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(Acts whose publication is obligatory)

COMMISSION DIRECTIVE 2000/63/EC

of 5 October 2000

amending Directive 96/77/EC laying down specific purity criteria on food additives other than colours and sweeteners

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Directive 89/107/EEC of 21 December 1988 on the approximation of the laws of the Member States concerning food additives authorised for use in foodstuffs intended for human consumption [1], as amended by Directive of the European Parliament and of the Council 94/34/EC [2] and in particular Article 3(3)(a) thereof,

After consulting the Scientific Committee for Food,

Whereas:

(1) It is necessary to establish purity criteria for all additives other than colours and sweeteners mentioned in Directive 95/2/EC of the European Parliament and of the Council of 20 February 1995 on food additives other than colours and sweeteners [3], as last amended by Directive 98/72/EC [4].

(2) Commission Directive 96/77/EC of 2 December 1996 laying down specific purity criteria on food additives other than colours and sweeteners [5], as amended by Directive 98/86/EC [6] set out purity criteria for a number of food additives. This Directive should now be completed with purity criteria for the remaining food additives mentioned in Directive 95/2/EC.

(3) It is necessary, in the light of technical development, to amend the purity criteria set out in Directive 96/77/EC for butylated hydroxyanisole (BHA). It is consequently necessary to adapt that Directive.

(4) It is necessary to take into account the specifications and analytical techniques for additives as set out in the *Codex Alimentarius* as drafted by the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

(5) Food additives, if prepared by production methods or starting materials significantly different from those evaluated by the Scientific Committee for Food, or if different from those mentioned in this Directive, should be submitted for safety evaluation by the Scientific Committee for Food with emphasis on the purity criteria.

(6) The measures provided for in this Directive are in accordance with the opinion of the Standing Committee on Foodstuffs,

HAS ADOPTED THIS DIRECTIVE:

Article 1

Directive 96/77/EC shall be amended as follows:

1. In the Annex, the text concerning E 320 — butylated hydroxyanisole (BHA) shall be replaced by the text in Annex I to this Directive.

2. In the Annex, the text of Annex II to this Directive shall be added.

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(1) OJ L 40, 11.2.1989, p. 27.
(2) OJ L 237, 10.9.1994, p. 1.
(3) OJ L 61, 18.3.1995, p. 1.
(4) OJ L 295, 4.11.1998, p. 18.
(5) OJ L 339, 30.12.1996, p. 1.
(6) OJ L 334, 9.12.1998, p. 1.

Article 2

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 31 March 2001. They shall immediately inform the Commission thereof.

2. When Member States adopt these provisions, these shall contain a reference to this Directive or shall be accompanied by such reference at the time of their official publication. The procedure for such reference shall be adopted by Member States.

3. Products put on the market or labelled before 31 March 2001 which do not comply with this Directive may be marketed until stocks are exhausted.

Article 3

This Directive shall enter into force on the twentieth day following its publication in the *Official Journal of the European Communities*.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 5 October 2000.

For the Commission

David BYRNE

Member of the Commission

ANNEX I

'E 320 BUTYLATED HYDROXYANISOLE (BHA)

Synonyms	BHA
Definition	
Chemical names	3-Tertiary-butyl-4-hydroxyanisole A mixture of 2-tertiary-butyl-4-hydroxyanisole and 3-tertiary-butyl-4-hydroxyanisole
EINECS	246-563-8
Chemical formula	$C_{11}H_{16}O_2$
Formula weight	180,25
Assay	Content not less than 98,5 % of $C_{11}H_{16}O_2$ and not less than 85 % of 3-tertiary-butyl-4-hydroxyanisole isomer
Description	White or slightly yellow crystals or waxy solid with a slight aromatic smell
Identification	
A. Solubility	Insoluble in water, freely soluble in ethanol
B. Melting range	Between 48 °C and 63 °C
C. Colour reaction	Passes test for phenol groups
Purity	
Sulphated ash	Not more than 0,05 % after calcination at 800 ± 25 °C
Phenolic impurities	Not more than 0,5 %
Specific absorption $E^{1\%}_{1cm}$	$E^{1\%}_{1cm}$ (290 nm) not less than 190 and not more than 210
Specific absorption $E^{1\%}_{1cm}$	$E^{1\%}_{1cm}$ (228 nm) not less than 326 and not more than 345
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg'

ANNEX II

'POLYETHYLENEGLYCOL 6000

Synonyms	PEG 6000 Macrogol 6000
Definition	Polyethylene glycol 6000 is a mixture of polymers with the general formula H-(OCH_2-CH)-OH corresponding to an average relative molecular mass of approximately 6 000
Chemical formula	$(C_2H_4O)_n H_2O$ (n = number of ethylene oxide units corresponding to a molecular weight of 6000, about 140)
Molecular weight	5 600 - 7 000
Assay	Not less than 90,0 % and not more than 110,0 %
Description	A white or almost white solid with a waxy or paraffin-like appearance
Identification	
A. Solubility	Very soluble in water and in methylene chloride Practically insoluble in alcohol, in ether and in fatty and mineral oils
B. Melting range	Between 55 °C and 61 °C
Purity	
Viscosity	Between 0,220 and 0,275 $kgm^{-1}s^{-1}$ at 20 °C
Hydroxyl value	Between 16 and 22
Sulphated ash	Not more than 0,2 %
Ethylene oxide	Not more than 1 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg

E 296 MALIC ACID

Synonyms	DL-Malic acid, pomalous acid
Definition	
Chemical name	DL-Malic acid, hydroxybutanedioic acid, hydroxysuccinic acid
EINECS	230-022-8
Chemical formula	$C_4H_6O_5$
Molecular weight	134,09
Assay	Content not less than 99,0 %
Description	White or nearly white crystalline powder or granules

Identification	
A. Melting range between 127 °C and 132 °C	
B. Positive test for malate	
C. Solutions of this substance are optically inactive in all concentrations	
Purity	
Sulphated ash	Not more than 0,1 %
Fumaric acid	Not more than 1,0 %
Maleic acid	Not more than 0,05 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 297 FUMARIC ACID

