EUROPEAN COMMUNITIES (GENERAL PROVISIONS ON THE CONTROL OF ADDITIVES, AND IN PARTICULAR COLOURS AND SWEETENERS FOR USE IN FOODSTUFFS) REGULATIONS 1995 -

The Minister for Health in exercise of the powers conferred on him by Section 3 of the European Communities Act, 1972 (No. 27 of 1972) hereby makes the following Regulations for the purpose of giving effect to:
Council Directive 89/107/EEC(1) on the approximation of the laws of the Member States concerning food additives authorised for use in foodstuffs intended for human consumption.
(1)O.J. No. L40, 11.2.89, pp 27-33
European Parliament and Council Directive 94/35/EC(2) on sweeteners for use in foodstuffs.
(2)O.J. No. L237, 10.9.94, pp 3-12
European Parliament and Council Directive 94/36/EC(3) on colours for use in foodstuffs.
(3)O.J. No. L237, 10.9.94, pp 13-29
Commission Directive 95/31/EC(4) laying down specific criteria of purity concerning sweeteners for use in foodstuffs.
(4)O.J. No. L178, 28.7.95, pp 1-19
Commission Directive 95/45/EC(5) laying down specific purity criteria concerning colours for use in foodstuffs.
(5)O.J. No. L226, 22.9.95, pp 1-45

REG 1

1. These Regulations may be cited as the European Communities (General Provisions on the Control of Additives, and in particular Colours and Sweeteners for use in Foodstuffs) Regulations, 1995.

REG 2

2. These Regulations shall come into force on the 31st day of December, 1995.

REG 3

3. In these Regulations words and phrases shall, except where otherwise indicated, be construed as a reference to an article contained in these Regulations or, as may be, to the Schedule thereto; any reference in an article to a sub-article shall be construed as a reference to a sub-article of that article.

PART I
GENERAL PROVISIONS ON FOOD ADDITIVES

REG 4

4. (1) Subject to sub-article (3) of this article, these Regulations shall apply to all food additives coming within the various categories of food additives listed in Schedule I and which are used or intended to be used as ingredients during the manufacture or preparation of a foodstuff and are still present in the final product, even if in altered form, hereinafter called "food additives".
(2) For the purposes of these Regulations "food additive" means any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacture, processing, preparation, treatment, packaging, transport or storage of such food results, or may be reasonably expected to result, in it or its by-products becoming directly or indirectly a component of such foods.
(3) These regulations shall not apply to:
(a) processing aids;
(b) substances used in the protection of plants and plant products in conformity with Community rules relating to plant health;
(c) flavourings for use in foodstuffs for human consumption in accordance with EC (Flavourings for use in Foodstuffs for Human Consumption) Regulations, 1992 (S.I. No. 22 of 1992).
(d) substances added to foodstuffs as nutrients (for example, minerals, trace elements or vitamins).

REG 5

5. (a) For the purposes of these Regulations, "processing aid" means any substance not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, food or their ingredients, to fulfil a certain technological purpose during treatment or processing and which may result in the unintentional but technically unavoidable presence of residues of the substance or its derivatives in the final product, provided that these residues do not present any health risk and do not have any technological effect on the finished product.
(b) The term "quantum satis" when used in the Schedule to these Regulations means that no maximum level is specified. However, the additives in question shall be used in accordance with good manufacturing practice, at a level not higher than is necessary to achieve the intended purpose and provided that they do not mislead the consumer.
(c) For the purposes of these Regulations "unprocessed" means not

having undergone any treatment resulting in a substantial change in the original state of the foodstuffs. However, they may have been, for example, divided, parted, severed, boned, minced, skinned, pared, peeled, ground, cut, cleaned, trimmed, deep-frozen, frozen, chilled, milled or husked, packed or unpacked.
(d) For the purposes of these Regulations:
(i) the word "infant(s)" shall mean a child/ children under the age of twelve months;
(ii) the words "young children" shall mean children aged between one and three years.
(e) For the purposes of these Regulations the term "import" shall be construed to mean "from any place outside the European Union".
(f) For the purposes of these Regulations "sell" shall be construed to include possess for sale or offer, expose or advertise for sale, and "sale" shall be construed accordingly.

REG 6

6. Where the Minister for Health is of the view that the use or intended use in foodstuffs of any food additive, although complying with these Regulations, endangers human health he may take appropriate measures including the temporary suspension or restriction of trade in that food or food additive in order to protect public health.

REG 7

7. (1) Food additives not intended for sale to the ultimate consumer shall not be marketed, imported, manufactured, sold, distributed, offered or kept for sale, unless their packaging or containers bear the following information, which must be conspicuous, clearly legible and indelible;
(a) (i) in the case of food additives sold singly or mixed with each other, for each additive, the name laid down by any regulation made by the Minister for Health and its EEC number or, in the absence of such regulations, a description of the additive that is sufficiently precise to enable it to be distinguished from additives with which it could be confused, in descending order of the proportion by weight in the total;
(ii) when other substances or materials or food ingredients to facilitate storage, sale, standardisation, dilution or dissolution of a food additive or food additive are incorporated in the additives, the name of the additive in accordance with subarticle (1) (a) (i) and an indication of each component in descending order to the proportion by weight in the total.
(b) either the statement "for use in food" or the statement "restricted use in food", or a more specific reference to its intended food use;
(c) if necessary, the special conditions of storage and use;

(d) directions for use, if the omission thereof would preclude appropriate use of the additive;
(e) a mark identifying the batch or lot;
(f) the name or business name and address of the manufacturer or packer, or of a seller established within the European Economic Community;
(g) an indication of the percentage of any component which is subject to a quantitative limitation in a food or adequate compositional information to enable the purchaser to comply with any European Economic Community provisions applying to the food. Where the same quantitive limitation applies to a group of components used singly or in combination, the combined percentage may be given as a single figure;
(h) the net quantity.
(2) By way of derogation from paragraph 1, the information required in sub-article (1) (a) (ii) and sub-article (1) (d) to (g), may appear merely on the documents relating to the consignment which are to be supplied with or prior to the delivery, provided that the indication "intended for manufacture of foodstuffs and not for retail sale" appears on a conspicuous part of the packaging or container of the product in question.

REG 8

8. Food additives intended for sale to the ultimate consumer shall not be marketed, imported, distributed, manufactured, sold or offered for sale, unless their packaging or containers bear the following information which must be conspicuous, clearly legible and indelible.
(a) the name under which the product is sold (this name shall be constituted by the name laid down by any Regulation made by the Minister for Health in relation to the product in question plus its EEC number or, in the absence of such provisions, by a description of the product that is sufficiently precise to enable it to be distinguished from products with which it could be confused);
(b) the information required by article 7 (1) (a) to (f) and (h);
(c) the date of minimum durability within the meaning of the Council Directive 79/112/EEC(1), as amended.
OJ No. L33, 8.2.1979, page 1

REG 9

9. (1) Articles 7 and 8 of these Regulations shall not affect more detailed or more extensive laws, regulations or administrative provisions regarding weights and measures, or applying to the presentation, classification, packaging and labelling of dangerous substances and preparations or the transport of such substances.
(2) The particulars required by articles 7 and 8 shall be given in the Irish or English languages unless other measures have been taken to ensure that the purchaser is informed. The provision shall not

prevent such particulars from also being indicated in various other languages.

REG 10

10. (1) A person shall not import, manufacture, sell, distribute, or offer for sale or keep for sale, food additives except in conformance with these Regulations.
(2) However, and where appropriate, Article 20 may be relied upon by way of derogation from sub-article (1) of this Article.

PART II

SWEETENERS FOR USE IN FOODSTUFFS

REG 11

11. (1) For the purposes of these Regulations, the term "sweeteners" refers to food additives which are used:
— to impart a sweet taste to foodstuffs
— as table-top sweeteners
These Regulations do not apply to foodstuffs with sweetening properties.
(2) A sweetener listed in Schedule II to these Regulations must satisfy the purity criteria for that sweetener as set out in Schedule III laying down specific criteria of purity concerning sweeteners for use in foodstuffs.
(3) For the purpose of these Regulations, "with no added sugar" and 'energy-reduced' in column III of Schedule II shall be defined as follows:
—'with no added sugar': without any added mono-or disaccharides or any other foodstuff used for its sweetening properties;
—'energy-reduced': with an energy value reduced by at least 30% compared with the original foodstuff or a similar product.

REG 12

12. (1) Only those sweeteners listed in Schedule II may be placed on the market with a view to:
—sale to the ultimate consumer; or
—use in the manufacture of foodstuffs.
(2) Sweeteners referred to in the second indent of sub-article (1) may only be used in the manufacture of the foodstuffs listed in Schedule II under the conditions specified therein.
(3) Except where specifically provided for, sweeteners may not be used in foods for infants or young children, as specified in the Health (Foods for Particular Nutritional Uses) Regulations, 1991 (S.I. No. 331 of 1991).
(4) The maximum usable doses indicated in Schedule II refer to ready-to-eat foodstuffs prepared according to the instructions for

use.

REG 13

13. (1) These Regulations shall apply without prejudice to any other Regulations permitting additives listed in Schedule II to be used for purposes other than sweetening.
(2) These Regulations shall also apply without prejudice to national or Community provisions governing the composition and the description of foodstuffs.

REG 14

14. (1) The sale description of a table-top sweetener must include the term 'x based table-top sweetener', where 'x' is the name(s) of the sweetening substances(s) used in its composition.
(2) The labelling of a table-top sweetener containing polyols and/or aspartame must bear the following warnings:
—polyols: `excessive consumption may induce laxative effects',
—aspartame: `contains a source of phenylalanine'.

PART III

COLOURS FOR USE IN FOODSTUFFS

REG 15

15. (1) For the purposes of these Regulations, 'colours' are substances which add or restore colour in a food, and include natural constituents of foodstuffs and natural sources which are normally not consumed as foodstuffs as such and not normally used as characteristic ingredients of food.
Preparations obtained from foodstuffs and other natural source materials obtained by physical and/or chemical extraction resulting in a selective extraction of the pigments relative to the nutritive or aromatic constituents are colours within the meaning of these Regulations.
The following substances shall not be considered colours for the purposes of these Regulations.
(i) foodstuffs, whether dried or in concentrated form and flavourings incorporated during the manufacturing of compound foodstuffs, because of their aromatic, sapid or nutritive properties together with a secondary colouring effect, such as paprika, turmeric and saffron.
(ii) colours used for the colouring of the inedible external parts of foodstuffs, such as cheese coatings and sausage casings.
(2) Only the substances listed in Schedule IV, Part A may be used as colours in foodstuffs.
(3) Colours may be used only in the foodstuffs listed in Schedule IV, Part C, D and E and under the conditions specified therein;

colours may be used in those same foodstuffs when they are intended for particular uses in accordance with Health (Foods for Particular Nutritional Uses) Regulations, 1991 (S.I. No. 331 of 1991).
(4) Colours may not be used in the foodstuffs listed in Schedule IV, Part B except where specifically provided for in Schedule IV, Part C, Part D or Part E.
(5) Colours permitted for certain uses only are listed in Schedule IV, Part D.
(6) Colours permitted in general in foodstuffs and the conditions of use therefor are listed in Schedule IV, Part E.
(7) The maximum levels indicated in Schedule IV to these Regulations
(i) relate to ready-to-eat foodstuffs, prepared according to the instructions for use,
(ii) refer to the quantities of colouring principle contained in the colouring preparation.
(8) For the purpose of health marking as provided in Directive 91/497/EEC(1) and other marking required on meat products, only E155 Brown HT, E133 Brilliant Blue FCF or E129 Allura Red AC or an appropriate mixture of E133 Brilliant Blue FCF and E129 Allura Red AC may be used.
(1)OJ No. L268, 24.9.1991, p. 69
(9) Only those colours mentioned in Schedule IV, Part A may be used for the decorative colouring of eggshells or for the stamping of eggshells as provided in Regulations (EEC) No. 1274/91(2).
(2)OJ No. L121, 16.5.1991, p. 11
(10) Only those colours listed in Schedule IV, Part A, except E123, E127, E128, E154, E160b, E161g, E173 and E180 may be sold directly to consumers.
(11) A colour listed in Schedule IV to these Regulations must satisfy the purity criteria for that colour as set out in Schedule V, laying down specific criteria of purity concerning colours for use in foodstuffs.

REG 16

16. Without prejudice to other European Community provisions, the presence of a colour in a foodstuff is permissible:
(i) in a compound foodstuff other than one mentioned in Schedule IV, Part B to the extent that the colour is permitted in one of the ingredients of the compound foodstuff;
(ii) if the foodstuff is destined to be used solely in the preparation of a compound foodstuff and to such an extent that the compound foodstuff conforms to the provisions of these Regulations.

PART IV

FINAL PROVISIONS

REG 17

17. (a) These Regulations shall be enforced and executed by each health board, established in accordance with the Health Act 1970 (No. 1 of 1970) in respect of its functional area through its authorised officers and/or the officers of the Minister for Health who are authorised officers for the purposes of these Regulations.
(b) For the purposes of these Regulations, "authorised officer" means
(a) an officer of the Minister for Health who is authorised in writing by the Minister for Health to be an authorised officer for the purposes of these Regulations; or
(b) an officer of a health board who is authorised in writing by the Chief Executive Officer of the health board to be an authorised officer for the purposes of these Regulations.

REG 18

18. (1) Where an authorised officer reasonably suspects or believes that a foodstuff or food additive does not comply with these regulations, the authorised officer may seize, remove and/or detain such foodstuffs or food additive as being a foodstuff or food additive which is unfit for human consumption.
(2) With the consent in writing of the owner or person responsible for such foodstuff or food additive, an authorised officer may destroy or otherwise dispose of it so as to prevent its use for human consumption.
(3) An authorised officer who has seized any foodstuff or food additive in pursuance of the provisions of this article may, on giving notice in writing to the owner or person responsible for such foodstuff or food additive apply to a Judge of the District Court for an Order directing that such food or food additive be destroyed or otherwise disposed of as being a foodstuff or food additive which is unfit for human consumption.
(4) A Judge of the District Court to whom the application is made for an Order under sub-article (3) of this article shall, if satisfied that such foodstuff or food additive does not comply with these Regulations, order that it be destroyed or otherwise disposed of after such period, not exceeding fourteen days, as may be specified in such order, as being a foodstuff or food additive

which is unfit for human consumption and an officer shall destroy or dispose of it accordingly.

REG 19

19. A person shall give to any authorised officer all reasonable assistance that the officer may require in the performance of his duties under these Regulations and such assistance shall include the giving of information relating to the composition and use of any foodstuff or food additive and the identity of the person from whom or the place from which any such foodstuff or food additive has been obtained and the person to whom and the place to which it has been consigned or the manner in which it has been consigned or the manner in which it has otherwise been disposed of.

REG 20

20. In any proceedings for an offence under these Regulations it shall be a defence for the person charged to show that the food in respect of which the offence is alleged to have been committed was intended for export and complied with the domestic food legislation of the importing country relevant to the alleged offence.

REG 21

21. (1) Any person who contravenes any Article or Sub Article of these Regulations shall be guilty of an offence.
(2) A person guilty of an offence under the Regulations shall be liable on summary conviction to a fine not exceeding £1,000 or at the discretion of the Court, to imprisonment for a term not exceeding 6 months or to both.
(3) Where an offence under these Regulations is committed by a body corporate and is proved to have been so committed with the consent or connivance of or to be attributable to any neglect on the part of a director, manager, secretary or other officer of the body corporate, the director, manager, secretary or other officer or any person purporting to act in such capacity shall, as well as the body corporate, be guilty of an offence and shall be liable to be proceeded against and punished accordingly.
(4) Notwithstanding section 10 (4) of the Petty Sessions (Ireland) Act, 1851, proceedings for an offence under these Regulations may be instituted within 12 months from the date of the offence.

REG 22

22. An offence under these Regulations shall be prosecuted by the Minister for Health or by a health board in whose functional area the offence was committed.

REG 23

23. The following Regulations are hereby revoked:—
Health (Colouring Agents in Food) Regulations, 1973 (S.I. No. 149 of 1973),
Health (Colouring Agents in Food) (Amendment) Regulations, 1978 (S.I. No. 140 of 1978).
Health (Colouring Agents in Food) (Amendment) Regulations, 1981 (S.I. No. 336 of 1981),
Health (Colouring Agents in Food) (Amendment) Regulations, 1992 (S.I. No. 68 of 1992),
Health (Cyclamate in Food) Regulations, 1970 (S.I. No. 49 of 1970),
Health (Cyclamate in Food) (Amendment) Regulations, 1992 (S.I. No. 73 of 1992), and
European Communities (Labelling of Additives for use in Foodstuffs) Regulations, 1992 (S.I. No. 23 of 1992).

SCHEDULES
SCHEDULE I
Categories of Food Additives
SCHEDULE II
Sweeteners for use in Foodstuffs
SCHEDULE III
Specific Criteria of Purity concerning Sweeteners for use in foodstuffs
SCHEDULE IV
List of Permitted Food Colours

SCHEDULE II
Specific Purity Criteria concerning Colours for use in Foodstuffs

SCHEDULE I

Categories of Food Additives
Colour
Preservative
Anti-oxidant
Emulsifier
Emulsifying salt
Thickener
Gelling agent

Stabilizer(1)
Flavour enhancer
Acid
Acidity regulator(2)
Anti-caking agent
Modified starch
Sweetener
Raising agent
Anti-foaming agent
Glazing agent(3)
Flour treatment agent
Firming agent
Humectant
Sequestrant(4)
Enzyme(4) (5)
Bulking agent
Propellent gas and packaging gas
(1)This category also comprises foam stabilizers.
(2)These can act as two-way acidity regulators.
(3)These substances include lubricants.
(4)Inclusion of these terms in this list is without prejudice to any future decision or mention thereof in the labelling of foodstuffs intended for the final consumer.
(5) Only those used as additives.

