hazardous wastes and update those conditions and controls whenever required to ensure effective application.

Chapter III

Duties of the Producer

Article 6

Each producer of hazardous wastes shall seek to reduce quantitatively and qualitatively the generation rates of such wastes through the development of the equipment and instruments used, adoption of new technologies and selection of alternatives and raw materials with the least damage for the environment and public health.

Article 7

Each producer of hazardous wastes shall complete the MSDS form in accordance with the format approved by the Authority.

Article 8

Each producer of hazardous wastes shall perform a detailed chemical and physical analysis or descriptions of all the wastes it produces.

Article 9

Each producer of hazardous wastes shall classify such wastes in accordance with the conditions designated by the Environment Authority.

Article 10

Each producer shall designate specific locations within the installation for gathering and storage of the hazardous wastes. Such locations shall satisfy safety conditions that protect the environment and human health against their possible injurious impacts and in accordance with the conditions set forth by the Environment Authority.

Article 11

Each producer shall sort and classify the wastes within the storage locations and shall load each type of these wastes in special drums or containers properly labeled to indicate their contents and hazards in accordance with the conditions set forth by the Environment Authority.

Article 12

The installation may establish and operate in-house hazardous materials treatment unit subject to the approval by the Environment Authority of the method of treatment, technical specifications and operating programmes of such units. In this case, the installation shall be committed to all rules and terms related to the hazardous waste treatment unit as provided for in Chapter V hereof.

Article 13

The producer of the hazardous material shall comply with the following requirements in hauling the materials outside the installation :

1. Ensure the integrity and safety of the drums and containers used in transporting the wastes and that they are properly labeled as provided for in Article 11 hereof.
2. Refrain from allowing the transportation of any hazardous waste consignment outside the installation in the absence of the transportation form approved by the Environment Authority. Such form must accompany the consignment in all cases.
3. Refrain from delivering any hazardous waste consignment to any carrier not licensed by the Environment Authority.
4. Ensure that the consignment is delivered to treatment units or disposal sites authorised by the Environment Authority.
5. Comply with the rules and terms of the carriers' duties provided for in Chapter IV hereof, in the event the producer will carry out the transportation of hazardous wastes to the treatment unit or to the disposal site.

Article 14

1. The producer who maintains a treatment unit or disposal site inside the installation shall keep a special log to document the data provided for in Article 26 hereof.
2. The producer who does not maintain a treatment unit shall keep a special record indicating the types and quantities of the hazardous waste, date of relocation, name of the carrier, treatment unit or disposal site to which the consignment has been relocated. It shall submit a report thereon to the Authority every three months or upon request within a week from the end of the three-month period or the date of request.

Chapter IV

Carrier's Duties

Article 15

A natural or legal person shall not engage in the business of hazardous waste transportation without a licence from the Environment Authority.

Article 16

The application of the licence referred to above shall be submitted by the party concerned or his legal representative to the Environment Authority on the designated form, along with the payment of the prescribed fees. The following data and documents shall be attached to the application:

1. Number of workers with the applicant and evidence of familiarity with or experience in dealing with such wastes.
2. Statement on the necessary preventive procedures against leakage of hazardous wastes in transit and statement on handling unexpected circumstances and accidents that the carrier may encounter in order to protect the public health and environment.

Article 17

The duration of the licence issued to the carrier of hazardous consignments shall be one year, renewable. Such licence may be assigned to the others only with the Authority's approval in writing.