Definition	
Chemical name	Trans-butenedioic acid, trans-1,2-ethylene-dicarboxylic acid
EINECS	203-743-0
Chemical formula	$C_4H_4O_4$
Molecular weight	116,07
Assay	Content not less than 99,0 % on the anhydrous basis
Description	White crystalline powder or granules
Identification	
A. Melting range	286 °C - 302 °C (closed capillary, rapid heating)
B. Positive tests for double bonds and for 1,2-dicarboxylic acid	
C. pH of a 0,05 % solution at 25 °C	3,0 – 3,2
Purity	
Loss on drying	Not more than 0,5 % (120 °C, 4h)
Sulphated ash	Not more than 0,1 %
Maleic acid	Not more than 0,1 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 343(i) MONOMAGNESIUM PHOSPHATE

Synonyms	Magnesiumdihydrogenphosphate Magnesiumphosphate, monobasic Monomagnesium orthophosphate
Definition	
Chemical name	Monomagnesiumdihydrogenmonophosphate
EINECS	236-004-6
Chemical formula	$Mg(H_2PO_4)_2 \cdot nH_2O$ (where n = 0 to 4)
Molecular weight	218,30 (anhydrous)
Assay	Not less than 51,0 % after ignition
Description	White, odourless, crystalline powder, slightly soluble in water
Identification	
A. Positive test for magnesium and for phosphate	
B. MgO content	Not less than 21,5 % after ignition
Purity	
Fluoride	Not more than 10 mg/kg (as fluorine)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 4 mg/kg
Cadmium	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 343(ii) DIMAGNESIUM PHOSPHATE

Synonyms	Magnesiumhydrogenphosphate Magnesiumphosphate, dibasic Dimagnesium orthophosphate Secondary magnesiumphosphate
Definition	
Chemical name	Dimagnesiummonohydrogenmonophosphate
EINECS	231-823-5
Chemical formula	$MgHPO_4 \cdot nH_2O$ (where n = 0 - 3)
Molecular weight	120,30 (anhydrous)
Assay	Not less than 96 % after ignition
Description	White, odourless, crystalline powder, slightly soluble in water

Identification	
A. Positive test for magnesium and for phosphate	
B. MgO content:	Not less than 33,0 % calculated on an anhydrous basis
Purity	
Fluoride	Not more than 10 mg/kg (as fluorine)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 4 mg/kg
Cadmium	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 350 (i) SODIUM MALATE

Synonyms	Sodium salt of malic acid
Definition	
Chemical name	Disodium DL-malate, disodium salt of hydroxybutanedioic acid
Chemical formula	Hemihydrate: $C_4H_4Na_2O_5 \cdot {}^1/_2\ H_2O$ Trihydrate: $C_4H_4Na_2O_5 \cdot 3H_2O$
Molecular weight	Hemihydrate: 187,05 Trihydrate: 232,10
Assay	Content not less than 98,0 % on the anhydrous basis
Description	White crystalline powder or lumps
Identification	
A. Positive tests for 1,2-dicarboxylic acid and for sodium	
B. Azo dye formation	Positive
C. Solubility	Freely soluble in water
Purity	
Loss on drying	Not more than 7,0 % (130 °C, 4h) for the hemihydrate, or 20,5 % - 23,5 % (130 °C, 4h) for the trihydrate
Alkalinity	Not more than 0,2 % as Na_2CO_3
Fumaric acid	Not more than 1,0 %
Maleic acid	Not more than 0,05 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 350 (ii) SODIUM HYDROGEN MALATE

Synonyms	Monosodium salt of DL-malic acid
Definition	
Chemical name	Monosodium DL-malate, monosodium 2-DL-hydroxy succinate
Chemical formula	$C_4H_5NaO_5$
Molecular weight	156,07
Assay	Content not less than 99,0 % on the anhydrous basis
Description	White powder
Identification	
A. Positive tests for 1,2-dicarboxylic acid and for sodium	
B. Azo dye formation	Positive
Purity	
Loss on drying	Not more than 2,0 % (110 °C, 3h)
Maleic acid	Not more than 0,05 %
Fumaric acid	Not more than 1,0 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 351 POTASSIUM MALATE

Synonyms	Potassium salt of malic acid
Definition	
Chemical name	Dipotassium DL-malate, dipotassium salt of hydroxybutanedioic acid
Chemical formula	$C_4H_4K_2O_5$
Molecular weight	210,27
Assay	Content not less than 59,5 %
Description	Colourless or almost colourless aqueous solution
Identification	
A. Positive tests for 1,2-dicarboxylic acid and for potassium	
B. Azo dye formation	Positive

Purity	
Alkalinity	Not more than 0,2 % as K_2CO_3
Fumaric acid	Not more than 1,0 %
Maleic acid	Not more than 0,05 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 352 (i) CALCIUM MALATE

Synonyms	Calcium salt of malic acid
Definition	
Chemical name	Calcium DL-malate, calcium-α-hydroxysuccinate, calcium salt of hydroxybutanedioic acid
Chemical formula	$C_4H_5CaO_5$
Molecular weight	172,14
Assay	Content not less than 97,5 % on the anhydrous basis
Description	White powder
Identification	
A. Positive tests for malate, 1,2-dicarboxylic acid and for calcium	
B. Azo dye formation	Positive
C. Solubility	Slightly soluble in water
Purity	
Loss on drying	Not more than 2 % (100 °C, 3h)
Alkalinity	Not more than 0,2 % as $CaCO_3$
Maleic acid	Not more than 0,05 %
Fumaric acid	Not more than 1,0 %
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 352 (ii) CALCIUM HYDROGEN MALATE

Synonyms	Monocalcium salt of DL-malic acid
Definition	
Chemical name	Monocalcium DL-malate, monocalcium 2-DL-hydroxysuccinate
Chemical formula	$(C_4H_5O_5)_2Ca$
Assay	Content not less than 97,5 % on the anhydrous basis
Description	White powder
Identification	
A. Positive tests for 1,2-dicarboxylic acid and for calcium	
B. Azo dye formation	Positive
Purity	
Loss on drying	Not more than 2,0 % (110 °C, 3h)
Maleic acid	Not more than 0,05 %
Fumaric acid	Not more than 1,0 %
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 355 ADIPIC ACID