SCHEDULE II

Sweeteners for use in Foodstuffs

EC No.NameFoodstuffsMaximum usable doseE420SorbitolDesserts and similar productsquantum satis(i) Sorbital (ii) Sorbital syrupE421Mannitol—Water-based flavoured desserts, energy-reduced or with no addedE953IsomaltsugarE965Maltitol—Milk and milk-derivative-based preparations, energy-reduced or with(i) Maltitolno added sugar(ii) Maltitol syrup—Fruit- and vegetable-based desserts, energy-reduced or with no addedE966LactitolsugarE967Xylitol—Egg-based desserts, energy-reduced or with no added sugar—Cereal-based desserts, energy reduced or with no added sugar—Breakfast cereals or cereal-based products, energy reduced or with no added sugar—Fat-based desserts, energy-reduced or with no added sugar—Edible ices, energy-reduced or with no added sugar—Jams, jellies, marmalades and crystallized fruit, energy-reduced or with no added sugar—Fruit preparations, energy-reduced or with no added sugar, with the exception of those intended for the manufacture of fruit-juice-based drinksConfectionery—Confectionery with no added sugar—Dried-fruit-based confectionery, energy-reduced or with no added sugar—Starch-based confectionery, energy-reduced or with no added sugar

E 420, E 421, E 953, E 965, E 966, E 967 —contd.—Cocoa-based products, energy-reduced or with no added sugar—Cocoa, milk,

dried-fruit or fat-based sandwich spreads, energy-reduced or with no added sugar—Chewing gum with no added sugar—Sauces—Mustard—Fine bakery products, energy-reduced or with no added sugar—Products intended for particular nutritional uses—Solid food supplements/dietary integratorsE 950Acesulfame KNon-alcoholic drinks—Water-based flavoured drinks, energy-reduced or with no added sugar350 mg/l—Milk and milk-derivative-based or fruit-juice-based drinks, energy-reduced or with no added sugar350 mg/lDesserts and similar products—Water-based flavoured desserts, energy-reduced or with no added sugar350 mg/kg—Milk and milk-derivative-based preparations, energy-reduced or with no added sugar350 mg/kg—Fruit and vegetable-based desserts, energy-reduced or with no added sugar350 mg/kg—Egg-based desserts, energy-reduced or with no added sugar350 mg/kg—Cereal-based desserts, energy-reduced or with no added sugar350 mg/kg—Fat-based desserts, energy-reduced or with no added sugar350 mg/kg—'snacks': certain flavours or ready to eat, prepacked, dry, savoury starch products and coated nuts350 mg/kg

E 950—contd.Confectionery—Confectionery with no added sugar500 mg/kg—Cocoa- or dried-fruit-based confectionery, energy-reduced or with no added sugar500 mg/kg—Starch-based confectionery, energy-reduced or with no added sugar1 000 mg/kg—Cocoa, milk, dried-fruit or fat-based sandwich spreads, energy-reduced or with no added sugar1 000 mg/kg—Chewing gum with no added sugar2 000 mg/kg—Cider and perry350 mg/l—Alcohol-free beer or with an alcohol content not exceeding 1,2% vol350 mg/l—'Biere de table/Tafelbier/Table Beer' (original wort content less than 6%) except for 'Obergariges Einfachbier'350 mg/l—Beers with a minimum acidity of 30 milli-equivalents expressed as NaOH350 mg/l—Brown beers of the 'oud bruin' type350 mg/l— Edible ices, energy-reduced or with no added sugar800 mg/kg—Canned or bottled fruit, energy-reduced or with no added sugar350 mg/kg—Energy-reduced jams, jellies and marmalades1 000 mg/kg—Energy-reduced fruit and vegetable preparations350 mg/kg—Sweet-sour preserves of fruit and vegetables200 mg/kg—Sweet-sour preserves and semi-preserves of fish and marinades of fish, crustaceans and molluscs200 mg/kg—Sauces350 mg/kg—Mustard350 mg/kg—Fine bakery products for special nutritional uses1 000 mg/kg—Complete formulae for weight control intended to replace total daily food intake or an individual meal450 mg/kg—Complete formulae and nutritional supplements for use under medical supervision450 mg/kg—Liquid food supplements/dietary integrators350 mg/l—Solid food supplements/dietary integrators500 mg/l—Vitamins and dietary preparations2 000 mg/kg

E 951AspartameNon-alcoholic drinks—Water-based flavoured drinks, energy-reduced or with no added sugar600 mg/l—Milk and milk-derivative-based or fruit-juice-based drinks, energy-reduced or with no added sugar600 mg/lDesserts and similar products—Water-based flavoured desserts, energy-reduced or with no added sugar1 000 mg/kg—Milk and milk-derivative-based preparations, energy-reduced or with no added sugar1 000 mg/kg—Fruit and vegetable-based desserts,

energy-reduced or with no added sugar1 000 mg/kg—Egg-based desserts, energy-reduced or with no added sugar1 000 mg/kg—Cereal-based desserts, energy-reduced or with no added sugar1 000 mg/kg—Fat-based desserts, energy-reduced or with no added sugar1 000 mg/kg—'snacks': certain flavours of ready to eat, prepacked, dry, savoury starch products and coated nuts500 mg/kgConfectionery—Confectionery with no added sugar1 000 mg/kg—Cocoa or dried-fruit-based confectionery, energy-reduced or with no added sugar2 000 mg/kg—Starch-based confectionery, energy-reduced or with no added sugar2 000 mg/kg—Cocoa-, milk-, dried-fruit or fat-based sandwich spreads, energy reduced or with no added sugar1 000 mg/kg—Chewing gum with no added sugar5 500 mg/kg—Cider and perry600 mg/l—Alcohol-free or with an alcohol content not exceeding 1,2% vol600 mg/l—'Biere de table/Tafelbier Beer' (original wort content less than 6%) except for 'Obergariges Einfachbier'600 mg/l—Beers with a minimum acidity of 30 milli-equivalents expressed as NaOH600 mg/l—Brown Beers of the 'oud bruin' type600 mg/l

E 951—contd.—Edible ices, energy-reduced or with no added sugar800 mg/kg—Canned or bottled fruit, energy-reduced or with no added sugar1 000 mg/kg—Energy-reduced jams, jellies and marmalades1 000 mg/kg—Energy-reduced fruit and vegetable preperations1 000 mg/kg—Sweet-sour preserves of fruit and vegetables300 mg/kg—Sweet-sour preserves and semi-preserves of fish and marinades of fish, crustaceans and molluscs300 mg/kg—Sauces350 mg/kg—Mustard350 mg/kg—Fine bakery products for special nutritional uses1 700 mg/kg—Complete formulae for weight control intended to replace total daily food intake or an individual meal800 mg/kg—Complete formulae and nutritional supplements for use under medical supervision1 000 mg/kg—Liquid food supplements/dietary integrators600 mg/kg—Solid food supplements/dietary integrators2 000 mg/kgVitamins and dietary preperations5 500 mg/kgE 952Cyclamic acid and its Na and Ca saltsNon-alcoholic drinks—Water-based flavoured drinks, energy-reduced or with no added sugar400 mg/l—Milk and milk-derivative-based or fruit-juice-based drinks, energy-reduced or with no added sugar400 mg/lDesserts and similar products—Water-based flavoured desserts, energy-reduced or with no added sugar250 mg/kg—Milk-and milk-derivative-based preparations, energy-reduced or with no sugar added250 mg/kg—Fruit-and vegetable-based desserts, energy-reduced or with no added sugar250 mg/kg—Egg-based desserts, energy-reduced or with no added sugar250 mg/kg—Cereal-based desserts, energy-reduced or with no added sugar250 mg/kg—Fat-based desserts, energy-reduced or with no added sugar250 mg/kg

E 952—contd.Confectionery—Confectionery with no added sugar500 mg/kg—Cocoa or dried-fruit-based confectionery, energy-reduced or with no added sugar500 mg/kg—Starch-based confectionery, energy-reduced or with no added sugar500 mg/kg—Cocoa, milk, dried-fruit or fat-based sandwich spreads, energy-reduced or with no added sugar500 mg/kg—Chewing gum with no added sugar1 500 mg/kg—Edible ices,

energy-reduced or with no added sugar250 mg/kg—Canned or bottled fruit, energy-reduced or with no added sugar1 000 mg/kg—Energy-reduced jams, jellies, and marmalades1 000 mg/kg—Energy-reduced fruit and vegetable preparations250 mg/kg—Fine bakery products for special nutritional uses1 600 mg/kg—Complete formulae for weight control intended to replace total daily food intake or an individual meal400 mg/kg—Complete formulae and nutritional supplements for use under medical supervision400 mg/kg—Liquid food supplements/dietary integrators400 mg/kg—Solid food supplements/dietary integrators500 mg/kgE 954Saccharin and its Na, K and Ca saltsNon-alcoholic drinks—Water-based flavoured drinks, energy-reduced or with no added sugar80 mg/l—Milk-and milk-derivative-based or fruit-based drinks, energy-reduced or with no added sugar80 mg/l—'Gaseosa': non-alcoholic water-based drink with added carbon dioxide, sweeteners and flavourings100 mg/l

E 954—contd.Desserts and similar products—Water-based flavoured desserts, energy-reduced or with no added sugar100 mg/kg—Milk-and milk-derivative-based preperations, energy-reduced or with no added sugar100 mg/kg—Fruit and vegetable-based desserts, energy-reduced or with no added sugar100 mg/kg—Egg-based desserts, energy-reduced or with no added sugar100 mg/kg—Cereal-based desserts, energy-reduced or with no added sugar100 mg/kg—Fat-based desserts, energy-reduced or with no added sugar100 mg/kg—'snacks': certain flavours of ready to eat, prepacked, dry savoury starch products and coated nuts100 mg/kgConfectionery—Confectionery with no added sugar500 mg/kg—Cocoa-or dried-fruit-based confectionery, energy reduced or with no added sugar500 mg/kg—Starch-based confectionery, energy-reduced or with no added sugar300 mg/kg—Essoblaten800 mg/kg—Cocoa-, milk, dried-fruit or fat-based sandwich spreads, energy-reduced or with no added sugar200 mg/kg—Chewing gum with no added sugar1 200 mg/kg—Cider and perry80 mg/l—Alcohol-free beer or with an alcohol content not exceeding 1.2% vol80 mg/l—'Biere de table/Tafelbier/Table beer' (original wort content less than 6%) except 'Obergariges Einfachbier'80 mg/l—Beers with a minimum acidity of 30 milli-equivalents expressed as NaOH80 mg/l—Brown beers of the 'oud bruin' type80 mg/l —Edible ices, energy-reduced or with no added sugar100 mg/kg—Canned or bottled fruit, energy-reduced or with no added sugar200 mg/kg—Energy-reduced jams, jellies and marmalades200 mg/kg

E 954 — contd.—Energy-reduced fruit and vegetable preperations200 mg/kg—Sweet-sour preserves of fruit and vegetables160 mg/kg—Sweet-sour preserves and semi-preserves of fish and marinades of fish, crustaceans and molluscs160 mg/kg—Sauces160 mg/kg—Mustard320 mg/kg—Fine bakery products for special nutritional uses170 mg/kg—Complete formulae for weight control intended to replace total daily food intake or an individual meal240 mg/kg—Complete formulae and nutritional supplements for use under medical supervision200 mg/kg—Liquid food supplements/dietary integrators80 mg/kg—Solid food supplements/dietary integrators500 mg/kg—Vitamins and dietary preparations1 200 mg/kgE

957ThaumatinConfectionery—Confectionery with no added sugar50 mg/kg—Cocoa-or dried-fruit-based confectionery, energy-reduced or with no added sugar50 mg/kg—Chewing gum with no added sugar50 mg/kg—Vitamins and dietary preparations400 mg/kgE 959Neohesperidine DCNon-alcoholic drinks—Water based flavoured drinks, energy-reduced or with no added sugar30 mg/l—Milk and milk-derivative-based drinks, energy-reduced or with no added sugar50 mg/l—Fruit-juice-based drinks, energy-reduced or with no added sugar30 mg/lDesserts and similar products—Water-based flavoured desserts, energy-reduced or with no added sugar50 mg/kg—Milk-and milk-derivative-based preparations, energy-reduced or with no added sugar50 mg/kg

E959 — contd.—Fruit and vegetable-based desserts, energy-reduced or with no added sugar50 mg/kg—Egg-based desserts, energy-reduced or with no added sugar50 mg/kg—Cereal-based desserts, energy-reduced or with no added sugar50 mg/kg—Fat-based desserts, energy-reduced or with no added sugar50 mg/kgConfectionery—Confectionery with no added sugar100 mg/kg—Cocoa or dried-fruit-based confectionery, energy- reduced or with no added sugar100 mg/kg—Starch-based confectionery, energy-reduced or with no added sugar150 mg/kg—Essoblaten50 mg/kg—Cocoa-, milk-, dried-fruit or fat-based sandwich spreads, energy-reduced or with no added sugar50 mg/kg—Chewing gum with no added sugar400 mg/kg—Cider and perry20 mg/l—Alcohol-free beer or with an alcohol content not exceeding 1.2% vol10 mg/l—'Biere de table/Tafelbier/Table beer' (original wort content less than 6%) except 'Obergariges Einfachbier'10 mg/l—Beers with a minimum acidity of 30 milli-equivalents expressed as NaOH10 mg/l—Brown beers of the 'oud bruin' type10 mg/l—Edible ices, energy-reduced or with no added sugar50 mg/kg—Canned or bottled fruit, energy-reduced or with no added sugar50 mg/kg—Energy-reduced jams, jellies and marmalades50 mg/kg—Sweet-sour preserves of fruit and vegetables100 mg/kg—Energy-reduced fruit and vegetable preparations50 mg/kg—Sweet-sour preserves and semi-preserves of fish and marinades of fish, crustaceans and molluscs30 mg/kg—Sauces50 mg/kg—Mustard50 mg/kg—Fine bakery products for special nutritional uses150 mg/kg—Complete formulae for weight control intended to replace total daily food intake or an individual meal100 mg/kg—Liquid food supplements/dietary integrators50 mg/kg—Solid food supplements/dietary integrators100 mg/kg

SCHEDULE III

Specific Criteria of Purity concerning Sweeteners for use in foodstuffs

E 420 (i) — SORBITOLD-glucitol, D-sorbitolDefinitionChemical nameD-glucitolEinics200-061-5E numberE 420 (i)Chemical formulaC6H14O6Relative molecular mass182,17AssayContent not less than 97% of total glycitols and not less than 91% of D-sorbitol on the dry weight basis.Glycitols are compounds with the structural formula CH2OH(CHOH)nCH2OH, where "n" is an integer.DescriptionWhite hygroscopic powder, cystalline powder, flakes or granules having a sweet

taste.IdentificationA. SolubilityVery soluble in water, slightly soluble in ethanolB. Melting range88 to 102°CC. Sorbitol monobenzylidene derivativeTo 5g of the sample add 7 ml of methanol, 1ml of benzaldehyde and 1ml of hydrochloric acid. Mix and shake in a mechanical shaker until crystals appear. Filter with the aid of suction, dissolve the crystals in 20ml of boiling water containing 1g of sodium bicarbonate, filter while hot, cool the filtrate, filter with suction, wash with 5ml of methanol-water mixture (1 in 2) and dry in air. The crystals so obtained melt between 173 and 179°C.PurityWater contentNot more than 1% (Karl Fischer method)Sulphated ashNot more than 0.1% expressed on dry weight basisReducing sugarsNot more than 0.3% expressed as glucose on dry weight basisTotal sugarsNot more than 1 % expressed as glucose on dry weight basisChloridesNot more than 50 mg/kg expressed on dry weight basisSulphatesNot more than 100 mg/kg on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 420 (ii) SORBITOL SYRUPSynonymsD-glucitol syrupDefinitionChemical nameSorbitol syrup formed by hydrogenation of glucose syrup is composed of D-sorbitol, D-mannitol and hydrogenated saccharides.The part of the product which is not D-sorbitol is composed mainly of hydrogenated oligosaccharides formed by the hydrogenation of glucose syrup used as raw material (in which case the syrup is non-crystalising) or mannitol. Minor quantities of glycitols where n < 4 may be present. Glycitols are compounds with the structural formula CH2OH-(CHOH)n-CH2OH, where 'n' is an integerEinics270-337-8E numberE 420 (ii)AssayContent not less than 69% total solids and not less than 50% of D-sorbitol on the anhydrous basisDescriptionClear colourless aand sweet tasting aqueous solutionIdentificationA. SolubilityMiscible with water, with glycerol, and with propane -1,2-diolB. Sorbitol monobenzylidene derivativeTo 5g of the sample add 7 ml of methanol, 1ml of benzaldehyde and 1ml of hydrochloric acid. Mix and shake in a mechanical shaker until crystals appear. Filter with the aid of suction, dissolve the crystals in 20ml of boiling water containing 1g of sodium bicarbonate, filter while hot. Cool the filtrate, filter with suction, wash with 5ml of methanol-water mixture (1 in 2) and dry in air. The crystals so obtained melt between 173 and 179°C.PurityWater contentNot more than 31% (Karl Fischer method)Sulphated ashNot more than 0,1% expressed on dry weight basisReducing sugarsNot more than 0,3% expressed as glucose on dry weight basisChloridesNot more than 50 mg/kg expressed on dry weight basisSulphatesNot more than 100 mg/kg expressed on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 421 — MANNITOLSynonymsD-MannitolDefinitionChemical nameD-mannitolEinics200-711-8E numberE 421Chemical formulaC6H14O6Relative molecular mass182,2AssayContent not less than 96% D-mannitol on the dried basisDescriptionSweet tasting, white, odourless, cyrstalline powderIdentificationA. SolubilitySolublePurityLoss on dryingNot more than

