HEALTH (COLOURING AGENTS IN FOOD) REGULATIONS 1973

The Minister for Health in exercise of the powers conferred on him by sections 5 of the Health Act, 1947 (No. 28 of 1947), sub-section (3) of section 38 of the Health Act, 1953 (No. 26 of 1953) and section 6 of the Health Act, 1970 (No. 1 of 1970) after consultation with the Minister for Industry and Commerce and the Minister for Agriculture and Fisheries makes the following Regulations:—

PART I
Preliminary and General

REG 1

1. These Regulations may be cited as the Health (Colouring Agents in Food) Regulations, 1973.

REG 2

2. These Regulations shall come into operation on the first day of July, 1974.

REG 3

3. (1) The Health (Colouring Matter in Food) Regulations, 1972 (S.I. No. 41 of 1972) and the Health (Colouring Matter in Food) (Amendment) Regulations, 1972 (S.I. 301 of 1972) are hereby revoked.
(2) The provisions of Articles 9 to 12 of the Health (Arsenic and Lead in Food) Regulations, 1972 (S.I. No. 44 of 1972) shall not apply to any permitted colouring agent.

REG 4

4. (1) In these Regulations—
"authorised officer" means an authorised officer for the purposes of Part IX of the Health Act, 1947;
"colouring agent" means colouring matter and includes any diluent combined with such colouring matter;
"common name" means in relation to any permitted colouring matter or permitted diluent, the common or usual name or a name or description or a name and description sufficiently specific, in each case, to indicate to an intending purchaser the true nature of the permitted colouring matter or permitted diluent to which it is applied;
"container" includes any form of packaging of food and any wrapper or band:
"diluent" means any substance used to dilute or dissolve colouring matter intended for use in food but does not include water;
"food" does not include colouring agent;
"permitted colouring agent" means permitted colouring matter and includes any permitted diluent combined with such colouring matter;
"permitted colouring matter" means
(a) any colouring matter described in Part I of the First Schedule to these Regulations which complies with any restriction on its use

specified in the said Part and with any specific purity criteria in relation to that colouring matter specified in Part III of that Schedule and (so far as is not otherwise provided by any such specific purity criteria) with the general purity criteria contained in Part II of that Schedule, and
(b) any combination of two or more such colouring matters;
"permitted diluent" means any diluent (including any diluent when it has been diluted with water) which complies with the general purity criteria contained in Part II of the Second Schedule to these Regulations and is
(a) a diluent described in Part I of the Second Schedule to these Regulations which complies with any restriction on its use specified in the said Part, or
(b) a solvent the use of which in food is permitted by the Health (Solvents in Food) Regulations, 1972 (S.I. No. 304 of 1972), or
(c) any combination of two or more such diluents and solvents;
"vegetable" includes pulses.
(2) References in these Regulations to percentages shall be construed as references to percentages calculated by weight.
(3) Any reference in these Regulations to a label borne on a container shall be construed as including a reference to any legible marking on the container however effected.

REG 5

5. Any reference in these Regulations to an owner or to a person in apparent charge or control of food shall in the case of food purchased from an automatic machine be construed as a reference—
(a) where the name and address of the proprietor is stated on the machine and such address is in the State, to the proprietor of the machine;
(b) in other cases, to the occupier of the premises at or on which the machine stands or to which it is affixed.

REG 6

6. These Regulations shall not apply to any colouring agent or any food having any colouring agent in it or on it—
(a) which is intended to be exported or re-exported or
(b) which is sold for the purpose of scientific laboratory testing,
if the container of any such colouring agent or food bears a label stating clearly that such colouring agent or food, as the case may be, is sold only for such purpose.

REG 7

7. These Regulations shall be enforced and executed by health boards in their functional areas.

REG 8

8. (1) Where a sample of any food has been certified under the Health (Sampling of Food) Regulations, 1970 (S.I. No. 50 of 1970) not to comply with these Regulations, an authorised officer may seize, remove and detain such food as being food which is unfit

for human consumption.
(2) With the consent in writing of the owner or person in apparent charge or control of such food 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 food in pursuance of the provisions of this article may, on giving notice in writing to the owner or person in apparent charge or control of such food of his intention to do so, apply to a Justice of the District Court for an order directing that such food be destroyed or otherwise disposed of as being food which is unfit for human consumption.
(4) A Justice 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 food 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 food which is unfit for human consumption and an authorised officer shall destroy or dispose of it accordingly.
(5) 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 food and the identity of the person from whom or the place from which any such food has been obtained and the person to whom and the place to which it has been consigned or the manner in which it has otherwise been disposed of.
(6) In this article "food" includes colouring agent.