Definition	
Chemical name	Hexanedioic acid, 1,4-butanedicarboxylic acid
EINECS	204-673-3
Chemical formula	$C_6H_{10}O_4$
Molecular weight	146,14
Assay	Content not less than 99,6 %
Description	White odourless crystals or crystalline powder
Identification	
A. Melting range	151,5-154,0 °C
B. Solubility	Slightly soluble in water. Freely soluble in ethanol

Purity	
Water	Not more than 0,2 % (Karl Fischer method)
Sulphated ash	Not more than 20 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 363 SUCCINIC ACID

Definition	
Chemical name	Butanedioic acid
EINECS	203-740-4
Chemical formula	$C_4H_6O_4$
Molecular weight	118,09
Assay	Content no less than 99,0 %
Description	Colourless or white, odourless crystals
Identification	
A. Melting range	Between 185,0 °C and 190,0 °C
Purity	
Residue on ignition	Not more than 0,025 % (800 °C, 15 min)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 380 TRIAMMONIUM CITRATE

Synonyms	Tribasic ammonium citrate
Definition	
Chemical name	Triammonium salt of 2-hydroxypropan-1,2,3-tricarboxylic acid
EINECS	222-394-5
Chemical formula	$C_6H_{17}N_3O_7$
Molecular weight	243,22
Assay	Content not less than 97,0 %
Description	White to off-white crystals or powder

Identification	
A. Positive tests for ammonium and for citrate	
B. Solubility	Freely soluble in water
Purity	
Oxalate	Not more than 0,04 % (as oxalic acid)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 452(iii) SODIUM CALCIUM POLYPHOSPHATE

Synonym	Sodium calcium polyphosphate, glassy
Definition	
Chemical name	Sodium calcium polyphosphate
EINECS	233-782-9
Chemical formula	$(NaPO_3)_n$ CaO where n is typically 5
Assay	Not less than 61 % and not more than 69 % as P_2O_5
Description	White glassy crystals, spheres
Identification	
A. pH of a 1 % m/m slurry	Approximately 5 to 7
B. CaO content	7 %-15 % m/m
Purity	
Fluoride	Not more than 10 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 4 mg/kg
Cadmium	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 459 BETA-CYCLODEXTRIN

Definition	Beta-cyclodextrin is a non-reducing cyclic saccharide consisting of 7 α-1,4-linked D-glucopyranosyl units. The product is manufactured by the action of the enzyme cycloglycosyltransferase (CGTase) obtained from *Bacillus circulans* on partially hydrolysed starch
Chemical name	Cycloheptaamylose
EINECS	231-493-2
Chemical formula	$(C_6H_{10}O_5)_7$

Molecular weight	1135
Assay	Content not less than 98,0 % of $(C_6H_{10}O_5)_7$ on an anhydrous basis
Description	Virtually odourless, white or almost white crystalline solid
Identification	
A. Solubility	Sparingly soluble in water; freely soluble in hot water; slightly soluble in ethanol
B. Specific rotation	$[\alpha]^{25}D$: + 160° to + 164° (1 % solution)
C. Infrared absorption	The infrared absorption spectrum of a potassium bromide dispersion of the test substance corresponds with that of a reference standard
Purity	
Water	Not more than 14 % (Karl Fischer method)
Other cyclodextrins	Not more than 2 % on an anhydrous basis
Residual solvents (toluene and trichloroethylene)	Not more than 1 mg/kg for each solvent
Reducing substances (as glucose)	Not more than 1 %
Sulphated ash	Not more than 0,1 %
Arsenic	Not more than 1 mg/kg
Lead	Not more than 1 mg/kg

E 468 CROSS-LINKED SODIUM CARBOXYMETHYLCELLULOSE

Synonyms	Cross-linked carboxymethyl cellulose Cross-linked CMC Cross-linked sodium CMC Cross-linked cellulose gum
Definition	Cross-linked sodium carboxymethyl cellulose is the sodium salt of thermally cross-linked partly O-carboxymethylated cellulose
Chemical name	Sodium salt of the cross-linked carboxymethyl ether cellulose
Chemical formula	The polymers containing substituted anhydroglucose units with the general formula: $C_6H_7O_2(OR_1)$ $(OR_2)(OR_3)$ where R_1, R_2 and R_3 may be any of the following: — H — CH_2COONa — CH_2COOH
Description	Slightly hygroscopic, white to off white, odourless powder

Identification	
A.	Shake 1 g with 100 ml of a solution containing 4 mg/kg methylene blue and allow to settle. The substance to be examined absorbs the methylene blue and settles as a blue, fibrous mass
B.	Shake 1 g with 50 ml of water. Transfer 1 ml of the mixture to a test tube, add 1 ml water and 0,05 ml of freshly prepared 40 g/l solution of alpha-naphthol in methanol. Incline the test tube and add carefully 2 ml of sulphuric acid down the side so that it forms a lower layer. A reddish-violet colour develops at the interface
C.	It gives the reaction of sodium
Purity	
Loss on drying	Not more than 6 % (105 °C, 3h)
Water solubles	Not more than 10 %
Degree of substitution	Not less than 0,2 and not more than 1,5 carboxymethyl groups per anhydroglucose unit
pH of 1 %	Not less than 5,0 and not more than 7,0
Sodium content	Not more than 12,4 % on anhydrous basis
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Cadmium	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 469 ENZYMATICALLY HYDROLYSED CARBOXYMETHYLCELLULOSE

Synonyms	Sodium carboxymethyl cellulose, enzymatically hydrolysed
Definition	Enzymatically hydrolysed carboxymethylcellulose is obtained from carboxymethyl-cellulose by enzymatic digestion with a cellulase produced by *Trichoderma longibrachiatum* (formerly *T. reesei*)
Chemical name	Carboxymethyl cellulose, sodium, partially enzymatically hydrolysed
Chemical formula	Sodium salts of polymers containing substituted anhydroglucose units with the general formula: $[C_6H_7O_2(OH)_x(OCH_2COONa)_y]_n$ where n is the degree of polymerisation x = 1,50 to 2,80 y = 0,2 to 1,50 x + y = 3,0 (y = degree of substitution)
Formula weight	178,14 where y = 0,20 282,18 where y = 1,50 Macromolecules: Not less than 800 (n about 4)