0,3% (105 °C, four hours)pHBetween 5 and 8Add 0,5ml of a saturated solution of potassium chloride to 10ml of a 10% w/v solution of the sample then measure the pHSpecific rotationa Specific rotation in a borated solution calculated with reference to the anhydrous substance is between + 23 and + 25°Sulphated ashNot more than 0,1% expressed on dry weight basisReducing sugarsNot more than 0,3% expressed as glucose on dry weight basisTotal sugarsNot more than 1% expressed as glucose on dry weight basisChloridesNot more than 70 mg/kg expressed on dry weight basisSulphatesNot more than 100 mg/kg expressed on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 953 — ISOMALTSynonymsHydrogenated isomaltulose, hydrogenated palatinoseDefinitionChemical nameIsomalt is a mixture of:D-glucopyranosyl-1.6-D-glucitol andD-glucopyranosyl-1.1-D-mannitoldihydrateEinicsE numberE 953Chemical formulaD-glucopyranosyl-1.6-D-glucitol: C12H24O11D-glucopyranosyl-1,1-D-mannitoldihydrate: C12H24O112H2ORelative molecular massD-glucopyranosyl-1,6-D-glucitol: 344,32D-glucopyranosyl-1,1-D-mannitoldihydrate: 380,32AssayContent not less than 95% of the mixture of D-glucopyranosyl-1,6-D-glucitol and D-glucopyranosyl-1,1-D-mannitol dihydrate determined on the anhydrous basisDescriptionOdourless, white, sweet tasting, crystalline slightly hygroscopic substanceIdentificationA. SolubilitySlightly soluble in water, insoluble in ethanolB. Specific rotationa : between + 90 and + 92°
(4% w/v solution)C. Melting range145 to 150 °CTestsWater contentNot more than 7% (Karl Fischer method)Sulphated ashNot more than 0,05% expressed on dry weight basisReducing sugarsNot more than 1,5% expressed as glucose on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed on dry weight basis

E 965 (i) — MALTITOLSynonymsD-maltitol, hydrogenated maltoseDefinitionChemical name(a)-D-glucopyranosyl-1,4-D-glucitolEinics209-567-0E numberE 965 (i)Chemical formulaC12H24O11Relative molecular mass344,31AssayContent not less than 98% D-mannitol C12H24O11 on the anhydrous basisDescriptionSweet tasting, white crystalline powderIdentificationA. SolubilityVery soluble in water, slightly soluble in ethanolB. Melting range148 to 151 °CC. Specific rotation(a) = + 105,5 to + 105,5° (5% w/v solution)PurityWater contentNot more than 1% (Karl Fischer method)Sulphated ashNot more than 0,1% expressed on dry weight basisReducing sugarsNot more than 0,1% expressed as glucose on dry weight basisChloridesNot more than 50 mg/kg expressed on dry weight

basisSulphatesNot more than 100 mg/kg expressed on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed on dry weight basis

E 965 (ii) — MALTITOL SYRUPSynonymsHydrogenated high maltose-glucose syrup, hydrogenated glucose syrupDefinitionChemical nameA mixture consisting of mainly maltitol with sorbitol and hydrogenated oligo- and polysaccharides. It is manufactured by the catalytic hydrogenation of high maltose-content glucose syrup. The article of commerce is supplied both as a syrup and as a solid productEinics270-337-8E numberE 965 (ii)AssayThe following ranges apply on the anhydrous basis: Maltitol not less than 50% Sorbitol not more than 8% Maltitol not more than 25%Hydrogenated polysaccharides containing more than three glucose or glucitol units not more than 30%DescriptionSweet-tasting, colourless and odourless, clear viscous liquids or sweet-tasting white crystalline massesIdentificationDescriptionIdentificationA. SolubilityVery soluble in water, slightly soluble in ethanolB. Thin layer chromatographyExamine by the thin layer chromatography using a plate coated with a 0,25 mm layer of chromatographic silica gelPurity Water content Not more than 31% (Karl Fischer method)Sulphated ashNot more than 0,1% expressed on dry weight basisReducing sugarsNot more than 0,3% expressed as glucose on dry weight basisChloridesNot more than 50 mg/kg expressed on dry weight basisSulphatesNot more than 100 mg/kg expressed on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenic Not more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 966 — LACTITOLSynonymsLactit, lactositol, lactobiositDefinitionChemical name 4-0-ß-D-galactopyranosyl-D-glucitolEinics209-566-5E numberE 966Chemical formula C12H24O11Relative molecular mass 344,32AssayNot less than 95% on the dry weight basisDescriptionSweet-tasting, crystalline powders or colourless solutions. Crystalline products occur in anhydrous, monohydrate and dihydrate formsIdentificationA. SolubilityVery soluble in waterB. Specific rotation (a) = + 13 to + 16° calculated on the anhydrous basis (10% w/v aqueous solution)PurityWater contentCrystalline products; not more than 10.5% (Karl Fischer method)Other polyols Not more than 2,5% on the anhydrous basisReducing sugarsNot more than 0,2% expressed as glucose on dry weight basisChlorides Not more than 100 mg/kg expressed on dry weight basis SulphatesNot more than 200 mg/kg expressed on dry weight basisSulphated ashNot more than 0,1% expressed on dry weight basisNickelNot more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 967 — XYLITOLSynonymsXylitolDefinition Chemical name D-xylitolEinics201-788-0E number E 967 Chemical formulaC5H12O5Relative molecular mass152,15Assay Not less than 98,5% as xylitol on the anhydrous basisDescription White, Crystalline Powder, practically odourless with a very sweet tasteIdentificationA. SolubilityVery soluble in water, sparingly soluble in ethanolB. Melting range92 to 96 °C C. pH5 to 7 (10 w/v aqueous solution)PurityLoss on drying Not more than 0,5%. Dry 0,5 g of sample in a vacuum over phosphorus at 60 °C for four hoursSulphated ashNot more than 0,1% expressed on dry weight basisReducing sugarsNot more than 0,2% expressed as glucose on dry weight basisOther polyhydric alcohols Not more than 1% expressed on dry weight basisNickel Not more than 2 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metals Not more than 10 mg/kg expressed as Pb on dry weight basisChloridesNot more than 100 mg/kg expressed on dry weight basisSulphatesNot more than 200 mg/kg expressed on dry weight basis

E 950 — ACESULFAME KSynonymsAcesulfame potassium, acesulfam, potassium salt of 3,4-dihydro-6-methyl-1,2,3-oxathiazin-4-one-2,2-dioxideDefinitionChemical name6-methyl-1,2,3-oxathiazin-4(3H)-one-2,2-dioxide potassium saltEinecs259-715-3E numberE 950Chemical formulaC4H4NO4SKRelative molecular mass201,24AssayNot less than 99% of C4H4NO4SK on the anhydrous basisDescriptionOdourless, white, crystalline powder having an intensively sweet taste. Approximately 200 times as sweet as sucroseIdentificationA. SolubilityVery soluble in water, very slightly soluble in ethanolB. Ultra-violet absorptionMaximum 227 ± 2 nm for a solution of 10 mg in 1,000 ml of waterPurityLoss on dryingNot more than 1% (105 °C, two hours)ArsenicNot more than 3 mg/kg expressed on dry weight basisSeleniumNot more than 30 mg/kg expressed on dry weight basisFluorideNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basis

E 951 — ASPARTAMESynonymsAspartyl phenylalanine methyl esterDefinitionChemical nameN-L-a -(Aspartyl-L-phenylalanine-1-methyl ester, 3-amino-N-(a-carbomethoxy-phenethyl)-succinamic acid-N-methy esterEinecs245-261-3E numberE 951Chemical formulaC14H18N2O5Relative molecular mass294,31AssayNot less than 98% and not more than 102% of C14H18N2O5on the anhydrous basisDescriptionWhite, odourless, crystalline powder having a sweet taste. Approximately 200 times as sweet as SucroseIdentificationSolubilitySlightly soluble in water and in ethanolPurityLoss on dryingNot more than 4,5% (105°C, four hours)Sulphated ashNot more than 0,2% expressed on dry weight basispHBetween 4,5 and 6,0 (1 in 125 solution)TransmittanceThe transmittance of a 1% solution in 2N hydrochloric acid, determined in a 1-cm cell at 430 nm with a suitable spectrophotometer, using

2N hydrochloric acid as a reference, is not less than 0,95, equivalent to an absorbance of not more than approximately 0,022Specific rotation(a) : + 14,5 to + 16,5°
Determine in a 4 in 100/15 N formic acid solution within 30 minutes after preparation of the sample solutionArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed on dry weight basis5-Benzyl-3,6-dioxo-2-piperazineacetic acidNot more than 1,5% expressed on dry weight basis

E 952 — CYCLAMIC ACID AND ITS Na AND Ca SALTS(I) CYCLAMIC ACIDSynonyms Cyclohexylsulphamic acid, cyclamateDefinition Chemical nameCyclohexanesulphamic acid, cyclohexylaminosulphonic acidEinecs202-898-1E numberE 952Chemical formula C6H13NO3 SRelative molecular mass 179,24AssayCyclohexylsulphamic acid contains not less than 98% and not more than the equivalent of 102% of C6H13NO3S, calculated on the anhydrous basisDescription A practically colourless, white crystalline powder with a sweet-sour taste. Approximately 40 times as sweet as sucrosePurityLoss on dryingNot more than 1% (105°C, one hour)
Not more than 8,5% (140°C, four hours) for the dihydrate formSeleniumNot more than 30 mg/kg expressed as selenium on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisCyclohexylamineNot more than 10 mg/kg expressed on dry weight basisDicyclohexylamineNot more than 1 mg/kg expressed on dry weight basisAnilineNot more than 1 mg/kg expressed on dry weight basis

E 952 — CYCLAMIC ACID AND ITS Na AND Ca SALTS—contd.(II) SODIUM CYCLAMATE Synonyms Cyclamate, sodium salt of cyclamic acidDefinition Sodium cyclohexanesulphamate, sodium cyclohexylsulphamateChemical name205-348-9EinecsE 952E numberC6H12NNaO3S and the dihydrate form C6H12NNaO3S·2H2OChemical formula201,22 calculated on the anhydrous formRelative molecular mass237,22 calculated on the hydrated formAssayNot less than 98% and not more than 102% on the dried basis Dihydrate form: not less than 84% on the dried basisDescriptionWhite, odourless crystals or crystalline powder. Approximately 30 times as sweet as sucroseIdentificationSolubilitySoluble in water, practically insoluble in ethanolPurityLoss on dryingNot more than 1% (105°C, one hour) Not more than 15,2% (105°C, two hours) for the dihydrate formSeleniumNot more than 30 mg/kg expressed as selenium on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisCyclohexylamineNot more than 10 mg/kg expressed on dry weight basisDicyclohexylamineNot more than 1 mg/kg expressed on dry weight basisAnilineNot more than 1 mg/kg expressed on dry weight basis

E 952 — CYCLAMIC ACID AND ITS Na AND Ca SALTS — contd.(III) CALCIUM CYCLAMATE SynonymsCyclamate, calcium salt of cyclamic acidDefinitionChemical nameCalcium cyclohexanesulphamate, calcium cyclohexylsulphamateEinecs205-349-4E numberE 952Chemical formulaC12H24CaN2O6S2·2H2ORelative molecular mass432,57AssayNot less than 98% and not more than 10% on the dried basisDescriptionWhite, colourless crystals or crystaline powder. Approximately 30 times as sweet as sucroseIdentificationSolubilitySoluble in water, sparingly soluble in ethanolPurity Not more than 1% (105°C, one hour)Loss on dryingNot more than 8,5% (140°C, four hours) for the dihydrate formSeleniumNot more than 30 mg/kg expressed as selenium on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisCyclohexylamineNot more than 10 mg/kg expressed on dry weight basisDicyclohexylamineNot more than 1 mg/kg expressed on dry weight basisAnilineNot more than 1 mg/kg expressed on dry weight basis

E 954 — SACCHARIN AND ITS Na. K AND Ca SALTS (I) SACCHARINDefinitionChemical name 3-oxo-2,3dihydrobenzo(d)isothiazol-1,1-dioxideEinecs201-321-0E numberE 954Chemical formulaC7H5NO3SRelative molecular mass183,18AssayNot less than 99% and not more than 101,0% of C7H5NO3S on the anhydrous basisDescription White crystals or a white crystalline powder, odourless or with a faint, aromatic odour having a sweet taste even in very dilute solutions. Approximately between 300 and 500 times as sweet as sucroseIdentification SolubilitySlightly soluble in water, soluble in basic solutions, sparingly soluble in ethanolPurityLoss on drying Not more than 1% (105°C, two hours) Melting range 226 to 230°CArsenicNot more than 3 mg/kg expressed on dry weight basisSeleniumNot more than 30 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisSulphated ash Not more than 0,2% expressed on dry weight basisBenzoic and salicylic acidTo 10 ml of a 1 in 20 solution, previously acidified with five drops of acetic acid, add three drops of an approximately molar solution of ferric chloride in water. No precipitate or violet colour appearso-Toluenesulphonamide Not more than 10 mg/kg expressed on dry weight basis P-Toluenesulphonamide Not more than 10 mg/kg expressed on dry weight basisBenzoic acid p-sulfonamideNot more than 25 mg/kg expressed on dry weight basisReadily carbonizable substancesAbsent

E 954 — SACCHARIN AND ITS Na. K AND Ca SALTS — contd.(II) SODIUM SACCHARINSynonymsSaccharin, sodium salt of saccharinDefinitionChemical name Sodium o-benzosulphimide,
sodium salt of 2,3-dihydro-3-oxobenzisosulfonazole,
oxobenzisosulfonazole,
1,2-benzisotfhiazolin-3-one-1,
1-dioxide sodium salt dihydrateEinecs204-886-1E numberE 954 Chemical

formulaC7H4NNaO3S·2H2ORelative molecular m{ass241,19AssayNot less than 99% and not more than 101% of C7H4NNaO3S·on the anhydrous basisDescriptionWhite crystals or a white crystalline efflorescent powder, odourless or with a faint odour, having an intensely sweet taste, even in very dilute solutions. Approximately between 300 and 500 times as sweet as sucrose in dilute solutionsIdentificationSolubilityFreely soluble in water, sparingly soluble in ethanolPurityLoss on dryingNot more than 15% (120°C, four hours)ArsenicNot more than 3 mg/kg expressed on dry weight basisSeleniumNot more than 30 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisBenzoic and salicylic acidTo 10 ml of a 1 in 20 solution, previously acidified with five drops of acetic acid, add three drops of an approximately molar solution of ferric chloride in water. No precipitate or violet colour appearso-ToluenesulphonamideNot more than 10 mg/kg expressed on dry weight basisP-Toluenesulphonamide Not more than 10 mg/kg expressed on dry weight basisBenzoic acid p-sulfonamideNot more than 25 mg/kg expressed on dry weight basisReadily carbonizable substancesAbsent

E 954 — SACCHARIN AND ITS Na. K AND Ca SALTS — contd.(III) CALCIUM SACCHARINSynonymsSaccharin, calcium salt of saccharinDefinition Chemical nameCalcium o-benzosulphimide, calcium salt of 2,3-dihydro-3-oxobenzisosulphonazole, 1,2-benzisothiazolin-3-one-1,1-dioxide calcium salt hydrate (2:7)Einecs229-349-0E numberE 954Chemical formula C14H8CaN2O6S2 3½H2ORelative molecular mass467,48AssayNot less than 95% of C14H8CaN2O6S2 on the anhydrous basisDescriptionWhite crystals or a white crystalline powder, odourless or with a faint odour, having an intensely sweet taste, even in very dilute solutions. Approximately between 300 and 500 times as sweet as sucrose in dilute solutionsIdentificationSolubilityFreely soluble in water, soluble in ethanolPurity Loss on drying Not more than 13,5% (120°C, four hours)ArsenicNot more than 3 mg/kg expressed on dry weight basisSeleniumNot more than 30 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metals Not more than 10 mg/kg expressed as Pb on dry weight basisBenzoic and salicylic acidTo 10 ml of a 1 in 20 solution, previously acidified with five drops of acetic acid, add three drops of an approximately molar solution of ferric chloride in water. No precipitate or violet colour appearso-ToluenesulphonamideNot more than 10 mg/kg expressed on dry weight basisP-ToluenesulphonamideNot more than 10 mg/kg expressed on dry weight basisBenzoic acid p-sulfonamideNot more than 25 mg/kg expressed on dry weight basisReadily carbonizable substancesAbsent

E 954 — SACCHARIN AND ITS Na. K AND Ca SALTS — contd.(IV) POTASSIUM SACCHARINSynonymsSaccharin, potassium salt of saccharinDefinitionChemical name Potassium o-benzosulphimide, potassium

salt of- 2,3-dihydro-3-oxobenzisosulphonazole, potassium salt of 1,2-benzisothiazolin-3-one-1,1-dioxide monohydrateEinecsE numberE 954Chemical formulaC7H4KNO3SH2ORelative molecular mass239,77AssayNot less than 99% and not more than 101% of C7H4KNO3S2on the anhydrous basisDescription White crystals or a white crystalline powder, odourless or with a faint odour having an intensely sweet taste, even in very dilute solutions. Approximately between 300 and 500 times as sweet as sucroseIdentificationSolubilityFreely soluble in water, sparingly soluble in ethanolPurityLoss on drying Not more than 8% (120 °C, four hours)ArsenicNot more than 3 mg/kg expressed on dry weight basisSeleniumNot more than 30 mg/kg expressed on dry weight basisLeadNot more than 1 mg/kg expressed on dry weight basisHeavy metalsNot more than 10 mg/kg expressed as Pb on dry weight basisBenzoic and salicylic acidTo 10 ml of a 1 in 20 solution, previously acidified with five drops of acetic acid, add three drops of an approximately molar solution of ferric chloride in water. No precipitate or violet colour appearso-Toluenesulphonamide Not more than 10 mg/kg expressed on dry weight basisP-Toluenesulphonamide Not more than 10 mg/kg expressed on dry weight basisBenzoic acid p-sulfonamide Not more than 25 mg/kg expressed on dry weight basisReadily carbonizable substancesAbsent

E 957 — THAUMATINSynonymsDefinitionChemical nameThaumatin is obtained by aqueous extraction (pH 2.5 to 4) of the arils of the fruit of the natural strain of Thaumatococcus daniellii (Benth) and consists essentially of the proteins thaumatin I and thaumatin II together with minor amounts of plant constituents derived from the source materialEinecs258-822-2E numberE 957Chemical formulaPolypeptide of 207 amino acidsRelative molecular massThaumatin I 22209 Thaumatin II 22293AssayNot less than 16% nitrogen on the dried basis equivalent to not less than 94% proteins (N x 5,8)DescriptionOdourless, cream-coloured powder with an intensely sweet taste. Approximately 2 000 to 3 000 times as sweet as sucroseIdentification SolubilityVery soluble in water, insoluble in acetonePurityLoss on dryingNot more than 9% (105 °C to constant weight)CarbohydratesNot more than 3% expressed on dry weight basisSulphated ashNot more than 2% expressed on dry weight basisAluminiumNot more than 100 mg/kg expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLead3 mg/kg expressed on dry weight basisMicrobiological criteriaTotal aerobic microbial count: Max 1,000/g E. Coli: absent in 1g