PART II.
SALE ETC. OF COLOURING AGENTS AND OF FOOD CONTAINING COLOURING AGENTS.

REG 9

9. (1) Subject to the provisions of these Regulations a person shall not import, distribute, sell or expose for sale any colouring agent, other than a permitted colouring agent, for use in the manufacture or preparation of food.
(2) Where two or more colouring agents any of which contains any organic or inorganic impurity are combined or mixed, the amount of organic or inorganic impurity permitted to be contained in such combination or mixture shall be determined by multiplying the amount of organic or inorganic impurity specified in Part II or Part III of the First and Part II of the Second Schedule to these Regulations in relation to each colouring agent present in such combination or mixture, by the proportion of the total amount of such combination or mixture represented by that colouring agent and by adding together the products resulting therefrom.

REG 10

10. Subject to the provisions of these Regulations a person shall not import, distribute, sell or expose for sale—
(a) any fish, game, meat or poultry which has not been treated or

processed otherwise than by boning, cleaning, cutting, grinding, paring or trimming and which has in it or on it, otherwise than for the purpose of marking, any added colouring agent;
(b) processed cheese or cheese spread which has in it or on it any added colouring agent other than the permitted colouring matters described in Part I of the First Schedule to these Regulations under Serial Numbers E101, E120, E132, E140, E150, E160 (a), (b), (e) and (f) or any permitted colouring matter natural to edible fruit or vegetables or any permitted diluent combined with any of the said colouring matters;
(c) sage cheese or sage cheese spread which has in it or on it any added colouring agent other than a green permitted colouring matter referred to in paragraph (b) of this article or any permitted diluent combined with any such permitted colouring matter;
(d) hard cheese which has in it or on it (except in or on the rind thereof) or soft cheese or whey cheese which has in it or on it any added colouring agent other than the permitted colouring matters described in Part I of the First Schedule to these Regulations under Serial Number E160 (a) and (b) or any permitted diluent combined with any such permitted colouring matters;
(e) any fruit or vegetable in a raw or unprocessed state which has in it or on it (except on the husk of any nut) any added colouring agent other than a permitted colouring agent which has been added for the purpose of marking;
(f) any coffee bean, coffee essence, ground coffee, cream, milk (except a flavoured milk drink), condensed milk, dried milk, or tea (whether in leaf or essence form) which has in it or on it any added colouring agent;
(g) any white bread or soda bread (except any such bread for use by a manufacturer for the purpose of his business) which has in it or on it any added colouring agent;
(h) any bread (other than white bread or soda bread or bread for use by a manufacturer for the purposes of his business) which has in it or on it any added colouring agent other than the permitted colouring matter described in Part I of the First Schedule to these Regulations opposite Serial Number E150 or any permitted diluent combined with such permitted colouring matter;
(i) any other food (including the rind of cheese, the husk of any nut, any flavoured milk drink and any bread for use by a manufacturer for the purpose of his business) which has in it or on it, any colouring agent (including colouring agent in any mark however effected) which has been added to the food, other than a permitted colouring agent.

REG 11

11. For purposes of this Part of the Regulations—
"bread" includes the following, and any part of any of the following, baps, bread rolls, fancy bread, milk bread, malt bread and fruit bread;
"cheese spread" means cheese which has been melted and mixed with milk products other than cheese with or without the addition of emulsifying salts;
"hard cheese" means cheese other than soft cheese, whey cheese, processed cheese or cheese spread;

"processed cheese" means cheese which has been melted and mixed with or without the addition of emulsifying salts;
"soft cheese" means cheese which is readily deformed by moderate pressure but does not include whey cheese, processed cheese or cheese spread, and any reference to soft cheese includes a reference to cream cheese or curd cheese;
"whey cheese" means the product obtained by—
(i) concentrating whey with or without the addition of milk and milk fat and moulding such concentrated whey,
or
(ii) coagulating whey with or without the addition of milk and milk fat.

PART III.
Labelling and Advertising

REG 12

12. Subject to the provisions of these Regulations a person shall not import, distribute, sell or expose for sale any permitted colouring agent for use in the manufacture or preparation of food unless such permitted colouring agent is packed in a container bearing a label which complies with the requirements for such a label specified in the Third Schedule to these Regulations.

REG 13

13. (1) A person shall not advertise for sale for use in food
(a) any colouring agent other than a permitted colouring agent;
(b) any permitted colouring agent in such a manner as to be likely to lead to its use or sale contrary to these Regulations.
(2) Where a person is charged with a contravention of this article, it shall be a good defence to show that the advertisement was published in such circumstances that he did not know and could not, by the exercise of reasonable care, have known that he was taking part in the publication of such advertisement.