Article 18

The carrier of hazardous wastes shall comply with the following requirements:

1. Refrain from hauling any hazardous wastes in the absence of a transportation form duly completed.

2. Refrain from hauling any chemical wastes in the absence of its own MSDS form, and only in full compliance with the chemical safety conditions set forth by the Environment Authority.
3. Refrain from hauling any vessels or drums that do not satisfy the loading conditions provided for in Article 11 hereof.
4. Refrain from storing hazardous wastes.
5. Refrain from hauling hazardous wastes to treatment units or disposal sites not licensed by the Environment Authority.
6. Place the informational signs designated by the Environment Authority on the means of transportation.
7. Reload the hazardous wastes being transported if the containers suffer damage in transit.
8. Refrain from hauling hazardous wastes during peak hours.
9. Submit a programme and definition of the route if asked for by the Environment Authority.
10. Decontaminate the portions of the truck assigned for transportation of hazardous wastes in each leak.
11. Transport the hazardous wastes in vehicles that meet the conditions set forth by the Environment Authority in coordination with the Traffic Department.
12. Refrain from mixing hazardous wastes with different shipping instructions in one container.
13. Ensure that the hazardous wastes being transported are consistent with those specified in the transportation form.

Article 19

The hazardous waste carrier shall retain the transportation form for a year and submit it to the Environment Authority within a maximum period of two weeks from the date it is requested.

Article 20

The Environment Authority reserves the right to abrogate, withdraw or suspend the licence for up to 3 months as the case may be in the following events:

1. If the licence is issued on the basis of false information.
2. If the licensee violates the licence conditions, the terms of this Order or the conditions set forth by the Environment Authority.
3. If the transportation activity results in environmental impacts not foreseen at the time of issue or lead to serious environmental damages.

Chapter V

Hazardous Waste Treatment Unit or Disposal Sites

Article 21

Without prejudice to the provisions of building regulatory code promulgated by Decree No. 13 for the year 1977 and its rules for implementation, the approval of the Environment Authority shall be attached to the application for establishment of a new hazardous waste treatment unit or disposal site. In all cases no such treatment unit or disposal site shall be operated without being licensed by the Environment Authority.

Article 22

The application for licence referred to in the above Article shall be submitted by the concerned proponent or his legal agent to the Authority on the designated form and after payment of the prescribed fees, supported by the following data and documents:

1. The completed Environmental Impact Evaluation Form for industrial projects in accordance with the form approved by the Environment Authority.
2. Statement on the preventive measures and contingency plan to be followed during operation and in unexpected circumstances, which are intended to protect the environment and public health.
3. Number of personnel of the treatment unit or disposal site, their experience and evidence that they are fully proficient in the unit's operation.
4. Any other data or documents that the Authority deems necessary.

Article 23

The hazardous waste treatment unit or disposal site shall comply with the conditions and standards prescribed by the Environment Authority, and specially the following:

1. Refrain from accepting any hazardous wastes from a carrier who is not licensed by the Environment Authority.

2. Refrain from accepting any hazardous wastes not accompanied by a completed transportation form signed by the producer and carrier and verify the consignment against the data on the form.
3. Refrain from accepting any chemical wastes not accompanied by their own MSDS form.
4. Repack the hazardous wastes originally stored in drums or vessels if they suffer damage, if the circumstances call for temporary storage prior to treatment.
5. Dispose of residues and wastes secondary to treatment at the waste dump sites designated by the Environment Authority.
6. Measure every three months concentrations of pollutants in industrial drainage water resulting from treatment processes and discharged into the sea in accordance with the standards listed in Schedule 5 of Order No. 10 for the year 1998 on environmental standards (water & air).
7. Measure concentration of emissions into the air at the intervals and in accordance with the standards set forth by the Environment Authority.
8. Measure concentration of pollutants in solid sediments and wastes secondary to the hazardous waste treatment at the intervals and in accordance with the standards set forth by the Environment Authority.
9. Report to the Environment Authority any change in the ownership, management and operation of the unit, within 15 days of the date of such change.
10. Provide the Authority with any other documents or data that it may ask for within 15 days from the date of such request.
11. Measure concentration of pollutants in the soil below and treatment unit or disposal site at the intervals and in accordance with the standards set forth by the Environment Authority. If the measurement reveals concentrations in excess of the permissible values, the unit or dump site shall notify the Authority immediately and measure the concentrations in the soil around the treatment unit or the disposal site to the extent designated by the Environment Authority.
12. Measure concentration of pollutants in the underground water of the site at the intervals and in accordance with the standards set forth by the Environment Authority.