E959 — NEOHESPERIDINE DIHYDROCHALCONESynonymsNeohesperidine dihydrochalcone, NHDC, hesperetin dihydrochalcone-4'-ß- neohesperidoside, neohesperidin DC DefinitionChemical name2-O-a -L-rhamnopyranosyl-4'-ß-D-glucopyranosyl hesperetin dihydrochalcone; obtained by catalytic hydrogenation of neohesperidinEinecs243-978-6E numberE 959Chemical formulaC28H36O15Relative molecular mass612,6AssayContent not less than 96% on the dried basisDescriptionOff while, odourless, crystalline powder having a

characteristic, intensive sweet taste. Approximately between 1 000 and 1 800 times as sweet as sucroseIdentificationA. SolubilityFreely soluble in hot water, very slightly soluble in cold water, practically insoluble in ether and benzeneB. Ultraviolet absorption maximum282 to 283 nm for a solution of 2 mg in 100 ml methanolC. Neu's testDissolve about 10 mg of neohesperidine DC in 1 ml methanol, add 1 ml of a 1% 2-aminoethyl diphenyl borate methanolic solution. A bright yellow colour is producedPurity Loss on drying Not more than 11% (105°C, three hours)Sulphated ash Not more than 0.2% expressed on dry weight basisArsenicNot more than 3 mg/kg expressed on dry weight basisLeadNot more than 2 mg/kg expressed on dry weight basisHeavy metalNot more than 10 mg/kg expressed as Pb on dry weight basis

SCHEDULE IV

PART A
List of Permitted Food Colours
Note: Aluminium lakes prepared from colours mentioned in this Part are authorized

EC NumberCommon NameColour Index Number(1) or descriptionE100 Curcumin75300E101 (i) Riboflavin (ii) Riboflavin-5'-phosphateE102Tartrazine19140E104Quinoline Yellow47005E110Sunset Yellow FCF15985Orange Yellow SE120Cochineal, Carminic acid. Carmines 75470E122Azorubine, Carmoisine14720E123Amaranth16185E124Ponceau 4R, Cochineal Red A16255E127Erythrosine45430E128Red 2G18050E129Allura Red AC16035E131Patent Blue V42051E132Indigotine, Indigo carmine 73015E133Brilliant Blue FCF 42090E140Chlorophylls and 75810Chlorophyllins75815(i) Chlorophylls (ii) Chlorophyllins E141Copper complexes of chlorophylls and chlorophyllins 75815(i) Copper complexes of chlorophylls (ii) Copper complexes of chlorophyllins E 142Greens S44090E150aPlain caramel (2)E150bCaustic sulphite caramel E150cAmmonia caramel E150dSulphite ammonia caramel E151Brilliant Black BN, Black PN28440E153Vegetable carbonE154Brown FKE155Brown HT20285E160aCarotenes:(i) Mixed carotenes75130(ii) Beta-carotene40800E160bAnnatto, bixin, norbixin75120E160cPaprika extract, capsanthin, capsorubinE160dLycopene
(1) Colour index numbers are taken from the third edition 1982 of the Colour Index, volumes 1 to 7, 1315. Also amendments 37 to 40 (125), 41 to 44 (127-50), 45 to 48 (130), 49 to 52 (132-50), 53 to 56 (135).
(2) The term caramel relates to products of a more or less intense brown colour which are intended for colouring. It does not correspond to the sugary aromatic product obtained from heating sugars and which is used for flavouring food (e.g. confectionery, pastry, alcoholic drinks).

EC NumberCommon NameColour Index Number(1) or descriptionE160eBeta-apo-8' carotenal (C 30)40820E160fEthyl ester of beta-apo-8-'carotenic acid40825(C30)E161bLuteinE161gCanthaxanthinE162Beetroot

Red, betaninE163Anthocyanins Prepared by physical means from fruits and vegetablesE170Calcium carbonate77220E171Titanium dioxide77891E172Iron oxides and hydroxides774917749277499E173AluminiumE174SilverE175GoldE180Litholrubine BK

(1) Colour index numbers are taken from the third edition 1982 of the Colour Index, volumes 1 to 7, 1315. Also amendments 37 to 40 (125), 41 to 44 (127-50), 45 to 48 (130), 49 to 52 (132-50), 53 to 56 (135).

PART B

Foodstuffs which may not Contain Added Colours, Except Where Specifically Provided for in Parts, C, D or E

(The designations used in Part B do not prejudice the "carry over" principle in cases where products contain ingredients with legitimate colouring in their own right).

1. Unprocessed foodstuffs
2. All bottled or packed waters
3. Milk, semi-skimmed and skimmed milk, pasteurised or sterilised (including UHT sterilisation) (unflavoured)
4. Chocolate milk
5. Fermented milk (unflavoured)
6. Preserved milks as mentioned in Directive 76/118/EEC
7. Butter-milk (unflavoured)
8. Cream and cream powder (unflavoured)
9. Oils and fats of animal or vegetable origin
10. Eggs and egg products as defined in Article 2 (1) of Directive 89/437/EEC
11. Flour and other milled products and starches
12. Bread and similar products
13. Pasta and gnocchi
14. Sugar, including all mono- and disaccharides
15. Tomato paste and canned and bottled tomatoes
16. Tomato-based sauces
17. Fruit juice and fruit nectar as mentioned in Directive 75/726/EEC and vegetable juice
18. Fruit, vegetables (including potatoes) and mushrooms — canned, bottled or dried; processed fruit, vegetables (including potatoes) and mushrooms)
19. Extra jam, extra jelly, and chestnut puree as mentioned in Directive 79/693/EEC, creme de pruneaux
20. Fish, molluscs and crustaceans, meat, poultry and game as well as their preparations, but not including prepared meals containing these ingredients.
21. Cocoa products and chocolate components in chocolate products as mentioned in Directive 73/241/EEC
22. Roasted coffee, tea, chicory, tea and chicory extracts; tea, plant, fruit and cereal preparations for infusions, as well as mixes and instant mixes of these products
23. Salt, salt substitutes, spices and mixtures of spices
24. Wine and other products defined by Regulation (EEC) No. 822/87
25. Korn, Kornbrand, fruit spirit drinks, Fruit Spirits, Ouzo,

Grappa, Tsikoudia from Crete, Tsipouro from Macedonia, Tsipouro from Thessaly, Tsipouro from Tyrnavos, Eau de vie de marc Marque nationale luxembourgeoise, Eau de vie de seigle Marque nationale luxembourgeoise, London gin, as defined in Regulation (EEC) No. 1576/89
26. Sambuca, Maraschino and Mistra as defined in Regulation (EEC) No. 1180/91
27. Sangria, Clarea and Zurra as mentioned in Regulation (EEC) No. 1601/91
28. Wine vinegar
29. Foods for infants and young children as mentioned in Directive 89/398/EEC including foods for infants and young children not in good health
30. Honey
31. Malt and malt products
32. Ripened and unripened cheese (unflavoured)
33. Butter from sheep and goats' milk

PART C

Foodstuffs to Which Only Certain Permitted Colours May be Added

FoodstuffsPermitted colourMaximum level Malt BreadE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelBeerE 150a Plain caramelquantum satisCider bouchéE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelButter (including reduced fat butter and concentrated butter)E 160a Carotenesquantum satisMargarine, minarine, other fat emulsions, and fats essentially free from waterE 160a Carotenesquantum satisE 100 Curcuminquantum satisE 160b Annatto, Bixine,10 mg/kg Norbixine

FoodstuffsPermitted colourMaximum levelSage Derby cheeseE 140 Chlorophyllsquantum satis ChlorophyllinsE 141 Copper complexes of chlorophylls and chlorohyllinsRipened Orange, Yellow and broken- white cheese; unflavoured processed cheeseE 160a Carotenes
E 160c Paprika extract quantum satisE 160b Annatto, Bixin, Norbixin15 mg/kgRed Leicester cheeseE 160b Annatto, Bixin, Norbixin50 mg/kgMimolette cheeseE 160b Annatto, Bixin, Norbixin35 mg/kgMorbier cheeseE 153 Vegetable carbonquantum satisRed marbled cheeseE 120 Cochineal, Carminic acid.
Carmines125 mg/kgE 163 Anthocyaninsquantum satisVinegarE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelWhisky, Whiskey, grain spirit (other than Korn or Kornbrand or Eau de vie de seigle Marque nationale luxembourgeoise), wine spirit, rum. Brandy, Weinbrand, grape marc, grape marc spirit (other than Tsikoudia and Tsipouro and Eau de vie de marc Marque nationale luxembourgeoise), Grappa invecchiata, Bagaceira velha as mentioned in Regulation (EEC) No. 1576/89E 150a Plain caramel
E 150b Caustic sulphite caramel
E 150c Ammonia caramel

E 150d Sulphite ammonia caramelquantum satis

FoodstuffsPermitted colourMaximum levelAromatized wine-based drinks (except bitter soda) and aromatized wines as mentioned in Regulation (EEC) No. 1601/91E 150a Plain caramel
E 150b Caustic sulphite caramel
E 150c Ammonia caramel
E 150d Sulphite ammonia caramelquantum satisAmericanoE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelE 163 AnthocyaninsE 100 Curcumin
E 101 (i) Riboflavin
(ii) Riboflavin-5'- phosphate100 mg/l (individually or in combination)E 102 TartrazineE 104 Quinoline YellowE 120 Cochineal, Carminic acid, CarminesE 122 Azorubine carmoisineE 123 AmaranthE 124 Ponceau 4RBitter soda, bitter vino as mentioned in Regulation (EEC) No. 1601/91E 150a Plain caramelquantum satisE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelE 100 Curcumin100 mg/l (individually or in combination)E 101 (i) Riboflavin
(ii) Riboflavin-5'- phosphateE 102 TartrazineE 104 Quinoline YellowE 110 Sunset Yellow FCF Orange Yellow SE 120 Cochineal, Carminic acid, CarminesE 122 Azorubine, CarmoisineE 123 Amaranth E 124 Ponceau 4R, Cochineal Red AE 129 Allura Red AC

FoodstuffsPermitted colourMaximum levelLiqueur wines and quality liqueur wines produced in specified regionsE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelVegetables in vinegar, brine or oil (excluding olives)E 101 (i) Riboflavin
(ii) Riboflavin-5'- phosphatequantum satisE 140 Chlorophylls, ChlorophyllinsE 150a Plain caramelE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelE 141 Copper complexes of chlorophylls and chlorophyllinsE 160a Carotenes: (i) Mixed carotenes (ii) Beta-caroteneE 162 Beetroot Red, betaninE 163 AnthocyaninsExtruded, puffed and/or fruit-flavoured breakfast cerealsE 150c Ammonia caramelquantum satisE 160a Carotenesquantum satisE 160b Annatto, Bixin, Norbixin25 mg/kgE 160c Paprika extract, Capsanthin, Capsorubinquantum satisFruit-flavoured breakfast cerealsE 120 Cochineal, Carminic acid, Carmines200 mg/kg in E 162 Beetroot Red, betanine(individually or E 163 Anthocyaninscombination)Jam, jellies and marmalades as mentioned in Directive 79/693/EEC and other similar fruit preparations including low calorie productsE 100 Curcuminquantum satisE 140 Chlorophylls and chlorophyllinsE 141 Copper complexes of chlorophylls and chlorophyllinsE 150a Plain caramelE 150b Caustic sulphite caramelE 150c Ammonia caramelE 150d Sulphite ammonia caramelE 160a Carotenes: (i) Mixed carotenes (ii) Beta-caroteneE 160c Paprika extract, Capsanthin, Capsorubin

FoodstuffsPermitted colourMaximum levelE 162 Beetroot Red, betaninE 163 AnthocyaninsE 104 Quinoline Yellow100 mg/kg (individually or in combination)E 110 Sunset YellowE 120 Cochineal, Carminic acid,

CarminesE 124 Ponceau 4R, CochinealE 142 Green SE 160d LycopeneE 161b LuteinSausages, pâtés and terrinesE 100 Curcumin20 mg/kgE 120 Cochineal, Carminic acid, Carmines100 mg/kgE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelquantum satisE 150c Ammonia caramelquantum satisE 150d Sulphite ammonia caramelquantum satisE 160a CarotenesE 160c Paprika extract, Capsanthin, Capsorubin20 mg/kg
10 mg/kgE 162 Beetroot Red, betaninquantum satisLuncheon meatE 129 Allura Red25 mg/kgBreakfast sausages with a minimum cereal content of 6%E 129 Allura Red AC25 mg/kg Burger meat with a minimum vegetable and/or cereal content of 4%E 120 Cochineal, Carminic acid. Carmines100 mg/kgE 150a Plain caramelquantum satisE 150b Caustic sulphite caramelquantum satisE 150c Ammonia caramelquantum satisE 150d Sulphite ammonia caramelquantum satisChorizo sausageE 120 Cochineal Carminic acid, Carmines200 mg/kg SalchichonE 124 Ponceau 4R, Cochineal Red A250 mg/kgSobrasadaE 110 Sunset Yellow FCF135 mg/kgE 124 Ponceau 4R, Cochineal Red A200 mg/kg

FoodstuffsPermitted colourMaximum levelPasturmas (edible external coating)E 100 Curcuminquantum satisE 101 (i) Riboflavin (ii) Riboflavin-5'-phospateE 120 Cochineal, Carminic acid, CarminesDried potato granules and flakesE 100 Curcuminquantum satisProcessed mushy and garden peas (canned)E 102 Tartrazine100mg/kgE 133 Brilliant Blue20mg/kgE 142 Green S10mg/kg
PART D
Colours Permitted for Certain Uses Only

ColourFoodstuffMaximum levelE 123 Amaranth Aperitif wines, spirit drinks including products with less than 15% alcohol by volume 30mg/l Fish roe30 mg/kgE 127 Erythrosine Cocktail cherries and candied cherries200 mg/kg Bigarreaux cherries in syrup and in cocktails150 mg/kgE 128 Red 2G Breakfast sausages with a minimum cereal content of 6%
Burger meat with a minimum vegetable and/or cereal content of 4%20 mg/kgE 154 Brown FK Kippers20 mg/kgE 161g Canthaxanthin Saucisses de Strasbourg15 mg/kgE 173 Aluminium External coating of sugar confectionery for the decoration of cakes and pastriesquantum satisE 174 Silver External coating of confectionery Decoration of chocolates Liqueursquantum satisE 175 Gold External coating of confectioneryquantum satis Decoration of chocolates LiqueursE 180 Litholrubine BK Edible cheese rindquantum satisE 160b Annatto, Bixin, Norbixin Margarine, Minarine other fat emulsions, and fats essentially free from water10 mg/kg Decorations and coatings20mg/kg Fine bakery wares10mg/kg Edible ices20mg/kg Liqueurs, including fortified beverages with less than 15% alcohol by volume10mg/l Flavoured processed cheese 15mg/kg Ripened Orange, Yellow and broken-white cheese15mg/kg Unflavoured processed cheese15 mg/kgDesserts10 mg/kg Snacks: dry, savoury potato, cereal or starch-based snack products:—Extruded or expanded savoury snack products20 mg/kg—Other savoury snack products and savoury coated nuts10 mg/kg Smoked fish10 mg/kg Edible cheese rind and edible casings20 mg/kg Red Leicester cheese50 mg/kg

Mimolette cheese35 mg/kg Extruded, puffed and/or fruit-flavoured breakfast cereals25 mg/kg

PART E

Colours Permitted in Foodstuffs Other Than Those Mentioned in Parts B and C

SECTION 1

The following colours may be used in foodstuffs mentioned in Part E Section 2 and in all other foodstuffs other than those listed in Parts B and C at quantum satis.

E 101(i) Riboflavin(ii) Riboflavin-5'- phosphateE 140Chlorophylls and chlorophyllinsE 141Copper complexes of chlorophylls and chlorophyllinsE 150aPlain caramelE 150bCaustic sulphite caramelE 150cAmmonia caramelE 150dSulphite ammonia caramelE 153Vegetable carbonE 160aCarotenesE 160cPaprika extract, capsanthin, capsorubinE 162Beetroot Red, betaninE 163AnthocyaninsE 170Calcium carbonateE 171Titanium dioxideE 172Iron oxides and hydroxides

SECTION 2

The following colours may be used singly or in combination in the following foods up to the maximum level specified in the table. However, for non-alcoholic flavoured drinks, edible ices, desserts, fine bakery wares and confectionery, colours may be used up to the limit indicated in the appropriate table but the quantities of each of the colours E 110, E 122, E 124 and E 155 may not exceed 50 mg/kg or mg/1.