Assay	Not less than 99,5 %, including mono- and disaccharides, on the dried basis
Description	White or slightly yellowish or greyish, odourless, slightly hygroscopic granular or fibrous powder
Identification	
A. Solubility	Soluble in water, insoluble in ethanol
B. Foam test	Vigorously shake a 0,1 % solution of the sample. No layer of foam appears. This test distinguishes sodium carboxymethyl cellulose, whether hydrolysed or not, from other cellulose ethers and from alginates and natural gums
C. Precipitate formation	To 5 ml of a 0,5 % solution of the sample add 5 ml of a 5 % solution of copper or aluminium sulphate. A precipitate appears. This test distinguishes sodium carboxymethyl cellulose, whether hydrolysed or not, from other cellulose ethers and from gelatine, carob bean gum and tragacanth gum
D. Colour reaction	Add 0,5 g of the powdered sample to 50 ml of water, while stirring to produce a uniform dispersion. Continue the stirring until a clear solution is produced. Dilute 1 ml of the solution with 1 ml of water in a small test tube. Add 5 drops of 1-naphthol TS. Incline the tube, and carefully introduce down the side of the tube 2 ml of sulphuric acid so that it forms a lower layer. A red-purple colour develops at the interface
E. Viscosity (60 % solids)	Not less than 2,500 $kgm^{-1}s^{-1}$ at 25 °C corresponding to an average molecule weight of 5 000 D
Purity	
Loss on drying	Not more than 12 % (105 °C to constant weight)
Degree of substitution	Not less than 0,2 and not more than 1,5 carboxymethyl groups per anhydroglucose unit on the dried basis
pH of a 1 % colloidal solution	Not less than 6,0 and not more than 8,5
Sodium chloride and sodium glycolate	Not more than 0,5 % singly or in combination
Residual enzyme activity	Passes test. No change in viscosity of test solution occurs, which indicates hydrolysis of the sodium carboxymethyl cellulose
Lead	Not more than 3 mg/kg

E 500(i) SODIUM CARBONATE

Synonyms	Soda ash
Definition	
Chemical name	Sodium carbonate
EINECS	207-838-8
Chemical formula	$Na_2CO_3 \cdot nH_2O$ (n = 0, 1 or 10)
Molecular weight	106,00 (anhydrous)
Assay	Content not less than 99 % of Na_2CO_3 on the anhydrous basis
Description	Colourless crystals or white, granular or crystalline powder The anhydrous form is hygroscopic, the decahydrate efflorescent

Identification	
A. Positive tests for sodium and for carbonate	
B. Solubility	Freely soluble in water. Insoluble in ethanol
Purity	
Loss on drying	Not more than 2 % (anhydrous), 15 % (monohydrate) or 55 %-65 % (decahydrate) (70 °C raising gradually to 300 °C, to constant weight)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 500(ii) SODIUM HYDROGEN CARBONATE

Synonyms	Sodium bicarbonate, sodium acid carbonate, bicarbonate of soda, baking soda
Definition	
Chemical name	Sodium hydrogen carbonate
EINECS	205-633-8
Chemical formula	$NaHCO_3$
Molecular weight	84,01
Assay	Content not less than 99 % on the anhydrous basis
Description	Colourless or white crystalline masses or crystalline powder
Identification	
A. Positive tests for sodium and for carbonate	
B. pH of a 1 % solution	Between 8,0 and 8,6
C. Solubility	Soluble in water. Insoluble in ethanol
Purity	
Loss on drying	Not more than 0,25 % (over silica gel, 4h)
Ammonium salts	No odour of ammonia detectable after heating
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 500(iii) SODIUM SESQUICARBONATE

Definition	
Chemical name	Sodium monohydrogen dicarbonate
EINECS	208-580-9
Chemical formula	$Na_2(CO)_3 \cdot NaHCO_3 \cdot 2H_2O$
Molecular weight	226,03
Assay	Content between 35,0 % and 38,6 % of $NaHCO_3$ and between 46,4 % and 50,0 % of Na_2CO_3
Description	White flakes, crystals or crystalline powder
Identification	
A. Positive tests for sodium and for carbonate	
B. Solubility	Freely soluble in water
Purity	
Sodium chloride	Not more than 0,5 %
Iron	Not more than 20 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 501(i) POTASSIUM CARBONATE

Definition	
Chemical name	Potassium carbonate
EINECS	209-529-3
Chemical formula	$K_2CO_3 \cdot nH_2O$ (n = 0 or 1,5)
Molecular weight	138,21 (anhydrous)
Assay	Content not less than 99,0 % on the anhydrous basis
Description	White, very deliquescent powder. The hydrate occurs as small, white, translucent crystals or granules
Identification	
A. Positive tests for potassium and for carbonate	
B. Solubility	Very soluble in water. Insoluble in ethanol

Purity	
Loss on drying	Not more than 5 % (anhydrous) or 18 % (hydrate) (180 °C, 4h)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 501(ii) POTASSIUM HYDROGEN CARBONATE

Synonyms	Potassium bicarbonate, acid potassium carbonate
Definition	
Chemical name	Potassium hydrogen carbonate
EINECS	206-059-0
Chemical formula	$KHCO_3$
Molecular weight	100,11
Assay	Content not less than 99,0 % and not more than 101,0 % $KHCO_3$ on the anhydrous basis
Description	Colourless crystals or white powder or granules
Identification	
A. Positive tests for potassium and for carbonate	
B. Solubility	Freely soluble in water. Insoluble in ethanol
Purity	
Loss on drying	Not more than 0,25 % (over silica gel, 4h)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 503(i) AMMONIUM CARBONATE

Definition	Ammonium carbonate consists of ammonium carbamate, ammonium carbonate and ammonium hydrogen carbonate in varying proportions
Chemical name	Ammonium carbonate
EINECS	233-786-0
Chemical formula	$CH_6N_2O_2$, $CH_8N_2O_3$ and CH_5NO_3
Molecular weight	Ammonium carbamate 78,06; ammonium carbonate 98,73; ammonium hydrogen carbonate 79,06
Assay	Content not less than 30,0 % and not more than 34,0 % of NH_3
Description	White powder or hard, white or translucent masses or crystals. Becomes opaque on exposure to air and is finally converted into white porous lumps or powder (of ammonium bicarbonate) due to loss of ammonia and carbon dioxide