Article 24

If incineration technology is used in the treatment of hazardous wastes, the treatment unit shall comply with the following:

1. All emissions from the stacks to the air must be colorless and free from dense smoke at all times.
2. The stack emissions must be free from noxious smells outside the boundaries of the incineration site.
3. Measure concentration of the emissions from burning in the air in accordance with the standards provided for in Schedule 3 to Order No. 3 for the year 2001, on environmental standards.

Article 25

With due regard to the technology of hazardous waste treatment, the unit may use any technology subject to the prior approval of the Environment Authority.

Article 26

Hazardous waste treatment units and disposal sites shall be required to keep the waste transportation forms and other records that the authority deems necessary to keep for 3 years. They shall specifically retain for the same duration a log named "Operation Record" to document the following:

1. Description of the type and quantity of each consignment received, names of the producer and carrier, date of receipt and date of treatment or disposal.
2. Description of the wastes generated by the treatment process, their quantity and method and site of disposal.
3. Findings of emission air concentration readings resulting from the treatment process.
4. Findings of the analysis of pollutant concentrations in the various solid residues and wastes resulting from the treatment process.

5. Findings of the analysis of pollutant concentrations in the soil of the treatment unit or disposal site.
6. Findings of the analysis of pollutant concentrations in the soil of the treatment unit or disposal site.
7. Findings of the analysis of pollutant concentrations in the underground water of the treatment unit or disposal site.

Article 27

The hazardous waste treatment unit or disposal site shall submit a periodical report on its activity to the Environment Authority every three months as of the date of start up and at the intervals directed by the authority. Such reports shall embody the data, measurements and analysis referred to in the preceding Article.

Article 28

The Environment Authority reserves the right to revoke, withdraw or suspend the licence for up to 3 months as the case may be in any of the following events:

1. If the licensed unit or site violates the provisions of this Order or the conditions made by the Authority to implement it.
2. If there are any indications of the damages to the ecosystems surrounding the unit or the public health.
3. If investigations or measurements reveal that the technology on which the licence is based or that already approved by the Authority is useless, unsuitable or inefficient.

Article 29

The treatment units and disposal sites shall be held liable for the damages that may result from non-compliance with their obligations provided for herein or as a result of violating the licence condition or because of the violating activities.

Chapter VI

Import and Export of Hazardous Wastes

Article 30

It is prohibited for any natural or legal person to import hazardous wastes for processing or disposal thereof in the Kingdom of Bahrain. It shall also be prohibited to allow such wastes to enter or transit Bahrain territories for any purpose, all without prejudice to international and regional conventions to which the Kingdom of Bahrain has subscribed.

Article 31

Ships carrying wastes shall not be allowed to pass through Bahrain's territorial waters and the adjacent areas without a permit from the competent directorate after coordination with the Environment Authority. The authority, after checking with that directorate shall monitor the date of vessel entry and exit as well as the potential environmental pollution that may result from such passage.

Article 32

No legal or natural person shall export hazardous materials without a licence to that effect from the Environment Authority.

Article 33

The application for the permit referred to in the preceding Article shall be filed by the competent proponent or his legal agent to the authority on the form designated for this purpose and after payment of the prescribed fees. The application shall be supported by the following data and documents:

1. Statement on the type and quantity of the hazardous waste to be exported and their destination.
2. Evidence of the concurrence of the treatment unit at the country of destination to receive the consignment to be exported.

Article 34

Hazardous wastes transportation operations across the borders of the Kingdom of Bahrain shall be undertaken in accordance with the pertinent laws and applicable international and regional conventions, especially Basel Agreement on the Cross Border Transportation and Disposal of Hazardous Wastes for the year 1989 which was ratified by Decree No. 11 for the year 1992.

Chapter VII

General Provisions

Article 35

Hazardous waste treatment units that are subject to this Order and which exist at the time of its enforcement shall within 2 years from its effective date correct their status to ensure compliance with the conditions and standards provided for in the schedules attached to Order No. 10, for the year 1999 on environmental standards (air and water), as amended.