FIRST SCHEDULE.
PERMITTED COLOURING MATTER.

In this Schedule
(1) the description of the colouring matter shall, unless otherwise indicated, be taken to include whether listed or not, the acid form of the colouring-matter and its sodium, calcium, potassium and aluminium salts (lakes);
(2) "Colour Index Number" means the number assigned to the specified colouring matter in the Rowe Colour Index, 3rd Edition, Bradford, England 1970;
(3) "Quinolene Yellow" means a colouring matter known as early dye and identical with that classified under No. 918, G Schultz, Farbstofftabellan, 7th Edition, Leipzig, 1931 and No. 97, Prof. Dr. G. Hocht, WuppertalElberfield, Communication 6 of the Colouring Materials Commission of the Deutsche Forschungsgemeinschaft, 2nd Edition, Wiesbaden, 1957;

(4) "Caramel" means a colouring matter of more or less pronounced brown colour and does not mean the German "Karamell" which is the aromatic and sweetened product obtained by heating sugar, and used in confectionery and baking.

Serial NumberName of ColourColour Index NumberScientific Name or DescriptionE 100Curcumin753001,7-di-(4-dydroxy-3-mothoxyphenyl) hepta-1,6-dione-3,5 dioneE 101Riboflavin or Lactoflavin—6,7-dimethyl-9-(D'-l'-ribityl) isoalloxazine: 7,8-dimethyl-10-(2,3,4,5-tetrahydroxypentyl) isoalloxazineE 102Tartrazine19140trisodium salt of 5-hydroxy-1-p-sulphophenyl-4-p-sulphophenyl-azopyrazole-3-carboxylic acidE 104Quinoline Yellow47005sodium salt of a mixture of the mono- and disulphonic acids (mainly the latter) of quinophthalone or of 2-quinolyindandioneE 105Fast Yellow AB13015disodium salt of 1-(4-sulpho-1-phenylazo)-4-aminobenzene-5-sulphonic acid—Yellow 2G18965disodium salt of 1-(2,5-dichloro-4-sulphophenyl)-5-hydroxy-3-methyl-4-p-sulphophenylazo-pyrazoleE 110Sunset Yellow FCF or Orange Yellow S15985disodium salt of 1-p-sulphophenylazo-2-naphthol-6-sulphonic acid—Orange G16230disodium salt of 1-phenylazo-2-naphthol-6,8-disulphonic acid—Orange RN15970sodium salt of 1-phenylazo-2-naphthol-6-sulphonic acidE 120Cochineal or Carminic Acid75470extract of Coccus Cocti (caconium salts included)E 121Orchil or Orcein—extract obtained with ammonia solution, in air, of the red colouring matter of the species Roccella, Lechanora and OrchellaE 122Carmoisine or Azorubine14720disodium salt of 2-(4-sulpho-1-naphthylazo)-1-naphthol-4-sulphonic acidE 123Amaranth16185trisodium salt of 1-(4-sulpho-1-naphthylazo)-2-naphthol-3, 6-disulphonic acidE 124Ponceau 4R or Cochineal Red A16255trisodium salt of 1-(4-supho-1-naphthylazo)-2-naphthol-6, 8-disulphonic acidE 127Erythrosine BS45430disodium salt of 2,4,5,7-tetraiodofluoroscein—Red 2G18050disodium salt of 8-acetamido-2-phenylazo-1-naphthol-3,6-disulphonic acidE 130Solanthrene Blue RS or Anthragen Blue, or Indanthrene Blue69800N:N'-dihydro-1,2,1'2'-anthraquinone-azine (Indanthrone)E 131Patent Blue V42051calcium salt of the disulphonic acid of m-hydroxytetraethyldiaminotriphenyl-carbinol anhydrideE 132Indigo Carmine or Indigotine73015disodium salt of indigotin-5,5'-disulphonic acid—Brilliant Blue FCF42090disodium salt of 4',4"-di-(N-ethyl-4-sulphonato-benzylamino) triphenylmethylium-2-sulphonic acid—Violet 6B42640monosodium salt of N,N'-(4" dimenthylaminotriphenyl-methylio)-4,4'-di-(N-ethylaminomethylbenzene-4-sulphonic acid)E 140Chlorophyll75810Chlorophyll b: magnesium complex of 1,3,5,8-tetramethyl-4-ethyl-2-vinyl-9-oxo-10-methoxycarbonylphorbin-7-propronic acid phytyl esterChlorophyll b: magnesium complex of 1,5,8-trimethyl-4-ethyl-2-vinyl-3-formyl-9-oxo-10-methoxycarbonylphorbin -7-proprionic acid phytyl esterE 141Copper complexes of chlorophyll and chlorophyllins75810copper chlorophyll complex and copper chlorophyllin complexE 142Green S or Acid Brilliant Green BS, or Lissamine Green44090monosodium salt of di-(p-dimethylaminophenyl)-2-hydroxy-3,6-disulphonaphthylmethanol anhydride—Brown FK—mixture of:1,3-diamino-4-(p-sulphophenylazo) benzene (I) 2,4-diamino-5-(p-sulphophenylazo) toluene (II) 1,3-diamino-4,6-bis-(p-sulphophenylazo) benzene (III) 1,3-diamino-2,4-bis-(p-sulphophenylazo) benzene (IV) 2,4-diamino-3,5-bis-(p-sulphophenylazo) toluene (V)