Identification	
A. Positive tests for ammonium and for carbonate	
B. pH of a 5 % solution about 8,6	
C. Solubility	Soluble in water
Purity	
Non-volatile matter	Not more than 500 mg/kg
Chlorides	Not more than 30 mg/kg
Sulphate	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 503(ii) AMMONIUM HYDROGEN CARBONATE

Synonyms	Ammonium bicarbonate
Definition	
Chemical name	Ammonium hydrogen carbonate
EINECS	213-911-5
Chemical formula	CH_5NO_3
Molecular weight	79,06
Assay	Content not less than 99,0 %
Description	White crystals or crystalline powder
Identification	
A. Positive tests for ammonium and for carbonate	
B. pH of a 5 % solution about 8,0	
C. Solubility	Freely soluble in water. Insoluble in ethanol
Purity	
Non-volatile matter	Not more than 500 mg/kg
Chlorides	Not more than 30 mg/kg
Sulphate	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 507 HYDROCHLORIC ACID

Synonyms	Hydrogen chloride, muriatic acid
Definition	
Chemical name	Hydrochloric acid
EINECS	231-595-7
Chemical formula	HCl
Molecular weight	36,46
Assay	Hydrochloric acid is commercially available in varying concentrations. Concentrated hydrochloric acid contains not less than 35,0 % HCl
Description	Clear, colourless or slightly yellowish, corrosive liquid having a pungent odour
Identification	
A. Positive tests for acid and for chloride	
B. Solubility	Soluble in water and in ethanol
Purity	
Total organic compounds	Total organic compounds (non-fluorine containing): not more than 5 mg/kg Benzene: not more than 0,05 mg/kg Fluorinated compounds (total): not more than 25 mg/kg
Non-volatile matter	Not more than 0,5 %
Reducing substances	Not more than 70 mg/kg (as SO_2)
Oxidising substances	Not more than 30 mg/kg (as Cl_2)
Sulphate	Not more than 0,5 %
Iron	Not more than 5 mg/kg
Arsenic	Not more than 1 mg/kg
Lead	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 509 CALCIUM CHLORIDE

Definition	
Chemical name	Calcium chloride
EINECS	233-140-8
Chemical formula	$CaCl_2 \cdot nH_2O$ (n = 0,2 or 6)
Molecular weight	110,99 (anhydrous), 147,02 (dihydrate), 219,08 (hexahydrate)
Assay	Content not less than 93,0 % on the anhydrous basis
Description	White, odourless, hygroscopic powder or deliquescent crystals

Identification	
A. Positive tests for calcium and for chloride	
B. Solubility	Anhydrous calcium chloride: freely soluble in water and ethanol Dihydrate: freely soluble in water, soluble in ethanol Hexahydrate: very soluble in water and ethanol
Purity	
Magnesium and alkali salts	Not more than 5 % on the anhydrous basis
Fluoride	Not more than 40 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg
Mercury	Not more than 1 mg/kg

E 511 MAGNESIUM CHLORIDE

Definition	
Chemical name	Magnesium chloride
EINECS	232-094-6
Chemical formula	$MgCl_2 \cdot 6H_2O$
Molecular weight	203,30
Assay	Content not less than 99,0 %
Description	Colourless, odourless, very deliquescent flakes or crystals
Identification	
A. Positive tests for magnesium and for chloride	
B. Solubility	Very soluble in water, freely soluble in ethanol
Purity	
Ammonium	Not more than 50 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg
Mercury	Not more than 1 mg/kg

E 512 STANNOUS CHLORIDE

Synonyms	Tin chloride, tin dichloride
Definition	
Chemical name	Stannous chloride dihydrate
EINECS	231-868-0
Chemical formula	$SnCl_2 \cdot 2H_2O$

Molecular weight	225,63
Assay	Content not less than 98,0 %
Description	Colourless or white crystals May have a slight odour of hydrochloric acid
Identification	
A. Positive tests for tin (II) and for chloride	
B. Solubility	Water: soluble in less than its own weight of water, but it forms an insoluble basic salt with excess water Ethanol: soluble
Purity	
Sulphate	Not more than 30 mg/kg
Arsenic	Not more than 2 mg/kg
Mercury	Not more than 1 mg/kg
Lead	Not more than 5 mg/kg

E 513 SULPHURIC ACID

Synonyms	Oil of vitriol, dihydrogen sulphate
Definition	
Chemical name	Sulphuric acid
EINECS	231-639-5
Chemical formula	H_2SO_4
Molecular weight	98,07
Assay	Sulphuric acid is commercially available in varying concentrations. The concentrated form contains not less than 96,0 %
Description	Clear, colourless or slightly brown, very corrosive oily liquid
Identification	
A. Positive tests for acid and for sulphate	
B. Solubility	Miscible with water, with generation of much heat, also with ethanol
Purity	
Ash	Not more than 0,02 %
Reducing matter	Not more than 40 mg/kg (as SO_2)
Nitrate	Not more than 10 mg/kg (on H_2SO_4 basis)

Chloride	Not more than 50 mg/kg
Iron	Not more than 20 mg/kg
Selenium	Not more than 20 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 514(i) SODIUM SULPHATE

Definition	
Chemical name	Sodium sulphate
Chemical formula	$Na_2SO_4 \cdot nH_2O$ (n = 0 or 10)
Molecular weight	142,04 (anhydrous) 322,04 (decahydrate)
Assay	Content not less than 99,0 % on the anhydrous basis
Description	Colourless crystals or a fine, white, crystalline powder The decahydrate is efflorescent
Identification	
A. Positive tests for sodium and for sulphate	
B. Acidity of a 5 % solution: neutral or slightly alkaline to litmus paper	
Purity	
Loss on drying	Not more than 1,0 % (anhydrous) or not more than 57 % (decahydrate) at 130 °C
Selenium	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 514(ii) SODIUM HYDROGEN SULPHATE

Synonyms	Acid sodium sulphate, sodium bisulphate, nitre cake
Definition	
Chemical name	Sodium hydrogen sulphate
Chemical formula	$NaHSO_4$
Molecular weight	120,06
Assay	Content not less than 95,2 %
Description	White, odourless crystals or granules