These units shall also develop, within a maximum period of six months from the effective date of the Order, the necessary plans to correct their status, such plans shall embody statement on their plans, phases of implementation and the duration designated for each phase. The units shall duly notify the Environment Authority within each of the designated period.

The Authority shall take a Order with respect to any such plan within 3 months from the date of submittal and may ask the parties concerned to complete any documents or data required for this purpose and may make any changes to any plan. The units shall proceed with implementation of the approved plan within one month from the date of approval notification of that plan by the authority.

The units shall notify the authority of the completion of each approved phase of implementation as well as completion of the entire programme within 15 days after completion of each phase and the entire programme.

Article 36

The Environment Authority may, in case of need, approve extension of the period prescribed for correction of the status for the duration it deems appropriate in response to an application submitted by the proponents or their representatives to the Authority at least six months ahead of the expiry of the two-year period provided for in the preceding Article. Such application shall embody justifications for the extension as well as an account of the measures taken to implement this Order.

The Environment Authority shall verify the accuracy of the information provided and the applicant's serious efforts to correct his status.

Article 37

With regard to the provisions of Article 26 of Decree No. 21 for the year 1996 on the environment, any violator of the provisions of this Order and the schedules attached thereto shall be subject to the penalties provided for in Article 29 of the said Order.

Article 38

The Director General of Environment Authority shall implement this Order, which shall come into effect six months after publication in the official gazette.

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Jawad bin Salim Al-Arrayed
Minister of State for Municipal and Environmental Affairs

Appendix I

Justifications For Disposal Of Materials:

1. Products that do not conform to specifications.
2. Products with expired validity.
3. Spilled or missed substances or equipment or those exposed to an accident and pollution.
4. Polluted or soiled substances as a result of deliberate actions such as wastes of cleaning operations, packaging materials etc.
5. Non-usable parts such as spent batteries and catalysts.
6. Materials that no longer serve their purpose such as polluted acids, solvents and spent salts.
7. Industrial or final supplementary operations such as lathe and mill shavings.
8. Industrial operations wastes such as soot and distillation residues.
9. Pollution control wastes, such as the residues of gas washing sludge, stack dust collection bags and used filters.
10. Raw material extraction and fabrication, such as mining wastes and oil field slurry.
11. Doctored materials such as PCB contaminated oils.
12. Substances or products prohibited by law.
13. Products that are no longer required for use such as agricultural, domestic, office and commercial refuse.
14. Substances and materials that are products of contaminated land reclamation and cleaning.
15. Substances and products covered by the paragraphs above and whose owners wish to dispose of.
16. Production wastes not covered by the Articles above.

Appendix II

Disposal Operation

- A. Operations not leading to possible recovery, recycling, extraction or reuse of the materials in direct or alternative applications.

Paragraph 'A' covers all disposal activities of this type which are exercised in actual reality.

- D1 : Sedimentation inside or above the ground level (such as back filling).
- D2 : Treatment of soil such as bio disintegration of liquid or slurry wastes in the soil.
- D3 : Deep injection (such as injection of indictable wastes inside walls, salt domes or naturally formed storage).
- D4 : Surface accumulation (placement of liquid or slurry wastes inside coastal excavations, ponds and lakes).
- D5 : Specially engineered excavations (placing wastes in covered and self standing excavations separated from each other and from the environment).
- D6 : Discharge in a water body, other than seas and oceans.
- D7 : Discharge in seas and oceans including burial at the bottom of the sea.
- D8 : Biological treatment, not provided for elsewhere in this appendix, which result in final compounds or mixtures disposed of in any of the ways specified in this chapter.
- D9 : Physiochemical treatments, not provided for elsewhere in this appendix, which result in compounds or mixtures that are disposed of by any of the operations specified in the chapter such as evaporation, drying, calcification, equalization, sedimentation, neutralization etc.
- D10 : Incineration or burning on the ground.
- D11 : Incineration or burning in the sea.
- D12 : Permanent storage (placing vessels in a mine etc.)