1,3-diamino-2,4,6-tris-(p-sulphophenylazo) benzene (VI)—Chocolate Brown FB—the product of coupling diazotised naphthionic acid with osage orange extract (principally a mixture of maclurin (CI 75240) and morin (CI 75660))—Chocolate Brown HT20285disodium salt of 2,4-dihydroxy-3,5-di-(4-supho-1-naphthylazo) benzyl alcoholE 150Caramel—products obtained exclusively by heating sucrose or other edible sugars; or water soluble amorphous products, of a brown colour, obtained by the controlled action of heat on edible sugars in the presence of one or more of the following chemical compounds: — acetic acid, citric acid, phosporic acid, sulphuric acid, sulphurous acid or sulphur dioxide — ammonium, sodium, potassium hydroxides or gaseous ammonia — ammonium, sodium and potassium carbonates, phosphates, sulphates and sulphitesE 151Black PN or Brilliant Black BN28440tetrasodium salt of 8-acetamido-2-(7-sulpho-4-p-sulphophenylazo-1-naphthylazo)-1-naphthol -3,5-disulphonic acidE 152Black 798427755tetrasodium salt of 1-[4-(4-sulpho-1-phenylazo)-7-sulpho-1-naphthylazo]-1-hydroxy-7-amino-naphthalene -3,6-disulphonic acidE 153Vegetable carbon (carbo medicinalis vegetalis)—pharmaceutical quality vegetable carbonE 160Carotenoids75130products predominantly in the trans form (synthetic-beta-carotene transform) (a) alpha-, beta- and gamma-carotene(40800) (b) bixin, norbixin (Annatto)75120bixin: a carotenoid colour, monomethyl ester of norbixin and the principal colouring of oil extracts of Annattonorbixin: a symmetrical dicarboxylic acid whose alkaline salt is the principal colouring of aqueous extracts of Annatto (c) Capsanthein or Capsorbin—paprika extract (d) Lycopene75125products predominantly in the trans form (e) beta-apo-8'-carotenal (C30)40820products predominantly in the trans form (f) ethyl ester of beta-apo-8'-carotenoic acid (C30)40825products predominantly in the trans formE 161Xanthophylls75135xanthophylls: the ketonic and/or hydroxylic derivatives of carotenes (a) flavoxanthein (b) lutein (c) kryptoxanthein (d) rubixanthein (e) violoxanthein (f) rhodoxanthein (g) canthaxanthin40850E 162Beetroot red or betanin—Aqueous extract of red beetrootsE 163Anthocyanins—anthocyanins: glucosides of 2-phenylbenzo-pyrylium salts: most are hydroxy derivatives:the anthocyanins may be obtained only from edible fruit or vegetables such as strawberries, mulberries, cherries, plums, raspberries, wild blackberries, black currants, red currants, red cabbage, red onions, cranberries, myrtles, aubergines, grapes and elderberries the following, non-gluconated anthocyanidins are included namely: pelargonidin; cyanidin; peonidin; delphinidin; petunidin; malvidinNatural substances having a secondary colouring effect, particularly: (a) paprika—the pure colouring principle of any of the colouring matters listed is permitted (b) turmeric75300 (c) saffron75100 (d) sandalwoodE 170Calcium Carbonate77220E 171Titanium Dioxide77891E 172Iron oxides and hydroxides77489iron oxides of various colours77491iron oxides of various colours77492iron oxides of various colours77499E 173Aluminium(restricted for use only in colouring the surface of dragees and for the decoration of sugar-coated flour confectioneryE 174SilverE 175Gold 77000—77480E 180Pigment Rubine (lithol rubine BK) (restricted for use only in colouring rinds of hard cheese)15850only the calcium and aluminium salts of 3-carboxy-1-p-tolylazo-2-naphthol-2'-sulphonic acidE 181Burnt Umber (restricted for use only in colouring rinds of hard cheese)—product obtained by roasting in air a mixture consisting essentially of iron

and manganese oxides, and calcium and aluminium silicates, carbonates and sulphates—Methyl Violet (restricted for use only in marking citrus fruit and raw and unprocessed meat)42535mixture of hydrochlorides of the more highly methylated pararosanilines containing principally the N-tetra, penta-, and hexa-methyl derivatives

PART II.