E 100CurcuminE 102TartrazineE 104Quinoline YellowE 110Sunset Yellow FCF Orange Yellow SE 120Cochineal, Carminic acid. CarminesE 122Azorubine, CarmoisineE 124Ponceau 4R, Cochineal Red AE 129Allura Red ACE 131Patent Blue VE 132Indigotine, Indigo carmineE 133Brilliant Blue FCFE 142Green SE 151Brilliant Black BN, Black PNE 155Brown HTE 160dLycopeneE 160eBeta-apo-8' carotenal (C 30)E 160fEthyl ester of beta-apo-8'-carotenic acid (C 30)E 161bLutein

FoodstuffsMaximum LevelNon-alcoholic flavoured drinks100 mg/lCandied fruits and vegetables, Mostarda di frutta200 mg/kgPreserves of red fruits200 mg/kgConfectionery300 mg/kgDecorations and coatings500 mg/kgFine bakery wares (e.g. viennoiserie, biscuits, cakes and wafers)200 mg/kgEdible ices150 mg/kg Flavoured processed cheese150 mg/kgDesserts including flavoured milk products100 mg/kgSauces, seasonings (for example, curry powder, tandoori), pickles, relishes, chutney and piccalilli500 mg/kgMustard300 mg/kgFish paste and crustacean paste100 mg/kgPre-cooked crustaceans250 mg/kgSalmon substitutes500 mg/kgSurimi500 mg/kgFish roe300 mg/kgSmoked fish100 mg/kg'Snacks': dry, savoury potato, cereal or starch-based snack products:—Extruded or expanded savoury snack products200 mg/kg—Other savoury snack products and savoury coated nuts100 mg/kgEdible cheese rind and edible casingsquantum satisComplete formulae for weight control intended to replace total daily food intake or an individual meal

50 mg/kgComplete formulae and nutritional supplements for use under medical supervision
50 mg/kgLiquid food supplements/dietary integrators100 mg/lSolid food supplements/dietary integrators 300 mg/kgSoups50 mg/kgMeat and fish analogues based on vegetable proteins100 mg/kgSpirituous beverages (including products less than 15% alcohol by volume), except those mentioned in Part B and C
200 mg/lAromatised wines, aromatised wine-based drinks and aromatised wine-product cocktails as mentioned in Regulation (EEC) No. 1601/91, except those mentioned on Parts B and C

200 mg/lFruit wines (still or sparkling) cider (except cider bouche) and perry aromatised fruit wines, cider and perry
200 mg/l

SCHEDULE V

Specific Purity Criteria concerning Colours for use in Foodstuffs
A. GENERAL SPECIFICATIONS FOR ALUMINIUM LAKES OF COLOURS

DefinitionAluminium lakes are prepared by reacting colours complying with the purity criteria set out in the appropriate specification monograph with alumina under aqueous conditions. The alumina is usually freshly prepared undried material made by reacting aluminium sulfate or chloride with sodium or calcium carbonate or bicarbonate of ammonia. Following lake formation, the product is filtered, washed with water and dried. Unreacted alumina may also be present in the finished product. HCI insoluble matterNot more than 0,5% Ether extractable matterNot more than 0,2% (under neutral conditions) Specific purity criteria for the corresponding colours are applicable.

B. SPECIFIC CRITERIA OF PURITY

E 100 CURCUMINSynonyms CI Natural Yellow 3, Turmeric Yellow, Diferoyl MethaneDefinition Curcumin is obtained by solvent extraction of turmeric i.e. the ground rhizones of natural strains of Curcuma longa L. In order to obtain a concentrated curcumin powder, the extract is purified by crystallisation. The product consists essentially of curcumins; i.e. the colouring principle (l,7-bis(4-hydroxy-3-methoxyphenyl) hepta-1,6-dien-3,5-dione) and its two desmethoxy derivatives in varying proportions. Minor amounts of oils and resins naturally occurring in turmeric may be present.
Only the following solvents may be used in the extraction: ethylacetate, acetone, carbon dioxide, dichloromethane, n-butanol, methanol, ethanol, hexane. Class Dicinnamoylmethane Colour Index No.75300 Einics207-280-5 Chemical namesI 1,7-Bis (4-hydroxy-3-methoxyphenyl) hepta-1,6-diene-3,5-dioneII 1-(4-Hydroxyphenyl)-7-(4-hyaroxy-3-methoxy-phenyl-) hepta-l,6-diene-3,5-dione III 1,7-Bis(4-hydroxyphenyl) hepta-1,6-diene-3,5-dione Chemical formulaI C21H20O6II C20H18O5III C19H16O4 Molecular weightI.368,39 II. 338,39

III. 308,39 AssayContent not less than 90% total colouring matters 1 607 at ca 426 nm in ethanolDescriptionOrange-yellow crystalline powder

Identification A. SpectrometryMaximum in ethanol at ca 426 nm B. Melting Range179-182 °CPurityEthylacetateNot more than 50 mg/kg, singly or in combination Solvent residuesAcetonen-butanolMethanolEthanolHexaneDichloromethane: not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy Metals (as Pb)Not more than 40 mg/kg

E 101 (î) RIBOFLAVINSynonymsLactoflavin ClassIsoalloxazine Einecs201—507-1 Chemical names7, 8—Dimethyl-10-(D-ribo-2, 3, 4, 5-tetrahydroxypentyl) benzo(g)—pteridine-2, 4-(3H, 10H)-dione7,8—dimethyl-10 (1'-D-ribityl) isoalloxazine Chemical formulaC17H20N4O6 Molecular weight376,37 AssayContent not less than 98% on the anhydrous basis 328 at ca 444 nm in aqueous solutionDescriptionYellow to orange-yellow crystalline powder, with slight odour.Identification A. SpectrometryThe ratio A375/A267 is between 0,31 and 0,33
The ratio A444/A267 is between 0,36 and 0,39In aqueous solutionMaximum in water at ca 375 nm. B. Specific rotation(a) between -115° and -140° in a 0,05 N sodium hydroxide solutionPurity Loss on dryingNot more than 1,5% after drying at 105°C for 4 hrs Sulfated ashNot more than 0,1% Primary aromatic aminesNot more than 100 mg/kg (calculated as aniline) ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 10mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb) Not more than 40 mg/kg

E 101 (ii) (îî) RIBOFLAVIN-5'-PHOSPHATESynonymsRiboflavin-5'-phosphate sodiumDefinitionThese specifications apply to riboflavin -5—'phosphate together with minor amounts of free riboflavin diphosphate ClassIsoalloxazine Einics204—988-6 Chemical namesMonosodium(2R, 3R, 4S)—5—(3) 10'-dihydro-7, 8'-dimethyl-2', 4'-dioxo-10-'benzo [y]pteridinyl]-2, 3, 4-trihydroxypentyl phosphate; monosodium salt of 5'-monophosphate ester of riboflavin Chemical formulaFor the dihydrate form: C17H20N4NaO9P.2H2OFor the anhydrous form: C17H20N4NaO9P Molecular weight541,36 AssayContent not less than 95% total colouring matters calculated as C17H20N4NaO9P.2H2O
250 at ca 375 nm in aqueous solutionDescriptionYellow to orange crystalline hygroscopic powder, with slight odour and a bitter tasteIdentification A. SpectrometryThe ratio A375/A267 is between 0,30 and 0,34
The ratio A444/A267 is between 0,35 and 0,40In aqueous solutionMaximum in water at ca 375 nm. B. Specific rotation(a) between +38° and +42° in a 5 molar HCI solutionPurity Loss on dryingNot more than 8% (100°C, 5 hrs in vacuum over P2O5) for the dihydrate form Sulfated ashNot more than 25% Inorganic phosphateNot more than 1,0% (calculated as PO4 on the anhydrous basis) Subsidiary

colouring mattersRiboflavin (free): Not more than 6%Riboflavin diphosphate: Not more than 6% Primary aromatic aminesNot more than 70 mg/kg (calculated as aniline) ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 102 TARTRAZINESynonymsCI Food Yellow 4DefinitionTartrazine consists essentially of trisodium 5—hydroxy-l-(4-sulfonatophenyl)—4-(4-sulfonatophenylazo-H-pyrazole-30-carboxylate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components Tartrazine is described as the sodium salt The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No19140 Einics217—699-5 Chemical namesTrisodium-5—hydroxy-l-(4-sulfonatophenyl)—4-(4-sulfonatophenylazo)-H-pyrazole-3-carboxylate
Chemical formulaC16H9N4 Na3O9S2 Molecular weight534,37 AssayContent not less than 85% total colouring matters calculated as the sodium salt 530 at ca 426 nm in aqueous solutionDescriptionLight orange powder or granulesIdentification A. SpectrometryMaximum in water at ca 426 nm B. Yellow solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 1,0% Organic compounds other than colouring matters: 4—hydrazinobenzene sulfonic acid
Total not more than 0,5% 4—aminobenzene-1-sulfonic acid 5—oxo-1-(4-sulfophenyl)—2-pyrazolin-e-3-carboxylic acid 4, 4'-diazoaminodi (benzene sulfonic acid) Tetrahydroxysuccinic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 104 QUINOLINE YELLOWSynonymsCI Food Yellow 13Definition Quinoline Yellow is prepared by sulfonating 2—(2-quinolyl) indan-1, 3-dione. Quinoline Yellow consists essentially of sodium salts of a mixture of disulfonates (principally), monosulfonates and trisulfonates of the above compound and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components. Quinoline Yellow is described as the sodium salt. The calcium and the potassium salt are also permitted. ClassQuinophthalone Colour Index No47005 Einecs305—897-5 Chemical nameThe disodium salts of the disulfonates of 2—(2-quinolyl) indan-1,3-dione (principal component)
Chemical formulaC18H9N Na2O8S2(principal component) Molecular weight477,38 (principal component) AssayContent not less than 70% total colouring matters calculated as the sodium salt Quinoline Yellow shall have the following composition:Of the total colouring matters present:—not less than 80% shall be disodium 2—(2-quinolyl:) indan-1, 3-dione-disulfonates—not more than 15% shall be sodium 2—(2-quinolyl) indan-1, 3-dione-monosulfonates—not more than 7.0% shall

be trisodium 2—(2-quinolyl) indan-1, 3-dione-trisulfonate 865 (principal component) at ca 411 nm in aqueous acetic acid solutionDescriptionYellow powder or granulesIdentification A. SpectrometryMaximum in aqueous acetic acid solution of pH 5 at ca 411 nm B. Yellow solution in water

E 104 QUINOLINE YELLOW—contd.Purity Water insoluble matterNot more than 0.2% Subsidiary colouring mattersNot more than 4.0% Organic compounds other than colour matters 2-metyhylquinoline-sulfonic acidTotal not more than 0,5% Phthalic acid 2,-6-dimethyl quinoline 2, 6-dimethyl quinoline sulfonic acid 2-(2-quinolyl) indan-1,3 dioneNot more than 4 mg/kg Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 110 SUNSET YELLOW FCFSynonymsCI Food Yellow 3, Orange Yellow SDefinitionSunset Yellow FCF consists essentially of disodium 2—hydroxy-l-(4-sulfonatophenylazo) naphthalene-6-sulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components.
Sunset Yellow FCF is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No15985 Einics220—491-7 Chemical namesDisodium 2—hydroxy-l-(4-sulfonatophenylazo) naphthalene-6-sulfonate Chemical formulaC16H10N2Na2O7S2 Molecular weight452,37 AssayContent not less than 85% total colouring matters calculated as the sodium salt 555 at ca 485 nm in aqueous solution at pH7DescriptionOrange-red powder or granulesIdentification A. SpectrometryMaximum in water at ca 485 nm at pH7 B. Orange solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring matters:Not more than 5,0% Organic compounds other than colouring matters 4-[aminobenzene-1-sulfonic acidTotal not more than 0,5% 3-hydroxymaphthalene-2,7-disulfonic acid 6-hydroxymaphthalene-2-sulfonic acid 7-hydroxymaphthalene-1, 3-disulfonic acid 4, 4'-diazoaminodi (benzene sulfonic acid) 6,6'-oxydi(naphthalene-2-sulfonic acid) Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E120 COCHINEAL, CARMINIC ACID,CARMINESDefinitionCarmines and carminic acid are obtained from aqueous, aqueous alcoholic or alcoholic extracts from Cochineal, which consists of the dried bodies of the female insect Dactylopius coccus CostaThe colouring principle is carminic acidAluminium lakes of carminic acid (carmines) can be formed in which aluminium and carminic acid are thought to be present in the molar ratio 1:2In commercial products the colouring

principle is present in association with ammonium, calcium, potassium or sodium cations, singly or in combination, and these cations may also be present in excessCommercial products may also contain proteinaceous material derived from the source insect, and may also contain free carminate or a small residue of unbound aluminium cations ClassAnthraquinone Colour index No75470 EinecsCochineal: 215-680-6; carminic acid: 215-023-3; carmines: 215-724-4 Chemical names7-ß-D-glucopyranosyl-3,5,6,8-tetrahydroxy-1-methyl-9,10-dioxoanthracene-2-carboxylicacid
(carminic acid); Chemical formulaCarmine is the hydrated aluminum chelate of this acid C22H20O13 (carminic add) Molecular weight492,39(carminic acid) AssayContent not less than 2,0% carminic acid in the extracts containing carminic acid; not less than 50% carminic acid in the chelatesDescriptionRed to dark red, friable, solid or powder Cochineal extract is generally a dark read liquid but can also be dried as a powderIdentification SpectrometryMaximum in aqueous ammonia solution at ca 518 nm.Maximum in dilute hydrochloric solution at ca 494 nm for carminic acidPurity ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 122 AZORUBINE, CARMOISINESynonymsCI Food Red 3DefinitionAzorubine consists essentially of disodium 4—hydroxy-3-(4-sulfonato-1-naphthylazo) naphthalene -1-sulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured componentsAzorubine is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No14720 Einecs222-657-4 Chemical nameDisodium 4-hydroxy-3-(4-sulfonato-1-naphthylazo) naphthalene-1-sulfonate Chemical formulaC20H12N2Na2O7S2 Molecular weight502,44 AssayContent not less than 85% total colouring matters, calculated as the sodium salt 510 at ca 516 nm in aqueous solutionDescriptionRed to maroon powder or granulesIdentification A. SpectrometryMaximum in water at ca 516 nm B. Red solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 2,0% Organic compounds other than colouring matters: 4—aminonaphthalene-l-sulfonic acidTotal not more than 0,5% 4—hydroxynaphthalene-1-sulfonic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/Kg CadiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 123 AMARANTHSynonymsCI Food Red 9DefinitionAmaranth consists essentially of trisodium 2—hydroxyl-(4-sulfonato-l-naphthylazo) naphthalene-3,6-disulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured componentsAmaranth is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour

Index No16185 Einecs213-022-2 Chemical nameTrisodium 2-hydroxy-1-(4-sulfonato-1-naphthylazo) naphthalene-3,6-disulfonate Chemical formulaC20H11N2Na3O10S3 Molecular weight604,48 AssayContent not less than 85% total colouring matters, calculated as the sodium salt 440 at ca 520 nm in aqueous solution DescriptionReddish-brown powder or granulesIdentification A. SpectrometryMaximum in water at ca 520 nm B. Red solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 3,0% Organic compounds other than colouring matters: 4-aminonapththalene-1-sulfonic acidTotal not more than 0,5% 3-hydroxynaphthalene-2,7-disulfonic acid 6-hydroxynaphthalene-2-sulfonic acid 7-hydroxynaphthalene-1,3-trisulfonic: acid 7-hydroxynaphthalene-1,3-6-trisulfonic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 02% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 124 PONCEAU 4R, COCHINEAL RED ASynonymsCI Food Red 7, New CoccineDefinitionPonceau 4R consists essentially of trisodium 2—hydroxy-1(4-sulfonato-1-naphthylazo) naphthalene-6, 8-disulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured componentsPonceau 4-R is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No16255 Einecs220-036-2 Chemical nameTrisodium-2-hydroxy-1-(4-sulfonato-1-naphthylazo)—naphthalene-6,8-disulfonate Chemical formulaC20H11N2Na3O10S3 Molecular weight604,48 AssayContent not less than 80% total colouring matters, calculated as the sodium salt 430 at ca 505 nm in aqueous solutionDescriptionReddish powder or granulesIdentification A. Spectrom-etryMaximum in water at ca 505 nm B. Red solution in waterPurity Water insoluble matter Subsidiary colouring mattersNot more than 0,2% Organic compounds other than colouring matters:Not more than 1,0% 4-aminonaphthalene-1-sulfonic acidTotal not more than 0,5% 7-hydroxynaphthalene-1,3-disulfonic acid 3-hydroxynaphthalene-2,7-disulfonic acid 6-hydroxynaphthalene-2-sulfonic acid 7-hydroxynaphthalene-1,3,6-trisulfonic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 127 ERYTHROSINESynonymsCI Food Red 14DefinitionErythrosine consists essentially of disodium 2-(2,4,5,7tetraiodo-3-oxido-6-oxoxanthen-9-yl) benzoate monohydrate and subsidiary colouring matters together with water, sodium chloride and/or sodium sulfate as the principal uncoloured components.Erythrosine is described as the sodium salt. The calcium and the potassium salt are also permitted ClassXanthene Colour Index No45430 Einecs240-474-8 Chemical nameDisodium

2-(2,4,5,7-tetraido-3-oxido-6-oxoxanthen-9-yl) benzoate monohydrate Chemical formulaC20H6I4Na2O5H2O Molecular weight897,88 AssayContent not less than 87% total colouring matters, calculated as the anhydrous sodium salt 1 100 at ca 526 nm in aqueous solution at pH7DescriptionRed powder or granulesIdentification A. SpectrometryMaximum in water at ca 526 nm at pH7 B. Red solution in waterPurity Inorganic iodides calculated as sodium iodideNot more than 0,1% Water insoluble matterNot more than 0,2% Subsidiary colouring matters (except fluorescein)Not more than 4,0% FluoresceinNot more than 20 mg/kg Organic compounds other than colouring matters: Tri-iodoresorcinolNot more than 0,2.% 2-(2,4-dihydroxy-3,5-diodobenzoyl) benzoic acidNot more than 0,2% Ether extractable matterFrom a solution of pH from 7 through 8, not more than 0,2% ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg Aluminium LakesThe hydrochloric acid insoluble matter method is not applicable. It is replaced by a sodium hydroxide insoluble matter, at not more than 0,5%, for this colour only