- D13 : Mixing or blending prior to any of the operations listed in this chapter.
- D14 : Re-packing prior to any of the operations listed in this Chapter 'A'.
- D15 : Storage pending any of the operations listed in this Chapter 'A'.

B. Operations leading to recovery, recycling, extraction or reuse of the material in direct or alternative applications.

This Chapter 'B' includes all operations related to the materials legally defined as hazardous and which had they not been subjected to this treatment they would have been classified under Chapter 'A' above.

- R1 : Material used as fuel (other than direct incineration or burning)
- R2 : Solvents used in recovery/regeneration.
- R3 : Recycling / recovery of organic materials which are not used as solvents.
- R4 : Recycling / recovery of minerals and mineral compounds.
- R5 : Recycling / recovery of other non-organic materials.
- R6 : Recovery of acids or bases.
- R7 : Recovery of elements and compounds used in reduction of pollution.
- R8 : Recovery of catalyst components.
- R9 : Recycling of spent oils and other new applications for used oils.
- R10 : Treatment of soil for the benefit of plants or enhancement of the environment
- R11 : Use of residual substances resulting from the processes from R1 to R10.
- R12 : Replacement of wastes for referral to any of the processes from R1 to R10.

R13 : Collection of substances to perform any of the operations listed in Branch 'B'.

Appendix III

Categories of Controllable Wastes

- A. Continually flowing wastes, i.e.,
- Y1 : The various clinical wastes of medical care in hospitals, health centres and clinics.
 - Y2 : Wastes resulting from pharmaceutical preparations.
 - Y3 : Wastes resulting from production, preparation and use of biological insecticides and plant pharmaceutical preparations.
 - Y4 : Wastes resulting from pharmaceutical, drug and medicinal preparations.
 - Y5 : Wastes resulting from preparation, fabrication and use of wood chemical preservatives.
 - Y6 : Wastes resulting from production, preparation and use of organic solvents.
 - Y7 : Wastes resulting from thermal treatment and normalization operations containing cyanides.
 - Y8 : Wastes of mineral oils that are not fit for use for their original purpose.
 - Y9 : Wastes of oil / water mixtures or hydrocarbon / water mixtures or emulsions.
 - Y10 : Wastes of substances or compounds containing PCBs or PCTs or PBBs.
 - Y11 : Wastes of tar residues resulting from refining and distillation and any thermal decomposition treatment.
 - Y12 : Wastes resulting from production, preparation and use of ink, paints, colorants and varnish.
 - Y13 : Wastes resulting from production, preparation and use of resins, plasticizers, glue and adhesives.

- Y14 : Chemical wastes resulting from unclassified / new research, development and educational activities whose impact on man and the environment are not yet known.
- Y15 : Wastes of an explosive nature that are not subject to another legislation.
- Y16 : Wastes resulting from the production, preparation and use of photography chemicals.
- Y17 : Wastes resulting from surface treatment operations of metals and plastics.
- Y18 : Sediments resulting from disposal of industrial wastes.

B. Wastes with the following components:

- Y19 : Metal carbonela
- Y20 : Barbilium or barbium compounds
- Y21 : Chrome compounds
- Y22 : Copper compounds
- Y23 : Zinc compounds
- Y24 : Cyanide / cyanide compounds
- Y25 : Salenium / Salenium compounds
- Y26 : Cadmium / Cadmium compounds
- Y27 : Antimone / Antimone compounds
- Y28 : Tolerium / Tolerium compounds
- Y29 : Mercury / Mercury compounds
- Y30 : Thallium / Thallium compounds
- Y31 : Lead / Lead compounds
- Y32 : Non-organic fluor compounds, excluding calcium fluoride
- Y33 : Non-organic cyanide compounds