GENERAL PURITY CRITERIA.

Unless otherwise provided in the specific criteria in Part III of this Schedule the colouring matters referred to in Part I of this Schedule shall comply with the following criteria of purity:—

1. Inorganic Impurities:

(a) They shall not contain more than 5 mg per kg of arsenic, 20 mg per kg of lead.

(b) They shall not contain more than 100 mg per kg of any one of the following substances: antimony, copper, chromium, zinc, barium sulphate: or more than 200 mg per kg of these substances taken together.

(c) They shall not contain cadmium, mercury, selenium, tellurium, thallium, uranium, chromates or soluble barium compounds in detectable quantities.

2. Organic Impurities:

(a) They shall not contain 2-naphthylamine, benzidine, 4-aminodiphenyl (or xenylamine) or their derivatives.

(b) They shall not contain aromatic polycyclic hydrocarbons.

(c) Synthetic organic colouring matters shall not contain more than 0·01% of free aromatic amines.

(d) Synthetic organic colouring matters shall not contain more than 0·5% of synthetic intermediates other than free aromatic amines.

(e) Synthetic organic colouring matters shall not contain more than 4% of subsidiary colours (isomers, homologues, etc.).

(f) Sulphonated organic colouring matters shall not contain more than 0·2% of substances extractable by diethyl ether.

PART III.

SPECIFIC PURITY CRITERIA.

E 101 Riboflavin (Lactoflavin):

Lumiflavin: prepare ethanol-free chloroform as follows: shake 20 ml of chloroform with 20 ml of water, gently but carefully for 3 minutes and allow time to separate. Draw off the chloroform layer and repeat the extraction twice using 20 ml each time. Finally, filter the chloroform through dry filter paper, shake the filtrate well for 5 minutes with 5 g of powdered anhydrous sodium sulphate, leave the mixture to stand for 2 hours and decant or filter the clean chloroform. Shake 25 mg of riboflavin with 10 ml of the ethanol-free chloroform for 5 minutes and filter. The colour of the filtrate shall not be more intense than that of an aqueous solution obtained by diluting 3 ml of O. IN potassium dichromate to 1,000 ml.

E 102 Tartrazine:

Water-insoluble matter: not more than 0·2%.

Subsidiary colours: not more than 1%.

E 104 Quinoline Yellow:

Water insoluble matter: not more than 0·2%.

E 105 Fast Yellow AB:

Water insoluble matter: not more than 0·2%.

Subsidiary colours: not more than 3%.

Unsulphonated aromatic amines and aniline: not more than 10 mg per kg.

(a) Determination of 2-Aminoazobenzene and 4-Aminoazobenzene: Dissolve, 20 g of Fast Yellow AB in 400 ml of water. Add 5 ml of N sodium hydroxide, and shake 4 times with 50 ml of chlorobenzene in a separating funnel for 5 minutes. Wash the combined chlorobenzene extract with successive amounts of 400 ml of O. IN sodium hydroxide until the upper aqueous layer remains colourless. Filter the chlorobenzene solution through a thick folded filter paper and measure the extinction (EPT:7>1) in a spectrophotometer against chlorobenzene contained in cells of suitable thickness (d1) at 41 milli microns.

Calculations:

2- and 4- aminoazobenzene (mg per kg) content =

NOTE:

E1 1 mg/ml at milli microns. cmfor 2-aminoazobenzene = 39·7for 4-aminoazobenzene = 35·2

The 4-aminoazobenzene content can only be determined up to 90%. The following method allows the separation of the 2- and 4- compounds. Concentrate 100 ml of the chlorobenzene extract to about 20 ml by heating on a water bath in a current of hot air. Pour the concentrated solution on an alumina column of suitable size. Elute with chlorobenzene. The first 100 ml of the chlorobenzene eluate contains the 2-aminoazobenzene, elution of the para compound in chlorobenzene follows.

Make up each solution to 100 ml. Measure the extinction of the ortho compound at 414 milli microns (E) and that of the para compound at 376 milli microns (EPT:7>2).