E 128 RED 2GSynonymsCI Food Red 10, AzogeranineDefinitionRed 2G consists essentially of disodium 8-acetamido-1-hydroxy-2-phenylazonaphthalene-3,6-disulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured componentsRed 2G is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No18050 Einecs223-098-9 Chemical nameDisodium 8-acetamido-1-hydroxy-2-phenylazo-naphthalene-3,6-disulfonate Chemical formulaC18H13N3Na2O8S2 Molecular weight509,43 AssayContent not less than 80% total colouring matters, calculated as the sodium salt 620 at ca 532 nm in aqueous solutionDescriptionRed powder or granulesIdentification A. SpectrometryMaximum in water at ca 532 nm B. Red solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 2,0% Organic compounds other than colouring matters: 5-acetamido-4-hydroxynaphthalene-2,Total not more than 0,5% 7-disulfonic acid 5-amino-4-hydroxynaphthalene-2,7-disulfonic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 129 ALLURA RED ACSynonymsCI Food Red 17DefinitionAllura Red AC consists essentially of disodium 2-hydroxy-1-(2-methoxy-5-methyl-4-sulfonatophenylazo) naphthalene-6-sulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured componentsAllura Red AC is described as the sodium salt. The calcium and the potassium salt are also permitted ClassMonoazo Colour Index No16035 Einecs247-368-0 Chemical nameDisodium 2-hydroxy-1-(2-methoxy-5-methy-4-sulfonatophenylazo)

naphthalene-6-sulfonate Chemical formulaC18H14N2Na2O8S2 Molecular weight496,42 AssayContent not less than 85% total colouring matters, calculated as the sodium salt 540 at ca 504 nm in aqueous solution at pH 7DescriptionDark red powder or granulesIdentification A. SpectrometryMaximum in water at ca 504 nm B. Red solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 3,0% Organic compounds other than colouring matters: 6-hydroxy-2-naphthalene sulfonic acid, sodium saltNot more than 0,3% 4-amino-5-methoxy-2-methylbenezene sulfonic acidNot more than 0,2% 6,6-oxybis (2-naphthalene sulfonic acid) disodium saltNot more than 1,0% Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterFrom a solution of pH 7, not more than 0,2% ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 131 PATENT BLUE VSynonymsCI Food Blue 5DefinitionPatent Blue V consists essentially of the calcium or sodium compound of [4-(a-(4-diethylaminophenyl)-5-hydroxy-2,4-disulfophenyl-methylidene) 2,5-cyclohexadien-1-ylidene] diethylammonium hydroxide inner salt and subsidiary colouring matters together with sodium chloride and/or sodium sulfate and/or calcium sulfate as the principal uncoloured componentsThe potassium is also permitted ClassTriarylmethane Colour Index No42051 Einecs222-573-8 Chemical namesThe calcium or sodium compound of
[4-(a-(4-diethylaminophenyl)-5-hydroxy-2,4-disulfophenyl-methylidene),-2,5-cyclohexadien-1-ylidene]
diethyl-ammonium hydroxide inner salt Chemical formulaCalcium compound: C27H31N2O7S2Ca1/2Sodium Compound; C27H31N2O7S2Na Molecular weightCalcium compound: 579,72Sodium compound: 582,67 AssayContent not less than 85% total colouring matters, calculated as the sodium salt 2 000 at ca 638 nm in aqueous solution at pH5DescriptionDark-blue powder or granulesIdentification A. SpectrometryMaximum in water at 638 nm at pH5 B. Blue solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 2,0% Organic compounds other than colouring matters: 3-hydroxy benzaldehyde Total not more than 0,5% 3-hydroxy benzoic acid 3-hydroxy-4-sulfobenzoic acid N,N-diethylamino benzene sulfonic acid Leuco baseNot more than 4,0% Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterFrom a solution of pH 5 not more than 0,2% ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 132 INDIGOTINE, INDIGO CARMINESynonymsCI Food Blue 1DefinitionIndigotine consists essentially of a mixture of disodium 3,3'dioxo-2,2'-bi-indolylidene-5,5'-disulfonate, and disodium 3,3'-dioxo-2,2'-bi-indolylidene-5,7'-disulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components.Indigotine is described as the sodium

salt. The calcium and the potassium salt are also permitted. ClassIndigoid Colour Index No73015 Einecs212-728-8 Chemical namesDisodium 3,3'-dioxo-2,2'-bi-indolylidene-5,5'-disulfonate Chemical formulaC16H8N2Na2O8S2 Molecular weight466,36 AssayContent not less than 85% total colouring matters, calculated as the sodium salt; disodium 3,3'-dioxo-2,2' bi-indolylidene-5,7'-disulfonate: not more than 18% 480 at ca 610 nm in aqueous solutionDescriptionDark-blue powder or granulesIdentification A. SpectrometryMaximum in water at ca 610 nm B Blue solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersExcluding disodium 3,3'dioxo-2,2'-bi-indolylidene-5,7'-disulfonate: not more than 1,0% Organic compounds other than colouring matters: Isatin-5-sulfonic acidTotal not more than 0,5% 5-sulfoanthranilic acid Anthranilic acid Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 133 BRILLIANT BLUE FCFSynonymsCI Food Blue 2DefinitionBrilliant Blue FCF consists essentially of disodium a-(4-(N-ethyl-3-sulfonatobenzylamino) phenyl)-a-(4-N-ethyl-3-sulfonatobenzylamino) cyclohexa-2,5-dienylidene) toluene-2-sulfonate and its isomers and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components.Brilliant Blue FCF is described as the sodium salt. The calcium and the potassium salt are also permitted. ClassTriarylmethane Colour Index No42090 Einecs223-339-8 Chemical namesDisodium a-(4-(N-ethyl-3-sulfonatobenzylamino) phenyl)-a-(4-N-ethyl-3-sulfonatobenzylamino) cyclohexa-2,5-dienylidene) toluene-2-sulfonate. Chemical formulaC37H34N2 Na2O9 S3 Molecular weight792,84 AssayContent not less than 85% total colouring matters, calculated as the sodium salt 1 630 at ca 630 nm in aqueous solutionDescriptionreddish-blue powder or granulesIdentification A. SpectrometryMaximum in water at ca 630 nm B. Blue solution in water Purity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 6,0% Organic compounds other than colouring matters; Sum of 2,3-and 4-formyl benzene sulfonic acidsNot more than 1,5% 3-((ethyl)(4-sulfophenyl amino)methyl benzene sulfonic acidNot more than 0,3% Leuco baseNot more than 5,0% Unsulfonated primary aromatic aminesNot more than 0,01 % (calculated as aniline) Ether extractable matterNot more than 0,2% at pH7 ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 140 (i) CHLOROPHYLLSSynonymsCI Natural Green 3, Magesium Chlorophyll, Magnesium PhaeophytinDefinitionChlorophylls are obtained by solvent extraction of natural strains of edible plant material, grass, lucerne and nettle. During the subsequent removal of solvent, the naturally present co-ordinated magnesium may be wholly or partly

removed from the chlorophylls to give the corresponding phaeophytins. The principal colouring matters are the phaeophytins and magnesium chlorophylls. The extracted product, from which the solvent has been removed, contains other pigments such as carotenoids as well as oils, fats and waxes derived from the source material. Only the following solvents may be used for the extraction: acetone, methyl ethyl ketone, dichloromethane, carbon dioxide, methanol, ethanol, propan-2-ol and hexane. ClassPorphyrin Colour Index No75810 EinecsChlorophylls: 215-800-7, Chlorophyll a: 207-536-6, Chlorophyll b: 208-272-4 Chemical namesThe major colouring principles are: Phytyl(132-R,17S,18S)-3)(8-ethyl-132-methoxycarbonyl-2,7,12,18-tetramethyl-13'-oxo-3-vinyl-131-132-17,18-tetrahydrocyclopenta [at]-porphyrin-17-yl] propionate, (Pheophytin a), or as the magnesium complex (Chlorophyll a) Phytyl (132-R,17S, 18S)-3-(8-ethyl-7-formyl-132-methoxycarbonyl-2, l2, 18-trimethyl-13'-oxo-3-vinyl-131-132-17,18-tetrahydrocyclopenta [at]-porphyrin-17-yl) propionate, (Pheophytin b), or as the magnesium complex (Chlorophyll b) Chemical formulaChlorophyll a (magnesium complex): C55H72 MgN4O5Chlorophyll a: C55H74N4O5Chlorophyll b (magnesium complex): C55H70 MgN4O6Chlorophyll b: C55H72N4O6 Molecular weightChlorophyll a (magnesium complex): 893,51Chlorophyll a: 871,22Chlorophyll b (magnesium complex): 907,49Chlorophyll b: 885,20 AssayContent of total combined Chlorophylls and their magnesium complexes is not less than 10% 700 at ca 409 nm in chloroformDescriptionWaxy solid ranging in colour from olive green to dark green depending on the content of coordinated magnesiumIdentification SpectrometryMaximum in chloroform at ca 409 nm PurityAcetoneNot more than 50 mg/kg, singly or in combination Solvent residuesMethyl Ethyl ketoneMethanolEthanolPropan-2-olHexaneDichloromethane: Not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 140 (ii) CHLOROPHYLLINSSynonymsCI Natural Green 5, Sodium Chlorophyllin, Potassium ChlorphyllinDefinitionThe alkali salts of chlorophyllins are obtained by the saponification of a solvent extract of natural strains of edible plant material, grass, lucerne and nettle. The saponification removes the methyl and phytol ester groups and may partially cleave the cyclopentenyl ring. The acid groups are neutralized to form the salts of potassium and/or sodium.Only the following solvents may be used for the extraction: acetone, methyl ethyl ketone, dichloromethane, carbon dioxide, methanol, ethanol, propan-2-ol and hexane. ClassPorphyrin Colour Index No75815 Einecs287-483-3 Chemical namesThe major colouring principles in their acid forms are:—3-(10-carboxylato-4-ethyl-1,3,5,8-tetramethyl-9-oxo-2-vinylphorbin-7-yl) propionate (chlorophyllin a) and—3-(10-carboxylato-4-ethyl-3-formyl-1,5,8-trimethyl-9-oxo-2-vinylphorbin-7-yl) propionate (chlorophyllin b)
Depending on the degree of hydrolysis the cyclopentenyl ring may be

cleaved with the resultant production of a third carboxyl function.Magnesium complexes may also be present. Chemical formulaChlorophyllin a (acid form): C34H34N4O5Chlorophyllin b (acid form): C34H32N4O6 Molecular weightChlorophyllin a: 578,68Chlorophyllin b: 592,66Each may be increased by 18 daltons if the cyclopentenyl ring is cleaved. AssayContent of total chlorophyllins is not less than 95% of the sample dried at ca 100°C for 1 hour. 700 at ca 405 nm in aqueous solution at pH9 140 at ca 653 nm in aqueous solution at pH 9DescriptionDark green to blue/black powderIdentification SpectrometryMaximum in aqueous phosphate buffer at pH 9 at ca 405 nm and at ca 653 nm

E 140 (ii) CHLOROPHYLLINS—contd. Purity Solvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethyl Ethyl ketoneMethanolEthanolPropan-2-olHexaneDichloromethane: Not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 141 (i) COPPER COMPLEXES OF CHLOROPHYLLSSynonymsCI Natural Green 3, Copper Chlorophyll, Cooper PhaeophytinDefinitionCopper chlorophylls are obtained by addition of a salt of copper to the substance obtained by solvent extraction of natural strains of edible plant material, grass, lucerne, and nettle. The product, from which the solvent has been removed, contains other pigments such as carotenoids as well fats and waxes derived from the source material. The principal colouring matters are the copper phaeophytins. Only the following solvents may be used for the extraction: acetone, methyl ethyl ketone, dichloromethane, carbon dioxide, methanol, ethanol, propan-2-ol and hexane. ClassPorphyrin Colour Index No75815 EinecsCopper chlorophyll a: 239-830-5; copper chlorophyll b: 246-020-5 Chemical names[Phytyl (132R, 17S, 18S]-3(-8-ethyl-132methoxycarbonyl-2,7,12,18-tetramethyl-13'-oxo-3-vinyl-131-132-17,18-tetrahydrocyclopenta [at]-porphyrin-17-yl)propionate] copper (II) (Copper Chlorophyll a) [Phytyl (132R, 17S, 18S)-3-(8-ethyl-7-formyl-132-methoxycarbonyl-2,-12,18-trimethyl-13'-oxo-3-vinyl-13113217,18-tetrahydrocyclopenta[at]-porphyrin-17-yl)propionate] copper (II) (Copper chlorphyll b) Chemical formulaCopper chlorophyll a: C55H72 Cu N4O5Copper chlorophyll b: C55H70Cu N4O6 Molecular weightCopper chlorophyll a: 932,75Copper chlorophyll b: 946,73Content to total copper chlorophylls is not less than 10% Assay 540 at ca 422 nm in chloroform 300 at ca 652 nm in chloroform DescriptionWaxy solid ranging in colour from blue green to dark green depending on the source materialIdentification SpectrometryMaximum in chloroform at ca 422 nm and at ca 652 nm

E 141 (i) COPPER COMPLEXES OF CHLOROPHYLLS—contd. Purity Solvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethyl Ethyl ketoneMethanolEhtanolPropan-2-olHexaneDichloromethane: Not more than

10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Copper ionsNot more than 200 mg/kg Total copperNot more than 8.0% of the total copper phaeophytins

E 141 (ii) COPPER COMPLEXES OF CHLOROPHYLLINSSynonymsSodium Copper Chlorophyllin, Potassium Copper Chlorophyllin, CI Natural Green 5DefinitionThe alkali salts of copper chlorophyllins are obtained by the addition of copper to the product obtained by the saponification of a solvent extraction of natural strains of edible plant material, grass, lucerne, and nettle; the saponification removes the methyl and phytol ester groups and may partially cleave the cyclopentenyl ring. After addition of copper to the purified chlorophyllins, the acid groups are neutralised to form the salts of potassium and/or sodium. Only the following solvents may be used for the extraction: acetone, methyl ethyl ketone, dichloromethane, carbon dioxide, methanol, ethanol, propan-2-ol and hexane. ClassPorphyrin Colour Index No.75815 Einecs Chemical namesThe major colouring principles in their acid forms are 3-(10-Carboxylato-4-4ethyl-1, 3, 5, 8-tetramethyl-9-oxo-2-vinylphorbin-7-yl) propionate, copper complex (Copper chlorophyllin a) and 3-(10-Carboxylato-4-ethyl-3-formyl-1, 5, 8-trimethyl-9-oxo-2-vinylphorbin-7-yl) propionate, copper complex (Copper chlorophyllin b) Chemical formulaCopper chlorophyllin a (acid form: C34H32 Cu N4O5Copper chlorophyllin b (acid form: C34H32 Cu N4O6 Molecular formulaCopper chlorophyllin a: 640,20Copper chlorophyllin b: 654,18Each may be increased by 18 daltons if the cyclopentenyl ring is cleaved.Content of total copper chlorophyllins is not less than 95% of the sample dried at 100°C for 1 hr. Assay 565 at ca 405 nm in aqueous phosphate buffer at pH 7,5 145 at ca 603 nm in aqueous phosphate buffer at pH 7,5DescriptionDark green to blue/black powderIdentification SpectrometryMaximum in aqueous phosphate buffer at pH 7,5 at ca 405 nm and at 630 nm

E 141 (ii) COPPER COMPLEXES OF CHLOROPHYLLINS—contd. Purity Solvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethyl ethyl ketoneMethanolEthanolPropan-2-olHexaneDichloromethane: not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Copper ionsNot more than 200 mg/kg Total copperNot more than 8,0% of the total copper chlorophyllins

E 142 GREEN SSynonymsCI Food Green 4, Brilliant Green BSDefinitionGreen S consists essentially of sodium N-[4-(dimethylamino) phenyl] 2-hydroxy-3, 6-disulfo-1-naphthalenyl) methylene]-2, 5-cyclohexadien-1-ylidene]-N-methylmethanaminium and subsidiary colouring matters together with sodium chloride and/or sodium sulphate as the principal uncoloured compounds.Green S is described as the sodium salt. The calcium and the potassium salt are also permitted. ClassTriarylmethane Colour Index No.44090 Einecs221-409-2 Chemical namesSodium

N-[4-[[4-(dimethylamino)phenyl](2-hydroxy-3,6-disulfo-1-naphthalenyl)-methylene]-2,5-cyclonexadien-1-ylidene]-N-methylmethanaminium;
Sodium
5-[4-dimethylamino-a-(4-dimethyliminocyclohexa-2,5-dienylidene)benzyl]-6-hydroxy-7-sulfonato-naphthalene-2-sulfonate
(alternative chemical name). Checial formulaC27H25N2Na O7S2 Molecular weight576,63 AssayContent not less than 80% total matters calculated as the sodium salt 1 720 at ca 632 nm in aqueous solutionDescriptionDark blue or dark green powder or granulesIdentification A. SpectrometryMaximum in water at ca 632 nm B. Blue or green solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 1,0% Organic compounds other than colouring matters: 4, 4'-bis(dimethylamino)-benzhydryl alcoholNot more than 0,1% 4, 4'-bis(dimethylamino)-benzophenoneNot more than 0,1% 3-hydroxynapthalene-2,7-disulfonic acidNot more than 0,2% Leuco baseNot more than 5,0% Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 150a PLAIN CARAMELDefinitionPlain caramel is prepared by the controlled heat treatment of carbohydrates (commercially available food grade nutritive sweeteners which are the monomers glucose and fructose and/or polymers thereof, e.g. glucose syrups, sucrose, and/or invert syrups, and dextrose). To promote caramelisation, acids, alkalis and salts may be employed, with the exception of ammonium compounds and sulphites. Einecs232-435-9DescriptionDark brown to black liquids or solidsPurity Colour bound by DEAE celluloseNot more than 50% Colour bound by phosphoryl celluloseNot more than 50% Colour intensity (11)0,01-0,12 Total nitrogenNot more than 0,1% Total sulphurNot more than 0,2% ArsenicNot more than 1 mg/kg LeadNot more than 2 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 25 mg/kg(1) Colour intensity is defined as the absorbance of a 0,1% (w/v> solution of caramel colour solids in water in a 1 cm cell at 610 nm.1

E 15Ob CAUSTIC SULPHITE CARAMELDefinitionCaustic sulphite caramel is prepared by the controlled heat treatment of carbohydrates (commercially available food grade nutritive sweeteners which are the monomers glucose and fructose and/or polymers thereof, e.g. glucose syrups, sucrose, and/or invert syrups, and dextrose) with or without acids or alkalis, in the presence of sulphite compounds (sulphurous acid, potassium sulphite, potassium bisulphite, sodium sulphite and sodium bisulphite); no ammonium compounds are used. Einecs232-435-9DescriptionDark brown to black liquids or solidsPurity Colour bound by DEAE celluloseMore than 50% Colour intensity (1)0,05—0,13 Total nitrogenNot more than 0,3%(2) Sulphur dioxideNot more than 0,2% (2) Total sulphur0,3—3,5% (2) Sulphur bound by DEAE

celluloseMore than 40% Absorbance ratio of colour bound by DEAE19—34 cellulose Absorbance ratio (A 280/560)Greater than 50 ArsenicNot more than 1 mg/kg LeadNot more than 2 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 25 mg/kg
(1) Colour intensity is defined as the absorbence of a 0,1% (w/v) solution of caramel colour solids in water in a 1 cm cell at 610 nm.
(2) Expressed on equivalent colour basis i.e. is expressed in terms of a product having a colour intensity of 0,1 absorbence units.