Identification	
A. Positive tests for sodium and for sulphate	
B. Solutions are strongly acidic	
Purity	
Loss on drying	Not more than 0,8 %
Water insoluble	Not more than 0,05 %
Selenium	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 515(i) POTASSIUM SULPHATE

Definition	
Chemical name	Potassium sulphate
Chemical formula	K_2SO_4
Molecular weight	174,25
Assay	Content not less than 99,0 %
Description	Colourless or white crystals or crystalline powder
Identification	
A. Positive tests for potassium and for sulphate	
B. pH of a 5 % solution	Between 5,5 and 8,5
C. Solubility	Freely soluble in water, insoluble in ethanol
Purity	
Selenium	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 515(ii) POTASSIUM HYDROGEN SULPHATE

Definition	
Synonyms	Potassium bisulphate, potassium acid sulphate
Chemical name	Potassium hydrogen sulphate

Chemical formula	$KHSO_4$
Molecular weight	136,17
Assay	Content not less than 99 %
Melting point	197 °C
Description	White deliquescent crystals, pieces or granules
Identification	
A. Positive test for potassium	
B. Solubility	Freely soluble in water, insoluble in ethanol
Purity	
Selenium	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 516 CALCIUM SULPHATE

Synonyms	Gypsum, selenite, anhydrite
Definition	
Chemical name	Calcium sulphate
EINECS	231-900-3
Chemical formula	$CaSO_4 \cdot nH_2O$ (n = 0 or 2)
Molecular weight	136,14 (anhydrous), 172,18 (dihydrate)
Assay	Content not less than 99,0 % on the anhydrous basis
Description	Fine, white to slightly yellowish-white odourless powder
Identification	
A. Positive tests for calcium and for sulphate	
B. Solubility	Slightly soluble in water, insoluble in ethanol
Purity	
Loss on drying	Anhydrous: not more than 1,5 % (250 °C, constant weight) Dihydrate: not more than 23 % (ibid.)
Fluoride	Not more than 30 mg/kg
Selenium	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 517 AMMONIUM SULPHATE

Definition	
Chemical name	Ammonium sulphate
EINECS	231-984-1
Chemical formula	$(NH_4)_2SO_4$
Molecular weight	132,14
Assay	Content not less than 99,0 % and not more than 100,5 %
Description	White powder, shining plates or crystalline fragments
Identification	
A. Positive tests for ammonium and for sulphate	
B. Solubility	Freely soluble in water, insoluble in ethanol
Purity	
Loss on ignition	Not more than 0,25 %
Selenium	Not more than 30 mg/kg
Lead	Not more than 5 mg/kg

E 520 ALUMINIUM SULPHATE

Synonyms	Alum
Definition	
Chemical name	Aluminium sulphate
EINECS	233-135-0
Chemical formula	$Al_2(SO_4)_3$
Molecular weight	342,13
Assay	Content not less than 99,5 % on the ignited basis
Description	White powder, shining plates or crystalline fragments
Identification	
A. Positive tests for aluminium and for sulphate	
B. pH of a 5 % solution 2,9 or above	
C. Solubility	Freely soluble in water, insoluble in ethanol

Purity	
Loss on ignition	Not more than 5 % (500 °C, 3h)
Alkalies and alkaline earths	Not more than 0,4 %
Selenium	Not more than 30 mg/kg
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg
Mercury	Not more than 1 mg/kg

E 521 ALUMINIUM SODIUM SULPHATE

Synonyms	Soda alum, sodium alum
Definition	
Chemical name	Aluminium sodium sulphate
EINECS	233-277-3
Chemical formula	$AlNa(SO_4)_2 \cdot nH_2O$ (n = 0 or 12)
Molecular weight	242,09 (anhydrous)
Assay	Content on the anhydrous basis not less than 96,5 % (anhydrous) and 99,5 % (dodecahydrate)
Description	Transparent crystals or white crystalline powder
Identification	
A. Positive tests for aluminium, for sodium and for sulphate	
B. Solubility	Dodecahydrate is freely soluble in water. The anhydrous form is slowly soluble in water. Both forms are insoluble in ethanol
Purity	
Loss on drying	Anhydrous form: not more than 10,0 % (220 °C, 16h) Dodecahydrate: not more than 47,2 % (50 °C-55 °C, 1h then 200 °C, 16h)
Ammonium salts	No odour of ammonia detectable after heating
Selenium	Not more than 30 mg/kg
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 522 ALUMINIUM POTASSIUM SULPHATE

Synonyms	Potassium alum, potash alum
Definition	
Chemical name	Aluminium potassium sulphate dodecahydrate
EINECS	233-141-3
Chemical formula	$AlK(SO_4)_2 \cdot 12\ H_2O$
Molecular weight	474,38
Assay	Content not less than 99,5 %
Description	Large, transparent crystals or white crystalline powder
Identification	
A. Positive tests for aluminium, for potassium and for sulphate	
B. pH of a 10 % solution between 3,0 and 4,0	
C. Solubility	Freely soluble in water, insoluble in ethanol
Purity	
Ammonium salts	No odour of ammonia detectable after heating
Selenium	Not more than 30 mg/kg
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 523 ALUMINIUM AMMONIUM SULPHATE

Synonyms	Ammonium alum
Definition	
Chemical name	Aluminium ammonium sulphate
EINECS	232-055-3
Chemical formula	$AlNH_4(SO_4)_2 \cdot 12\ H_2O$
Molecular weight	453,32
Assay	Content not less than 99,5 %
Description	Large, colourless crystals or white powder

Identification	
A. Positive tests for aluminium, for ammonium and for sulphate	
B. Solubility	Freely soluble in water, soluble in ethanol
Purity	
Alkali metals and alkaline earths	Not more than 0,5 %
Selenium	Not more than 30 mg/kg
Fluoride	Not more than 30 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 524 SODIUM HYDROXIDE