- Y34 : Acidic solutions or acids in solid state
- Y35 : Alkaline solutions or alkali in solid state
- Y36 : Asbestos (dust and fiber)
- Y37 : Organic phosphor compounds
- Y38 : Organic cyanide compounds
- Y39 : Phenol / phenol compounds including chlorophyrol compounds
- Y40 : Ether compounds
- Y41 : Organic solvents
- Y42 : Organic solvents other than halogenated solvents
- Y43 : Any substance similar to effervescent benzene
- Y44 : Any substance similar to multi-chloral dioxin-Fo-benzene (?)
- Y45 : Organic halogen compounds, other than those referred to in this appendix (such as Y44, Y43, Y42, Y39)

C. Wastes Requiring Special Care

- Y46 : Domestic wastes
- Y47 : Residues resulting from domestic waste incineration.

Appendix IV

UN Classification *	Code	Properties
1	H1	Explosive materials : is a substance or waste (or a mixture of both), liquid or gaseous that is capable on its own to produce through a chemical reaction a gas at a temperature and a measure of pressure and speed that cause damage to the surroundings.
3	H3	Inflammable liquids : these are liquids or mixtures of liquids containing solid matter in a solution or suspension (such as the types of paints and varnish, but not including materials or wastes classified in a different class because of their hazardous properties) that releases vapor that is inflammable at temperatures not more than 60.5°C in the closed beaker test and not more than 65.6°C in the open beaker test (since the results of the open and closed beaker tests are not exactly identical and the individual results of the same tests differ in many times, any system that differ from the above two figures that aims at taking those differences into consideration will be consistent with the spirit of this definition.
	*	Represents the hazardous material classification in the UN's recommendations on the transportation of hazardous materials ST/SG/AC.10/1/Rev.5, UN, NY, 1988.
4.1	H4.1	Inflammable solid materials : these are solid materials or wastes not classified as explosives, which are inflammable under circumstances encountered during transportation which may cause or contribute to igniting a fire because of friction.
4.2	H4.2	Materials or wastes subject to self-ignition : Materials or wastes exposed to automatic heat under normal circumstances encountered during transportation or when in contact with the air whereupon they become inflammable.
4.3	H4.3	Materials or wastes which emit inflammable gases when they come in contact with water. They self ignite or emit inflammable gases in dangerous quantities when they react with water.

5.1	H5.1	Oxidizers: they are materials or wastes which may not themselves be necessarily inflammable, but they, in general may cause or contribute to combustion of other materials by producing oxygen.
5.2	H5.2	Organic peroxides: Organic matter or wastes that are thermally unstable and may be exposed to <u>accelerated self-decomposition (?)</u>
6.1	H6.1	Toxic materials (severe impact) – matters or wastes capable of causing death or serious damage to man if ingested, inhaled or in contact with the skin.
6.2	H6.2	Infectious materials: Materials or wastes containing viable micro-organisms capable of or suspected of causing disease in animal or man.
8	H8	Corrosive matter: materials or wastes that cause through chemical reaction gross damage that may be repairable or irreparable when they come into contact with live tissues or which may cause, in case of leak basic damage to other goods or the means of transportation to the point of total destruction and may also pose other hazards.
9	H10	Emission of toxic gases in contact with air or water: materials or wastes, which may emit toxic gases in serious quantities when they react with air or water.
9	H11	Toxic matter (with delayed or chronic effects): matters or wastes whose inhalation, ingestion or penetration of the skin may involve delayed or chronic effects, including cancer.
9	H12	Materials toxic to the environment: materials or wastes whose release causes or may cause immediate or delayed damage to the environment through accumulation in living organisms and / or their toxic effect in biological systems.
9	H13	Materials capable in some way after disposal, to produce another matter, examples include materials resulting from infiltration and may have any of the properties listed above.

Tests

Some of the potential hazards posed by certain types of wastes have not been fully documented yet and there are no objective tests to determine these hazards quantitatively. It is imperative to conduct further research in order to devise ways to define the potential hazards of these wastes to man and/or the environment. Standard tests have been developed for pure substances. Many member countries have developed national tests that may be applied to the substances listed in the first Appendix, to determine whether these materials have any of the properties listed in this Appendix.