E 150c AMMONIA CARAMELDefinitionAmmonia caramel is prepared by the controlled heat treatment of carbohydrates (commercially available food grade nutritive sweeteners which are the monomers glucose and fructose and/or polymers thereof, e.g. glucose syrups, sucrose, and/or invert syrups, and dextrose) with or without acids or alkalis, in the presence of ammonium compounds (ammonium hydroxide, ammonium carbonate, ammonium hydrogen carbonate and ammonium phosphate); no sulphite compounds are used. Einecs232-435-9DescriptionDark brown to black liquids or solidsPurity Colour bound by DEAE celluloseMore than 50% Colour bound by phosphoryl celluloseMore than 50% Colour intensity (1)0,08-0,36 Ammoniacal nitrogenNot more than 0,3% (2) 4-methylimidazoleNot more than 250 mg/kg (2) 2-acetyl-4-tetrahydroxy-butylimidazoleNot more than 10 mg/kg (2) Total sulphurNot more than 0,2% (2) Total nitrogen0,7-3,3% (2) Absorbance ratio of colour bound by phosphoryl cellulose13-35 ArsenicNot more than 1 mg/kg LeadNot more than 2 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 25 mg/kg
(1) Colour intensity is defined as the absorbence of a 0,1% (w/v) solution of caramel colour solids in water in a 1 cm cell at 610 nm.
(2) Expressed on equivalent colour basis i.e. is expressed in terms of a product having a colour intensity of 0,1 absorbence units.

E 150d SULPHITE AMMONIA CARAMELDefinitionSulphite ammonia caramel is prepared by the controlled heat treatment of carbohydrates (commercially available food grade nutritive sweeteners which are the monomers glucose and fructose and/or polymers thereof (e.g. glucose syrups, sucrose, and/or invert syrups, and dextrose) with or without acids or alkalis, in the presence of both sulphite and ammonium compounds (sulphurous acid, potassium sulphite, potassium bisulphite, sodium sulphite, sodium bisulphite, ammonium hydroxide, ammonium carbonate, ammonium hydrogen carbonate, ammonium phosphate, ammonium sulphate, ammonium sulphite and ammonium hydrogen sulphite) Einecs232-435-9DescriptionDark brown to black liquids or solidsPurity Colour bound by DEAE celluloseMore than 50% Colour intensity (1)0,10-0,60 Ammoniacal nitrogenNot more than 0,6% (2) Sulphur dioxideNot more than 0,2% (2) 4-methylimidazoleNot more than 250 mg/kg(2) Total nitrogen0,3-1,7% (2) Total sulphur0,8-2,5% (2)

Nitrogen/sulphur ratio of alcohol precipitate0,7—2,7 Absorbance ratio of alcohol precipitate (1)8—14 Absorbance ratio (A280/560)Not more than 50 ArsenicNot more than 1 mg/kg LeadNot more than 2 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb) Not more than 25 mg/kg(1) Absorbance ratio of alcohol precipitate is defuned as the absorbance of the precipitate at 280 nm dividend by the absorbance at 560 nm (1 cm cell).1(2) Expressed on equivalent colour basis i.e. is expressed in terms of a product having a colour intensity of 0,1 absorbance units.2

E 151 BRILLIANT BLACK BN, BLACK PNSynonymsCI Food Black 1DefinitionBrilliant Black BN consists essentially of tetrasodium-4-acetamido-5-hydroxy-6-[7-sulfonato-4-(4-sulfonatophenylazo)-1-naphthylazo] naphthalene-1,7-disulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components.Brilliant Black BN is described as the sodium salt. The calcium and the potassium salt are also permitted. ClassBisazo Colour Index No.28440 Einecs219-746-5 Chemical namesTetrasodium 4-acetamido-5-hydroxy-6-[7-sulfonato-4-(4-sulfonatophenylazo]-1-naphthylazo] naphthalene-1,7-disulfonate Chemical formulaC28H17N5 Na4O14S4 Molecular weight867,69 AssayContent not less than 80% total colouring matters calculated as the sodium salt 530 at ca 570 nm in solutionDescriptionBlack powder or granulesIdentification A. SpectrometryMaximum in water at ca 570 nm B. Black-bluish solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 10%(expressed on the dye content) Organic compounds other than colouring matters: 4-acetamido-5-hydroxynaphthalene-Total not more than 0,8% 1,7,-disulfonic acid 4-amino-5-hydroxynaphthalene- 1,7-disulfonic acid 8-aminomphthalene-2-sulfonic acid 4,4'-diazoaminodi-(benzenesulfonic acid) Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% under neutral conditions ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/Kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/Kg

E 153 VEGETABLE CARBONSynonymsVegetable blackDefinitionVegetable carbon is produced by the carbonization of vegetable material such as wood, cellulose residues, peat and coconut and other shells. The raw material is carbonized at high temperatures. It consists essentially of finely divided carbon. It may contain minor amounts of nitrogen, hydrogen and oxygen. Some moisture may be absorbed on the product after manufacture Colour Index No77266 Einecs215-609-9 Chemical namesCarbon Chemical formulaC Molecular weight12,01Content not less than 95% of carbon calculated on an anhydrous and ash-free basis AssayBlack powder, odourless and tastelessDescriptionIdentification A. SolubilityInsoluble in water and organic solvents B. BurningWhat heated to redness it burns slowly without a flamePurity Ash (Total)Not more than 4,0% (ignition temperature: 625°C) ArsenicNot

more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg Polyaromatic hydrocarbonsThe extract obtained by extraction of 1 g of the product with 10 g pure cyclohexane in a continuous extraction apparatus shall be colourless, and the fluorescence of the extract in ultraviolet light shall not be more intense than that of a solution of 0,100 mg of quinine sulfate in 1,000 ml of 0,01 M sulphuric acid Loss on dryingNot more than 12% (120°C, 4 hrs) Alkali soluble matterThe filtrate obtained by boiling 2 g of the sample with 20 ml N sodium hydroxide and filtering shall be colourless

E 154 BROWN FKSynonymsCI Food Brown 1DefinitionBrown FK consists essentially of a mixture of:I sodium 4-(2,4-diaminophenylazo) benzenesulfonateII sodium 4-(4,6-diamino-m-tolylazo) benzenesulfonateIII disodium 4,4'-(4,6-diamino-1,3-phenylenebisazo)di (benzenesulfonate)IV disodium 4,4'-(2,4-diamino-1,3-phenylenebisazo)di (benzenesulfonate)V disodium 4,4'(2,4-diamino-5-methyl-1,3-phenylenebisazo)di (benzenesulfonate)VI trisodium 4,4',4"-(2,4-diaminobenzene-1,3,5-trisazo)tri- (benzenesulfonate) and subsidiary colouring matters together with water, sodium chloride and/or sodium sulfate as the principal uncoloured components Brown FK is described as the sodium salt. The calcium and the potassium salt are also permitted ClassAzo (a mixture of mono-, bis- and trisazo colours) Einecs Chemical namesA mixture of:I sodium 4-(2,4-diaminophenylazo) benzenesulfonateII sodium 4-(4,6-diamino-m-tolylazo) benzenesulfonateIII disodium 4,4-'(4,6-diamino-1,3-phenylenebisazo)di (benzenesulfonate)IV disodium 4,4'-(2,4-diamino-1,3-phenylenebisazo)di (benzenesulfonate)V disodium 4,4'-(2,4-diamino-5-methyl-1,3-phenylenebisazo)di (benzenesulfonate)VI trisodium 4,4',4"-(2,4-diaminobenzene-1.3,5-trisazo)tri-(benzenesulfonate) Chemical formulaI C12H11N4 NaO3SII C13H13N4 NaO3SIII C18H14N6 Na2O6S2IV C18H14N6 Na2O6S2V C19H16N6 Na2O6S2VI C24H17N8 Na3O9S3 Molecular weightI 314,30II 328,33III 520,46IV 520,46V 534,47VI 726,59 AssayContent not less than 70% total colouring mattersOf the total colouring matters present the proportions of the components shall not exceed:I 26%II 17%III 17%IV 16%V 20%VI 16%DescriptionRed-brown powder or granulesIdentificationOrange to reddish solutionPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 3,5% Organic compounds other than colouring matters: 4-aminobenzene-1-sulfonic acid m-phenylenediamine andNot more than 0,7% 4methyl-m-phenylenediamine Not more than 0,35% Unsulfonated primary aromatic amines other than m-phenylene diamine and 4-methyl-m-phenylene diameneNot more than 0,007% (calculated as aniline) Ether extractable matterFrom a solution of pH7, not more than 0,2% ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 155 BROWN HTSynonymsCI Food Brown 3DefinitionBrown HT consists

essentially of disodium 4,4'-(2,4-dihydroxy-5-hydroxymethyl-1,3-phenylene bisazo) di (naphthalene-1-sulfonate) and subsidiary colouring matters together with sodium chloride and/or sulfate as the principal uncoloured componentsBrown HT is described as the sodium salt. The calcium and potassium salt are also permitted ClassBisazo Colour Index No20285 Einecs224-924-0 Chemical namesDisodium 4,4'-(2,4-dihydroxy-5-hydroxymethyl-1,3-phenylene bisazo) di (naphthalene-l-sulfonate) Chemical formulaC27H18N4 Na2O9S2 Molecular weight652,57 AssayContent not less than 70% total colouring matters calculated as the sodium salt 403 at ca 460 nm in aqueous solution at pH 7DescriptionReddish-brown powder or granulesIdentification A. SpectrometryMaximum in water of pH 7 at ca 460 nm B. Brown solution in waterPurity Water insoluble matterNot more than 0,2% Subsidiary colouring mattersNot more than 10% (TLC method) Organic compounds other than colouring matters: 4-aminonaphthalene-1-sulfonic acidNot more than 0,7% Unsulfonated primary aromatic aminesNot more than 0,01% (calculated as aniline) Ether extractable matterNot more than 0,2% in a solution of pH 7 ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160a (i) MIXED CAROTENESSynonymsCI Food Orange 5DefinitionMixed carotenes are obtained by solvent extraction of natural strains of edible plants, carrots, vegetable oils, grass, alfalfa (lucerne) and nettle.The main colouring principle consists of carotenoids of which beta-carotene accounts for the major part. a-, ¾-carotene and other pigments may be present. Besides the colour pigments, this substance may contain oils, fats and waxes naturally occurring in the source material.Only the following solvents may be used in the extraction: acetone, methyl ethyl ketone, methanol, ethanol, propan-2-ol, hexane, dichloromethane and carbon dioxide ClassCarotenoid Colour Index No75130 Einecs230-636-6 Chemical names Chemical formulaß-Carotene: C40H56 Molecular weightß-Carotene: 536,88 AssayContent of carotenes (calculated as ß-carotene) is not less than 5%. For products obtained by extraction of vegetables oils: not less than 0,2% in edible fats 2 500 at ca 440-457 nm in cyclohexane Identification SpectrometryMaximum in cyclohexane at 440-457 nm and 470 nm-486 nmPurity Solvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethylethylketoneMethanol Propan-2-olHexane EthanolDichloromethane: Not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160a (ii) BETA-CAROTENESynonymsCI Food Orange 5DefinitionThese specifications apply predominantly to all trans isomer of ß-carotene together with minor amounts of other carotenoids. Diluted and stabilized preparations may have different cis/trans isomer ratios ClassCarotenoid Colour Index No40800 Einecs230-636-6 Chemical namesß-Carotene, ß,ß-Carotene Chemical formulaC40H56 Molecular

weight536,88 AssayNot less than 96% total colouring matters (expressed as ß-carotene) 2 500 at ca 453-456 nm in cyclohexaneDescriptionRed to brownish-red crystals or crystalline powderIdentification SpectrometryMaximum in cyclohexane at ca 453-456 nmPurity Sulphated ashNot more than 0,2% Subsidiary colouring mattersCarotenoids other than ß-carotene: not more than 3,0% of total colouring matters ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160b ANNATTO, BIXIN, NORBIXINSynonymsCI Natural Orange 4Definition ClassCarotenoid Colour Index No75120 EinecsAnnatto: 215-735-4, annatto seed extract: 289-561-2; bixin: 230-248-7 Chemical namesBixin: 6'-Methylhydrogen-9'-cis-6,6'-diapocarotene-6,6-dioate6'-Methylhydrogen-9'-trans-6,6-diapocarotene-6,6'-dioateNorbixin:
9'Cis-6,6'-diapocarotene-6,6'-dioic
acid9'-Trans-6,6-'diapocarotene-6-6'-dioic acid Chemical formulaBixin: C25H30O4Norbixin: C24H28O4 Molecular weightBixin: 394,51Norbixin:380,48DescriptionReddish-brown powder, suspension or solutionIdentification SpectrometryBixin: maximum in chloroform at ca 502 nm
Norbixin: maximum in dilute KOH solution at ca 482 nm

E 160b ANNATTO, BIXIN, NORBIXIN—contd.(i) SOLVENT EXTRACTED BIXIN AND NORBIXINDefinitionBixin is prepared by the extraction of the outer coating of the seeds of the annatto tree (Bixa orellana L.) with one or more of the following solvents: acetone, methanol, hexane or dichloromethane, carbon dioxide followed by the removal of the solventNorbixin is prepared by hydrolysis by aqueous alkali of the extracted bixin Bixin and norbixin may contain other materials extracted from the annatto seed.The bixin powder contains several coloured components, the major single one being bixin, which may be present in both cis- and trans- forms. Thermal degradation products of bixin may also be present.The norbixin powder contains the hydrolysis product of bixin, in the form of the sodium or potassium salts as the major colouring principle. Both cis- and trans-forms may be present AssayContent of bixin powders not less than 75% total carotenoids calculated as bixinContent of norbixin powders not less than 25% total carotenoids calculated as norbixinBixin: 2 870 at ca 502 nm in chloroform Norbixin: 2 870 at ca 482 nm in KOH solutionPurity Solvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethanolHexaneDichloromethane: Not more than 10 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160b ANNATTO, BIXIN, NORBIXIN—contd.(ii) ALKALI EXTRACTED ANATTODefinitionWater soluble annatto is prepared by extraction with aqueous alkali (sodium or potassium hydroxide) of the outer coating of the seeds of the annatto tree (Bixa orellana L) Water soluble

annatto contains norbixin, the hydrolysis product of bixin, in the form of the sodium or potassium salts, as the major colouring principle. Both cis- and trans- forms may be present AssayContains not less than 0,1% of total carotenoids expressed as norbixinNorbixin: 2 870 at ca 482 nm in KOH solution Purity ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160b ANNATTO, BIXIN, NORBIXIN—contd.(iii) OIL EXTRACTED ANNATTODefinitionAnnatto extracts in oil, as solution or suspension, are prepared by extraction of the outer coating of the seeds of the annatto tree (Bixa orellana L.) with edible vegetable oil. Annatto extract in oil contains several coloured components, the major single one being bixin, which may be present in both cis- and trans-forms. Thermal degradation products of bixin may also be present AssayContains not less than 0,1% of total carotenoids expressed as bixinBixin: 2 870 at ca 502 nm in chloroform Purity ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160c PAPRIKA EXTRACT, CAPSANTHIN, CAPSORUBINSynonymsPaprika OleoresinDefinitionPaprika extract is obtained by solvent extraction of the natural strains of paprika, which consists of the ground fruits pods, with or without seeds, of Capsicum annuum L., and contains the major colouring principles of this spice. The major colouring principles are capsanthin and capsorubin. A wide variety of other coloured compounds is known to be present.Only the following solvents may be used in the extraction: methanol, ethanol, acetone, hexane, dichloromethane, ethyl acetate and carbon dioxide ClassCarotenoid EinecsCapsanthin: 207-364-1, capsorubin: 207-425-2 Chemical namesCapsanthin: (3R, 3'S, 5'R)-3,3',-dihydroxy-ß,k-carotene-6—oneCapsorubin: (3S, 3'S, 5R, 5R')3,3'dihydroxy-k,k-carotene-6,6'-dione Chemical formulaCapsanthin: C40H56O3Capsorubin: C40H56O4 Molecular weightCapsanthin: 584,85Capsorubin: 600,85 AssayPaprika extract: content not less than 7,0% carotenoidsCapsanthin/capsorubin: not less than 30% of total carotenoids 2 100 at ca 462 nm in acetone DescriptionDark-red viscous liquidIdentification A. SpectrometryMaximum in acetone at ca 462 nm B. Colour reactionA deep blue colour is produced by adding one drop of sulfuric acid to one drop of sample in 2-3 drops of chloroform