Synonyms	Caustic soda, lye
Definition	
Chemical name	Sodium hydroxide
EINECS	215-185-5
Chemical formula	NaOH
Molecular weight	40,0
Assay	Content of solid forms not less than 98,0 % of total alkali (as NaOH). Content of solutions accordingly, based on the stated or labelled percentage of NaOH
Description	White or nearly white pellets, flakes, sticks, fused masses or other forms. Solutions are clear or slightly turbid, colourless or slightly coloured, strongly caustic and hygroscopic and when exposed to the air they absorb carbon dioxide, forming sodium carbonate
Identification	
A. Positive tests for sodium	
B. A 1 % solution is strongly alkaline	
C. Solubility	Very soluble in water. Freely soluble in ethanol
Purity	
Water insoluble and organic matter	A 5 % solution is completely clear and colourless to slightly coloured
Carbonate	Not more than 0,5 % (as Na_2CO_3)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 0,5 mg/kg
Mercury	Not more than 1 mg/kg

E 525 POTASSIUM HYDROXIDE

Synonyms	Caustic potash
Definition	
Chemical name	Potassium hydroxide
EINECS	215-181-3
Chemical formula	KOH
Molecular weight	56,11
Assay	Content not less than 85,0 % of alkali calculated as KOH
Description	White or nearly white pellets, flakes, sticks, fused masses or other forms
Identification	
A. Positive tests for potassium	
B. A 1 % solution is strongly alkaline	
C. Solubility	Very soluble in water. Freely soluble in ethanol
Purity	
Water insoluble matter	A 5 % solution is completely clear and colourless
Carbonate	Not more than 3,5 % (as K_2CO_3)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg
Mercury	Not more than 1 mg/kg

E 526 CALCIUM HYDROXIDE

Synonyms	Slaked lime, hydrated lime
Definition	
Chemical name	Calcium hydroxide
EINECS	215-137-3
Chemical formula	$Ca(OH)_2$
Molecular weight	74,09
Assay	Content not less than 92,0 %
Description	White powder

Identification	
A. Positive tests for alkali and for calcium	
B. Solubility	Slightly soluble in water. Insoluble in ethanol. Soluble in glycerol
Purity	
Acid insoluble ash	Not more than 1,0 %
Magnesium and alkali salts	Not more than 1,0 %
Barium	Not more than 300 mg/kg
Fluoride	Not more than 50 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg

E 527 AMMONIUM HYDROXIDE

Synonyms	Aqua ammonia, strong ammonia solution
Definition	
Chemical name	Ammonium hydroxide
Chemical formula	NH_4OH
Molecular weight	35,05
Assay	Content not less than 27 % of NH_3
Description	Clear, colourless solution, having an exceedingly pungent, characteristic odour
Identification	
A. Positive tests for ammonia	
Purity	
Non-volatile matter	Not more than 0,02 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg

E 528 MAGNESIUM HYDROXIDE

Definition	
Chemical name	Magnesium hydroxide
EINECS	215-170-3
Chemical formula	$Mg(OH)_2$

Molecular weight	58,32
Assay	Content not less than 95,0 % on the anhydrous basis
Description	Odourless, white bulky powder
Identification	
A. Positive test for magnesium and for alkali	
B. Solubility	Practically insoluble in water and in ethanol
Purity	
Loss on drying	Not more than 2,0 % (105 °C, 2h)
Loss on ignition	Not more than 33 % (800 °C to constant weight)
Calcium oxide	Not more than 1,5 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg

E 529 CALCIUM OXIDE

Synonyms	Burnt lime
Definition	
Chemical name	Calcium oxide
EINECS	215-138-9
Chemical formula	CaO
Molecular weight	56,08
Assay	Content not less than 95,0 % on the ignited basis
Description	Odourless, hard, white or greyish white masses of granules, or white to greyish powder
Identification	
A. Positive test for alkali and for calcium	
B. Heat is generated on moistening the sample with water	
C. Solubility	Slightly soluble in water. Insoluble in ethanol. Soluble in glycerol

Purity	
Loss on ignition	Not more than 10,0 % (ca 800 °C to constant weight)
Acid insoluble matter	Not more than 1,0 %
Barium	Not more than 300 mg/kg
Magnesium and alkali salts	Not more than 1,5 %
Fluoride	Not more than 50 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg

E 530 MAGNESIUM OXIDE

Definition	
Chemical name	Magnesium oxide
EINECS	215-171-9
Chemical formula	MgO
Molecular weight	40,31
Assay	Content not less than 98,0 % on the ignited basis
Description	A very bulky, white powder known as light magnesium oxide or a relative dense, white powder known as heavy magnesium oxide. 5 g of light magnesium oxide occupy a volume of 40 to 50 ml, while 5 g of heavy magnesium oxide occupy a volume of 10 to 20 ml
Identification	
A. Positive test for alkali and for magnesium	
B. Solubility	Practically insoluble in water. Insoluble in ethanol
Purity	
Loss on ignition	Not more than 5,0 % (ca 800 °C to constant weight)
Calcium oxide	Not more than 1,5 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 10 mg/kg

E 535 SODIUM FERROCYANIDE

Synonyms	Yellow prussiate of soda, sodium hexacyanoferrate
Definition	
Chemical name	Sodium ferrocyanide
EINECS	237-081-9
Chemical formula	$Na_4Fe(CN)_6 \cdot 10\ H_2O$
Molecular weight	484,1
Assay	Content not less than 99,0 %
Description	Yellow crystals or crystalline powder
Identification	
A. Positive test for sodium and for ferrocyanide	
Purity	
Free moisture	Not more than 1,0 %
Water insoluble matter	Not more than 0,03 %
Chloride	Not more than 0,2 %
Sulphate	Not more than 0,1 %
Free cyanide	Not detectable
Ferricyanide	Not detectable
Lead	Not more than 5 mg/kg

E 536 POTASSIUM FERROCYANIDE

Synonyms	Yellow prussiate of potash, potassium hexacyanoferrate
Definition	
Chemical name	Potassium ferrocyanide
EINECS	237-722-2
Chemical formula	$K_4Fe(CN)6 \cdot 3\ H_2O$
Molecular weight	422,4
Assay	Content not less than 99,0 %
Description	Lemon yellow crystals

Identification	
A. Positive test for potassium and for ferrocyanide	
Purity	
Free moisture	Not more than 1,0 %
Water insoluble matter	Not more than 0,03 %
Chloride	Not more than 0,2 %
Sulphate	Not more than 0,1 %
Free cyanide	Not detectable
Ferricyanide	Not detectable
Lead	Not more than 5 mg/kg