1 mg/ml at 414 milli microns for 2-aminoazobenzene = 39·7
E 1 cm

1 mg/ml at 376 milli microns for 4-aminoazobenzene = 110
E 1 cm

2-aminoazobenzene (mg per kg) content =

4-aminoazobenzene (mg per kg) content =

(b) Determination of aniline: Shake 75 ml of the residual chlorobenzene extract with 2 successive portions of 50 ml of 0·5N hydrochloric acid, then with 2 successive portions of 25 ml of water. Neutralize the combined aqueous extracts with a 30% solution of sodium hydroxide and acidify with 10 ml of 0·5N hydrochloric acid. Dissolve 1-2 g. of potassium bromide in this solution. After cooling in iced water add about 20 drops of 0·1 N sodium nitrite and allow to stand for 10 minutes. Remove any excess nitrite by adding sulphamic acid. Pour the solution into about 5 ml of 3% solution of R Salt (disodium 2-naphthol-3, 6-disulphonate) added to 10 ml of 2N sodium hydroxide. Allow to stand for 15 minutes. Acidify the solution of the dyestuff with congo Red ST as indicator, until the latter turns blue, and filter. The aminoazobenzene dyestuff will remain on the filter. Dilute the filtrate to 200 ml and measure the extinction at 490 milli microns (E4).

Calculation:

Aniline (mg per kg) content =

1 mg/ml 490 milli microns for aniline = 266

E 1 cm
—Yellow 2G:
Water-insoluble matter: not more than 0·1%.
Subsidiary colours: not more than 2%.
E 110 Sunset Yellow FCF (Orange Yellow S):
Water-insoluble matter: not more than 0·2%.
—Orange G:
Water-insoluble matter: not more than 0·1%.
Subsidiary colours: not more than 2%.
—Orange RN:
Water-insoluble matter: not more than 0·1%.
Subsidiary colours: disodium salt of
1-phenylazo-2-naphthol-3,6-disulphonic acid (C1 16,100): not more than 20%.
—others: not more than 1%.
E 120 Cochineal and Carminic Acid:
Paper chromatography: with a solution of 2 g of trisodium citrate in 100 ml of a 5% ammonia solution, cochineal shall give only a single spot in the alkaline zone.
E 122 Carmoisine (Azorubine):
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 1%.
E 123 Amaranth:
Water-insoluble matter: not more than 0·2%.
E 124 Ponceau 4R (Cochineal Red A):
Water-insoluble matter: not more than 0·2%.
E 127 Erythrosine BS:
Water insoluble matter: not more than 0·2%.
Mineral iodides: not more than 1,000 mg/kg (evaluated as sodium iodide)
Subsidiary colours: not more than 3%.
Fluorescein: no detectable trace.
—Red 2G:
Water-insoluble material: not more than 0·1%.
Subsidiary colours: not more than 2%.
E 131 Patent Blue V:
Water-insoluble matter: not more than 0·8%.
Chromium (expressed as Cr): not more than 20 mg per kg.
Subsidiary colours: not more than 1%.
E 132 Indigo Carmine (Indigotine):
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 1%.
Isatinsulphonic acid: not more than 1%.
Disodium 5, 7/-disulphonic acid: not more than 20%.
—Brilliant Blue FCF:
Water insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 7%.
Leuco base: not more than 6%.
Free aromatic amines: not more than 0·35%.
Synthetic intermediates (other than free aromatic amines): not more than 2%.
Diethyl ether extract: not more than 0·5%.
—Violet 6B:
Water-insoluble matter: not more than 0·35%.
Leuco base: not more than 6%.

Free aromatic amines: not more than 0·25%.
Synthetic intermediates (other than free aromatic amines): not more than 0·5%.
Diethyl ether extract: not more than 0·5%.
E 141 Copper complexes of chlorophyll and chlorophyllins:
A 1% solution of copper-chlorophyll complex in turpentine shall not be turbid and shall not give a sediment. Copper (free ionisable Cu): not more than 200 mg per kg.
E 142 Green S (Acid Brilliant Green BS or Lissamine Green):
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 1%.
—Brown FK:
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 5%.
Free aromatic amines: not more than 0·5% (calculated as metaphenylene diamine).
Synthetic intermediates (other than free aromatic amines): not more than 1.0%.