E 160c PAPRIKA EXTRACT, CAPSANTHIN, CAPSORUBIN—contd.PurityEthyl acetateNot more than 50 mg/kg, singly or in combination Solvent residuesMethanolEthanolAcetoneHexaneDichloromethane: Not more than 10 mg/kg CapsaicinNot more than 250 mg/kg ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160d LYCOPENESynonymsNatural Yellow 27DefinitionLycopene is obtained by solvent extraction of the natural strains of red tomatoes (Lycopersicon esculentum L.) with subsequent removal of the solvent. Only the following solvents may be used: dichloromethane, carbon dioxide, ethyl acetate, acetone, propan-2-ol, methanol, ethanol, hexane. The major colouring principle of tomatoes is lycopene, minor amounts of other carotenoid pigments may be present. Beside the other colour pigments the product may contain oils, fats, waxes, and flavour components naturally occurring in tomatoes. ClassCarotenoid Colour Index No75125 Chemical namesLycopene, y,y-carotene Chemical formulaC40H56 Molecular weight536,85 AssayContent not less than 5% total colouring matters 3 450 at ca 472 nm in hexane DescriptionDark red viscous liquidIdentification SpectrometryMaximum in hexane at ca 472 nmPurity Solvent residuesEthyl acetateNot more than 50 mg/kg, singly or in combinationMethanolEthanolAcetoneHexanePropan-2-olDichloromethane: Not more than 10 mg/kg Sulphated ashNot more than 0,1% ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 160e BETA-APO-8'-CAROTENAL (C30)SynonymsCI Food Orange 6DefinitionThese specifications apply to predominantly all trans isomer of ß-apo-8'-carotenal together with minor amounts of other carotenoids. Diluted and stabilized forms are prepared from ß-apo-8'-carotenal meeting these specifications and include solutions or suspensions of ß-apo-8' carotenal in edible fats or oils, emulsions and water dispersible powders. These preparations may have different cis/trans isomer ratios. ClassCarotenoid Colour Index No40820 Einecs214-171-6 Chemical namesß-P-Apo-8'-carotenal, Trans-ß-apo-8' carotene-aldehyde Chemical formulaC30H40O Molecular weight416,65 AssayNot less than 96% of total colouring matters 2 640 at 460—462 nm in cyclohexane DescriptionDark violet crystals with metallic lustre or crystalline powderIdentification SpectrometryMaximum in cyclohexane at 460-462 nmPurity Sulphated ashNot more than 0,1% Subsidiary colouring mattersCarotenoids other than ßapo8'-carotenal: not more than 3,0% of total colouring matters ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 10 mg/kg

E 160f ETHYL ESTER OF BETA -APO-8'-CAROTENOIC ACID (C30)SynonymsCI Food Orange 7, ß-apo-8'-carotenoic esterDefinitionThese specifications apply to predominantly all trans isomer of ß-apo-8'-carotenoic acid ethyl ester together with minor amounts of other carotenoids. Diluted and stabilised forms are prepared from ß-apo-8'-carotenoic acid ethyl ester meeting these specifications and include solutions or suspensions of ß-apo-8'-carotenoic acid ethyl ester in edible fats or oils, emulsions and water dispersible powders. These preparations may have different cis/trans isomer ratios. ClassCarotenoid Colour Index

No40825 Einecs214-173-7 Chemical namesß-Apo-8'-carotenoic acid ethyl ester, ethyl 8'-apo-ß-caroten-8'-oate Chemical formulaC32H44O2 Molecular weight460,70 AssayNot less than 96% of total colouring matters 2 550 at ca 449 nm in cyclohexaneDescriptionRed to violet-red crystals or crystalline powderIdentification SpectrometryMaximum in cyclohexane at ca 449 nmPurity Sulphated ashNot more than 0,1% Subsidiary colouring mattersCarotenoids other than ß-apo-8'-carotenoic acid ethyl ester: not more than 3,0% of total colouring matters ArsenicNot more than 3 mg/kg LeadNot more than 10 mg/kg MercuryNot more than 1 mg/kg CadmiumNot more than 1 mg/kg Heavy metals (as Pb)Not more than 40 mg/kg

E 161b LUTEINSynonymsMixed Carotenoids, XanthophyllsDefinitionLutein is obtained by solvent extraction of the natural strains of edible fruits and plants, grass, lucerne (alfalfa) and tagetes erecta. The main colouring principle consists of carotenoids of which lutein and its fatty acid esters account for the major part. Variable amounts of carotenes will also be present. Lutein may contain fats, oils and waxes naturally occurring in the plant materialOnly the following solvents may be used for the extraction: methanol, ethanol, propan-2—ol, hexane, acetone, methyl ethyl ketone, dichloromethane and carbon dioxideClassCarotenoidEinecs204-840-0Chemical names3,3'-dihydroxy-d-caroteneChemical formulaC40H56O2Molecular weight568,88AssayContent of total colouring matter not less than 4% calculated as lutein 2 550 at ca 445 nm in chloroform/ethanol (10+90) or in hexane/ethanol/acetone (80 + 10 + 10)DescriptionDark, yellowish brown liquidIdentificationSpectrometryMaximum in chloroform/ethanol (10 + 90) at ca 445 nmPuritySolvent residuesAcetoneNot more than 50 mg/kg, singly or in combinationMethyl ethyl ketoneMethanolEthanolPropan-2-olHexaneDichloromethane: not more than 10 mg/kgArsenicNot more than 3 mg/kgLeadNot more than 10 mg/KgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/Kg

E 161g CANTHAXANTHINSynonymsCI Food Orange 8DefinitionThese specifications apply to predominantly all trans isomers of canthaxanthin together with minor amounts of other carotenoids. Diluted and stabilized forms are prepared from canthaxanthin meeting these specifications and include solutions or suspensions of canthaxanthin in edible fats or oils, emulsions and water dispersible powders. These preparations may have different cis/trans isomer ratios.ClassCarotenoidColour Index No40850Einecs208-187-2Chemical namesß-Carotene-4,4'-dione, canthaxanthin, 4,4'—dioxo-ß-caroteneChemical formulaC40H52O2Molecular weight564,86AssayNot less than 96% of total colouring matters (expressed as canthaxanthin) 2 200 at ca 485 nm in chloroformat 468—472 nm in cyclohexaneat 464—467 nm in petroleum etherDescriptionDeep violet crystals or crystalline powderIdentificationSpectrometryMaximum in chloroform at ca 485 nmMaximum in cyclohexane at 468—472 nmMaximum in petroleum ether at 464—-467 nmPuritySulphated ashNot more than 0,1%Subsidiary colouring

mattersCarotenoids other than canthaxanthin: Not more than 5,0% of total colouring mattersArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/kg

E 162 BEETROOT RED, BETANINSynonymsBeet RedDefinitionBeet red is obtained from the roots of natural strains of red beets (Beta vulgaris L. var. rubra) by pressing crushed beet as press juice or by aqueous extraction of shredded beet roots and subsequent enrichment in the active principle. The colour is composed of different pigments all belonging to the class betalaine. The main colouring principle consists of betacyanins (red) of which betanin accounts for 75—95%. Minor amounts of betaxanthin (yellow) and degradation products of betalaines (light brown) may be present.Besides the colour pigments the juice or extract consists of sugars, salts, and/or proteins naturally occurring in red beets. The solution may be concentrated and some products may be refined in order to remove most of the sugars, salts and proteinsClassBetalaineEinecs231-628-5Chemical names(S-(R',R')-4-(2-(2-Carboxy-5-(ß-D-glycilolsglucopyranosyloxy)-2,3-dihydro-6-hydroxy-1H-indol-l-yl)-ethenyl)-2,3-dihydro-2,6-pyridine-dicarboxylic acid;
1-(2-(2,6-dicarboxy-1,2,3,4-tetrahydro-4-pyridylidene)ethylidene)-5-ß-D-glucopyranosyloxy)-6-hydroxyindolium-2-carboxylateChemical formula Betanin: C24H26N2O13Molecular weight550,48AssayContent of red colour (expressed as betanine) is not less than 0,4% 1 120 at ca 535 nm in aqueous solution at pH 5DescriptionRed or dark red liquid, paste, powder or solidIdentificationSpectrometryMaximum in water of pH 5 at ca 535 nmPurityNitrateNot more than 2 g nitrate anion/g of red colour (as calculated from assay)ArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/kg

E 163 ANTHOCYANINSDefinitionAnthocyanins are obtained by extraction with sulphited water, acidified water, carbon dioxide, methanol or ethanol from the natural strains of vegetables and edible fruits. Anthocyanins contain common components of the source material, namely anthocyanine, organic acids, tannins, sugars, minerals, etc., but not necessarily in the same proportions as found in the source materialClassAnthocyaninEinecs208-438-6 (cyanidin); 205-125-6 (peonidin); 208-4-370 (delphinidin); 211-403-8 (malvidin); 205-127-7 (pelargonidin)Chemical names3,3',4',5,7- Pentahydroxy-flavylium chloride (cyanidin)3,4',5,7-Tetrahydroxy-3'-methoxyflavylium chloride (peonidin)3,4',5,7,-Tetrahydroxy-3',5'-dimethoxyflavylium chloride (malvidin)3,5,7-Trihydroxy-2-(3,4,5,trihydroxyphenyl)—1-benzopyrylium chloride (delphinidin)3,3'4',5,7 Pentanydroxy-5'-methoxyflavylium chloride (petunidin)3,5,7-Trihydroxy-2-(4-hydroxyphenyl)—1-benzopyrilium chloride (pelargonidin)Chemical formulaCyanidin: C15H11O6C1Peonidin: C16H13O6C1Malvidin: C17H15O7C1Delphinidin: C15 H 11O7C1Petunidin: C16H13O7C1Pelargonidin: C15H11O5C1Molecular weightCyanidin: 322,6Peonidin:

336,7Malvidin: 366,7Delphinidin: 340,6Petunidin: 352,7Pelargonidin: 306,7Assay 300 for the pure pigment at 515—535 nm at pH3,0

E 163 ANTHOCYANINS—contd.DescriptionPurplish-red liquid, powder or paste, having a slight characteristic odourIdentificationSpectrometryMaximum in methanol with 0,01% conc. HC1Cyanidin: 535 nmPeonidin: 532 nmMalvidin: 542 nmDelphinidin: 546 nmPetunidin: 543 nmPelargonidin: 530 nmPuritySolvent residuesMethanol Not more than 50 mg/kg, singly or in combinationEthanol Sulphur dioxideNot more than 1 000 mg/kg per percent pigmentArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/kg

E 170 CALCIUM CARBONATESynonymsCI Pigment White 18, ChalkDefinitionCalcium carbonate is the product obtained from ground limestone or by the precipitation of calcium ions with carbonate ions.ClassInorganicColour Index No.77220EinecsCalcium carbonate: 207-439-9Limestone: 215-279-6Chemical namesCalcium carbonateChemical formulaCaCO3Molecular weight100,1AssayContent not less than 98% on the anhydrous basisDescriptionWhite Crystalline or amorphous, odourless and tasteless powderIdentificationSolubilityPractically insoluble in water and in alcohol. Dissolves with effervescence in diluted acetic acid, in diluted hydrochloric acid and in diluted nitric acid, and the resulting solution, after boiling, give positive tests for calcium.PurityLoss on dryingNot more than 2,0% (200°C, 4 hours)Acid-insoluble substancesNot more than 0,2%Magnesium and alkali saltsNot more than 1,5%FlourideNot more than 50 mg/kgAntimony (as Sb)Not more than 100 mg/kg, singly or in combinationCopper (as Cu)Chromium (as Cr)Zinc (as Zn)Barium (as Ba)ArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgCadmiumNot more than 1 mg/kg

E 171 TITANIUM DIOXIDESynonymsCI Pigment White 6DefinitionTitanium Dioxide consists essentially of pure anatase titanium dioxide which may be coated with small amounts of alumina and/or silica to improve the technological properties of the product.ClassInorganicColour Index No.77891Einecs236-675-5Chemical namesTitanium dioxideChemical formulaTiO2Molecular weight79,88AssayContent not less than 99% on an alumina and silica-free basisDescriptionAmorphous white powderIdentificationSolubilityInsoluble in water and organic solvents. Dissolves slowly in hydrofluoric acid and in hot concentrated sulphuric acid.PurityLoss on dryingNot more than 0,5% (105°C, 3 hours)Loss on ignitionNot more than 1,0% on a volatile matter free basis (800°C)Aluminium oxide and/or silicon dioxideTotal not more than 2,0%Matter soluble in 0,5N HCINot more than 0,5% on an alumina and silica-free basis and, in addition, for products containing alumina and/or silica, not more than 1,5% on the basis of the product as sold.Water soluble matterNot more than 0,5%CadmiumNot more than 1 mg/kgAntimonyNot more than 50 mg/kg by total dissolutionArsenicNot more than 3 mg/kg by total dissolutionLeadNot more than 10 mg/kg by

total dissolutionMercuryNot more than 1 mg/kg by total dissolutionZincNot more than 50 mg/kg by total dissolution

E 172 IRON OXIDES AND IRON HYDROXIDESSynonymsIron Oxide Yellow: CI Pigment Yellow 42 and 43Iron Oxide Red: CI Pigment Red101 and 102Iron Oxide Black: CI Pigment Black 11DefinitionIron oxides and iron hydroxides are produced synthetically and consist essentially of anhydrous and/or hydrated iron oxides. The range of hues includes yellows, reds, browns and blacks. Food quality iron oxides are primarily distinguished from technical grades by the comparatively low levels of contamination by other metals. This is achieved by the selection and control of the source of the iron and/or by the extent of chemical purification during the manufacturing process.ClassInorganicColour Index No.Iron Oxide Yellow: 77492Iron Oxide Red: 77491Iron Oxide Black: 77499EinecsIron Oxide Yellow: 257-098-5Iron Oxide Red: 215-168-2Iron Oxide Black: 235-442-5Chemical namesIron Oxide Yellow: hydrated ferric oxide, hydrated iron (III) oxideIron Oxide Red: anhydrous ferric oxide, anhydrous iron (III) oxideIron Oxide Black: ferroso ferric oxide, iron (II, III) oxideChemical formulaIron Oxide Yellow: FeO(OH)·xH2OIron Oxide Red: Fe2O3Iron Oxide Black: FeO.Fe2O3Molecular weight88,85: FeO (OH)159,70: Fe2O3231,55: FeO. FeO3AssayYellow not less than 60%, red and black not less than 68% total iron, expressed as ironDescriptionPowder; yellow, red, brown or black in hueIdentificationSolubilityInsoluble in water and in organic solventsSoluble in concentrated mineral acidsPurityWater soluble matterNot more than 1,0%By total dissolutionArsenicNot more than 5 mg/kgBariumNot more than 50 mg/kgCadmiumNot more than 5 mg/kg ChromiumNot more than 100 mg/kgCopperNot more than 50 mg/kgLeadNot more than 20 mg/kgMercuryNot more than 1 mg/kgNickelNot more than 200 mg/kgZincNot more than 100 mg/kg

E 173 ALUMINIUMSynonymsCI Pigment Metal, AIDefinitionAluminium powder is composed of finely divided particles of aluminium. The grinding may or may not be carried out in the presence of edible vegetable oils and/or food additive quality fatty acids. It is free from admixture with substances other than edible vegetable oils and/or food additive quality fatty acids.Colour Index No.77000Einecs231-072-3Chemical namesAluminiumChemical formulaAIAtomic weight26,98AssayNot less than 99% calculated as AI on an oil-free basisDescriptionA silvery grey powder or tiny sheetsIdentificationSolubilityInsoluble in water and in organic solvents. Soluble in dilute hydrochloric acid. The resulting solution gives positive tests for aluminiumPurityLoss on dryingNot more than 0,5% (105°C, to constant weight)ArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/kg

E 174 SILVERSynonymsArgentum, AgClassInorganicColour Index No.77820Einecs231-131-3Chemical nameSilverChemical formulaAgAtomic weight107,87AssayContent not less than 99,5% AgDescriptionSilver-coloured

powder or tiny sheets

E 175 GOLDSynonymsPigment Metal 3, Aurum, AuClassInorganicColour Index No.77480Einecs231-165-9Chemical nameGoldChemical formulaAuAtomic weight197,0AssayContent not less than 90% AuDescriptionGold-coloured powder or tiny sheetsPuritySilverNot more than 7%After complete dissolutionCopperNot more than 4%

E 180 LITHOLRUBINE BKSynonymsCI Pigment Red 57, Rubinpigment, carmine 6BDefinitionLithol Rubine BK consists essentially of calcium 3-hydroxy-4-(4-methyl-2-sulfonatophenylazo)-2-naphthalenecarboxylate and subsidiary colouring matters together with water, calcium chloride and/or calcium sulfate as the principal uncoloured components.ClassMonoazoColour Index No.15850:1Einecs226-109-5Chemical namesCalcium 3-hydroxy-4-)4-methyl-2-sulfonatophenylazo)-2-naphthalenecarboxylateChemical formulaC18H12 CaN2O6SMolecular weight424,45AssayContent not less than 90% total colouring matters 200 at ca 442 nm in dimethylformamideDescriptionRed powderIdentificationA. SpectrometryMaximum in dimethylformamide at ca 442 nmPuritySubsidiary colouring mattersNot more than 0,5%Organic compounds other than colouring matters:2 Amino-5-methylbenzene-sulfonic acid, calcium saltNot more than 0,2%3-hydroxy-2-naphthalenecar-boxylic acid, calcium saltNot more than 0,4%Unsulfonated primary aromatic aminesNot more than 0,01% (expressed as aniline)Ether extractable matterFrom a solution of pH 7, not more than 0,2%ArsenicNot more than 3 mg/kgLeadNot more than 10 mg/kgMercuryNot more than 1 mg/kgCadmiumNot more than 1 mg/kgHeavy metals (as Pb)Not more than 40 mg/kg

GIVEN under the Official Seal of the Minister for Health, this 19th day of December, 1995.
MICHAEL NOONAN,
Minister for Health.

EXPLANATORY NOTE

These Regulations implement the Directives on food additives generally and on colours and sweeteners in particular, which are listed below.
Council Directive 89/107/EEC(1) on the approximation of the laws of the Member States concerning food additives authorised for use in foodstuffs intended for human consumption.
(1)OJ No. L40, 11.2.89, pp 27-33
European Parliament and Council Directive 94/35/EC(2)on sweeteners for use in foodstuffs.
(2)OJ No. L237, 10.9.94, pp 3-12
European Parliament and Council Directive 94/36/EC(3) on colours for use in foodstuffs.
(3)OJ No. L237, 10.9.94, pp 13-29
Commission Directive 95/31/EC(4) laying down specific criteria of purity concerning sweeteners for use in foodstuffs.

(4)OJ No. L178, 28.7.95, pp 1-19
Commission Directive 95/45/EC(5) laying down specific purity criteria concerning colours for use in foodstuffs.
(5)OJ No. L226 22.9.95, pp 1-45
All food additives must comply with the provisions in Part I of the Regulations while, in addition, sweeteners and colours used as food additives must comply with the provisions in Parts II and III respectively.
These Regulations, cited as the European Communities (General Provisions on the Control of Additives, and in particular Colours and Sweeteners for use in Foodstuffs) Regulations, 1995 come into effect on 31st December 1995.