Component I: not more than 26%Components identified in Part I of the First ScheduleComponent II: not more than 17%Component III: not more than 17%Component IV: not more than 16%Component V: not more than 20%Component VI: not more than 16%
Chocolate Brown FB:
Water-insoluble matter: not more than 0·2%.
Synthetic intermediates (other than free aromatic amines): not more than 1.5%.
Diethyl ether extract: not more than 1%.
—Chocolate Brown HT:
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 15% (which shall consist principally of the sodium salt of 2, 4-dihydroxy-5 (4-sulpho-1-naphthylazo) benzyl alcohol). Synthetic intermediates (other than free aromatic amines): not more than 1.0%.
E 150 Caramel:
Ammoniacal nitrogen: not more than 0·5% determined according to the Tillmans-Mildner method (1).
Sulphur dioxide: not more than 0·1% determined according to the Monier Williams E W method (2).
pH greater than or equal to 1·8.
Phosphates: not more than 0·5% expressed in P_2O_5
E 151 Black PN (Brilliant Black BN):
Water-insoluble matter: not more than 0·2%.
Subsidiary colours: not more than 15% (which shall consist principally of the diacetyl compound).
Synthetic intermediates: not more than 1%.
E 152 Black 7984:
Water-insoluble matter: not more than 0·2%.
Lead: not more than 10 mg per kg.
Arsenic: not more than 2 mg per kg.
E 153 Vegetable Carbon, (Carbo Medicinalis Vegetalis):
Higher aromatic hydrocarbons: extract 1 g of carbon black with 10 g of pure cyclohexane for 2 hours. The extract shall not show any colour. In ultraviolet light it shall give practically no fluorescence. There shall be no residue on evaporation.

Tar products: boil 2 g of carbon black with 20 ml of N sodium hydroxide and filter. The filtrate shall be colourless.

E 160a Alpha-, Beta-, Gamma-Carotene:

Chromatography: by absorption on alumina or silica gel, pure beta-carotene shall only give one zone.

E 160b Bixin and Norbixin (Annatto):

Chromatography:

(a) Annatto. Dissolve a sufficient quantity of annatto in benzene or sufficiently dilute a benzene solution of annatto to obtain a solution of the same colour as an 0.1% potassium dichromate solution. Pour 3 ml of the solution on the top of an alumina column: elute slowly. Wash the column three times with benzene. The bixin is very strongly absorbed on the surface of the alumina and forms a brilliant orange-red zone (as distinct from crocetin). A very pale yellow zone usually moves very quickly down the column, even with pure crystallised bixin. The bixin cannot be eluted with benzene, petroleum ether, chloroform, acetone, ethanol or methanol. But ethanol and methanol cause the orange colour to turn into an orange-yellow. Carr-Price Reaction: remove the benzene from the column by washing three times with chloroform previously dried with potassium carbonate. After elution of the last chloroform washing add 5 ml of Carr-Price reagent at the top of the column. The bixin zone immediately turns blue-green (as distinct from crocetin).

(b) Bixin. Dissolve 1-2 mg of crystallised bixin in 20 ml of chloroform. Add 5 ml of this solution to the top of the prepared column. Rinse the solution with chloroform previously dried with sodium carbonate and proceed as under (a) (Carr-Price Reaction).

(c) Alkaline solutions of Norbixin. Place 2 ml of an aqueous annatto solution in a 15 ml separating funnel. Add a sufficient quantity of 2N sulphuric acid to obtain a strongly acid reaction. Norbixin separates as a red precipitate. Add 50 ml of benzene and shake vigorously. After separation, discard the aqueous layer and wash the benzene solution with 100 ml of water until the solution is no longer acid. Centrifuge the solution (generally emulsified) of norbixin in benzene for 10 minutes at 2,500 r.p.m. Decant the clear norbixin solution and dry with anhydrous sodium sulphate. Add 3-5 ml of this solution at the top of the alumina column. Norbixin, like bixin, forms an orange-red zone at the surface of the alumina. Treated by the elutants shown in (a) it behaves like bixin and also gives the Car-Price Reaction.

E 162 Beetroot Red or Betanin:

Paper chromatography: with butanol saturated with 2N hydrochloric acid as solvent (ascending chromatography) betanin shall give a single red spot with a brownish trail and small migration.

E 171 Titanium Dioxide:

Substances soluble in hydrochloric acid: suspend 5 g of titanium dioxide in 100 ml of 0·5N hydrochloric acid and heat for 30 minutes on a water bath, shaking occasionally. Filter in a Gooch crucible [containing a three-layer filter bed]—the first, coarse asbestos, the second, filter paper reduced to a pulp and the third, fine asbestos. Wash with three successive 10 ml portions of 0·5N hydrochloric acid. Evaporate the filtrate to dryness in a platinum evaporating dish and heat to a dull red until the weight is constant.

Weight of residue: not more than 0·0175 g.

Antimony: not more than 100 mg/kg.
Zinc: not more than 50 mg/kg.
Soluble barium compounds: not more than 5 mg/kg.
E 172 Iron Oxides and Hydroxides:
Selenium: not more than 1 mg per kg.
Mercury: not more than 1 mg per kg.
E 181 Burnt Umber:
Manganese oxides expressed as Mn_3O_4: not more than 8 per cent.
Incompletely burnt organic material: boil 2 grammes of burnt umber with 30 ml of a 20% solution of potassium hydroxide and filter. The filtrate shall be colourless.
Footnotes:
1. Beythien—Diemair, Laboratoriumbuch 7th ed., p. 151.
2. Ministry of Health, Department of Public Health and Medicine, Subject No. 48 "Determination of sulphur dioxide in foods", London, 1927.

SECOND SCHEDULE.

PERMITTED DILUENTS.
PART I.
NAME OF DILUENT.
Sodium carbonate
Sodium hydrogen carbonate
Sodium chloride
Sodium sulphate
Glucose
Lactose
Sucrose
Dextrins
Starches
Sorbitol
Edible oils and fats
Beeswax
Citric acid
Tartaric acid
Lactic acid
Gelatin
Pectins
Ammonium, sodium or potassium alginates
Esters of L-ascorbic acid with straight-chain C14, C16 and C18 fatty acids (restricted for use only with the colours listed in Part I of the First Schedule under Serial Numbers E160 and E161).
Acetic acid
Sodium hydroxide
Ammonium hydroxide (ammonia solution)
PART II.
GENERAL PURITY CRITERIA.
The diluents referred to in Part I of this Schedule shall comply with the following criteria of purity:—
1. Inorganic Impurities:
(a) They shall not contain more than 5 mg per kg of arsenic, 20 mg per kg of lead.
(b) They shall not contain more than 100 mg per kg of any one of the following substances: antimony, copper, chromium, zinc, barium

sulphate; or more than 200 mg per kg of these substances taken together.
(c) They shall not contain cadmium, mercury, selenium, tellurium, thallium, uranium, chromates or soluble barium compounds in detectable quantities.
2. Organic impurities:
They shall not contain aromatic polycyclic hydrocarbons.

THIRD SCHEDULE.
LABELLING OF PERMITTED COLOURING MATTER AND PERMITTED DILUENTS.
1. The label to which article 12 relates shall have printed on it a true statement of:
(a) the serial number, if any, and the common name of each permitted colouring matter present;
(b) where a permitted diluent is present, the common name of each diluent; and
(c) the percentage of each permitted colouring matter and permitted diluent present.
2. Each such statement shall be headed or preceded by the words "colouring for foodstuffs".
3. Any statement required by paragraphs 1 and 2 of this Schedule:
(a) shall be clear and legible;
(b) shall be in a conspicuous position on the label which shall be marked on, or securely attached to, the container in such a manner that it will be readily discernible and easily read by an intending purchaser or consumer under normal conditions of purchase or use;
(c) shall not be in any way hidden or obscured or reduced in conspicuousness by any other matter, whether pictorial or not, appearing on the label.
4. The letters and figures in every word in any statement to which paragraph 3 above applies:
(a) shall be in characters of uniform colour and size (being not less than 1·5 millimetres in height for labels on containers of which the greatest dimension does not exceed 12 centimetres, and not less than 3 millimetres in height for labels on containers of which the greatest dimension exceeds 12 centimetres) provided that the initial letter of any word may be taller than any other letter in the word;
(b) shall appear on a contrasting ground, so however, that where there is no ground other than such as is provided by a transparent container and the contents of that container are visible behind the letters, those contents shall be taken to be the ground for the purposes of this paragraph.
5. A container referred to in article 12 shall have on it the name and address of the person importing or the person selling or exposing for sale the colouring agents packed in the container or, if the colouring agent is manufactured within the State, the name of the manufacturer of the colouring agent.
6. For the purposes of this Schedule:
(a) the height of any lower case letter shall be taken to be the height thereof, disregarding any ascender or descender thereof;
(b) any requirement that letters or figures shall be of uniform height, colour or size, shall be construed as being subject to the saver that any inconsiderable variations in height, colour or size, as the case may be, may be disregarded.

GIVEN under the Official Seal of the Minister for Health this 11th day of June, 1973.
BRENDAN CORISH,
Minister for Health.

EXPLANATORY NOTE

These Regulations which come into operation on 1st July, 1974, prescribe the colouring agents which may be added to food which is imported, distributed, sold or exposed for sale and limit the use of such colouring agents in or on certain named foods. They regulate the specifications of purity for permitted colouring agents. They also prescribe labelling requirements for colouring agents. The Regulations provide that where a sample of food has been certified not to comply with the Regulations, an authorised officer may seize, remove and detain such food as being food which is unfit for human consumption and, in certain circumstances, destroy it.
The Health (Colouring Matter in Food) Regulations, 1972 (S.I. No. 41 of 1972) and the Health (Colouring Matter in Food) (Amendment) Regulations, 1972 (S.I. No. 301 of 1972) are being revoked on 1st July, 1974.