E 538 CALCIUM FERROCYANIDE

Synonyms	Yellow prussiate of lime, calcium hexacyanoferrate
Definition	
Chemical name	Calcium ferrocyanide
EINECS	215-476-7
Chemical formula	$Ca_2Fe(CN)_6 \cdot 12H_2O$
Molecular weight	508,3
Assay	Content not less than 99,0 %
Description	Yellow crystals or crystalline powder
Identification	
A. Positive test for calcium and for ferrocyanide	
Purity	
Free moisture	Not more than 1,0 %
Water insoluble matter	Not more than 0,03 %
Chloride	Not more than 0,2 %
Sulphate	Not more than 0,1 %
Free cyanide	Not detectable
Ferricyanide	Not detectable
Lead	Not more than 5 mg/kg

E 541 SODIUM ALUMINIUM PHOSPHATE, ACIDIC

Synonyms	SALP
Definition	
Chemical name	Sodium trialuminium tetradecahydrogen octaphosphate tetrahydrate (A) or Trisodium dialuminium pentadecahydrogen octaphosphate (B)
EINECS	232-090-4
Chemical formula	$NaAl_3H_{14}(PO_4)_8 \cdot 4H_2O$ (A) $Na_3Al_2H_{15}(PO_4)_8$ (B)
Molecular weight	949,88 (A) 897,82 (B)
Assay	Content not less than 95,0 % (both forms)
Description	White odourless powder
Identification	
A. Positive test for sodium, for aluminium and for phosphate	
B. pH	Acid to litmus
C. Solubility	Insoluble in water. Soluble in hydrochloric acid
Purity	
Loss on ignition	19,5 % - 21,0 % (A) } (750 °C - 800 °C, 2h) 15 % - 16 % (B) } (750 °C - 800 °C, 2h)
Fluoride	Not more than 25 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 4 mg/kg
Cadmium	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 551 SILICON DIOXIDE

Synonyms	Silica, silicium dioxide
Definition	Silicon dioxide is an amorphous substance, which is produced synthetically by either a vapour-phase hydrolysis process, yielding fumed silica, or by a wet process, yielding precipitated silica, silica gel, or hydrous silica. Fumed silica is produced in essentially an anhydrous state, whereas the wet-process products are obtained as hydrates or contain surface absorbed water
Chemical name	Silicon dioxide

EINECS	231-545-4
Chemical formula	$(SiO_2)_n$
Molecular weight	60,08 (SiO_2)
Assay	Content after ignition not less than 99,0 % (fumed silica) or 94,0 % (hydrated forms)
Description	White, fluffy powder or granules Hygroscopic
Identification	
A. Positive test for silica	
Purity	
Loss on drying	Not more than 2,5 % (fumed silica, 105 °C, 2h) Not more than 8,0 % (precipitated silica and silica gel, 105 °C, 2h) Not more than 70 % (hydrous silica, 105 °C, 2h)
Loss on ignition	Not more than 2,5 % after drying (1 000 °C, fumed silica) Not more than 8,5 % after drying (1 000 °C, hydrated forms)
Soluble ionisable salts	Not more than 5,0 % (as Na_2SO_4)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 552 CALCIUM SILICATE

Definition	Calcium silicate is a hydrous or anhydrous silicate with varying proportions of CaO and SiO_2
Chemical name	Calcium silicate
EINECS	215-710-8
Assay	Content on the anhydrous basis: — as SiO_2 not less than 50 % and not more than 95 % — as CaO not less than 3 % and not more than 35 %
Description	White to off-white free-flowing powder that remains so after absorbing relatively large amounts of water or other liquids
Identification	
A. Positive test for silicate and for calcium	
B. Forms a gel with mineral acids	

Purity	
Loss on drying	Not more than 10 % (105 °C, 2h)
Loss on ignition	Not less than 5 % and not more than 14 % (1 000 °C, constant weight)
Sodium	Not more than 3 %
Fluoride	Not more than 50 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 553a(i) MAGNESIUM SILICATE

Definition	Magnesium silicate is a synthetic compound of which the molar ratio of magnesium oxide to silicon dioxide is approximately 2:5
Assay	Content not less than 15 % of MgO and not less than 67 % of SiO_2 on the ignited basis
Description	Very fine, white, odourless powder, free from grittiness
Identification	
A. Positive test for magnesium and for silicate	
B. pH of a 10 % slurry	Between 7,0 and 10,8
Purity	
Loss on drying	Not more than 15 % (105 °C, 2h)
Loss on ignition	Not more than 15 % after drying (1 000 °C, 20 min)
Water soluble salts	Not more than 3 %
Free alkali	Not more than 1 % (as NaOH)
Fluoride	Not more than 10 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 553a(ii) MAGNESIUM TRISILICATE

Definition	
Chemical name	Magnesium trisilicate
Chemical formula	$Mg_2Si_3O_8 \cdot xH_2O$ (approximate composition)
EINECS	239-076-7
Assay	Content not less than 29,0 % of MgO and not less than 65,0 % of SiO_2 both on the ignited basis
Description	Fine, white powder, free from grittiness

Identification	
A. Positive test for magnesium and for silicate	
B. pH of a 5 % slurry	Between 6,3 and 9,5
Purity	
Loss on ignition	Not less than 17 % and not more than 34 % (1 000 °C)
Water soluble salts	Not more than 2 %
Free alkali	Not more than 1 % (as NaOH)
Fluoride	Not more than 10 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 570 FATTY ACIDS

Definition	Linear fatty acids, caprylic acid (C_8), capric acid (C_{10}), laurinc acid (C_{12}), myristic acid (C_{14}), palmitic acid (C_{16}), stearic acid (C_{18}), oleic acid ($C_{18:1}$)
Chemical name	octanoic acid (C_8), decanoic acid (C_{10}), dodecanoic acid (C_{12}), tetradecanoic acid (C_{14}), hexadecanoic acid (C_{16}), octadecanoic acid (C_{18}), 9-octadecenoic acid ($C_{18:1}$)
Assay	Not less than 98 % by chromatography
Description	A colourless liquid or white solid obtained from oils and fats
Identification	
A. Individual fatty acids can be identified by acid value, iodine value, gas chromatography and molecular weight	
Purity	
Residue on ignition	Not more than 0,1 %
Unsaponifiable matter	Not more than 1,5 %
Water	Not more than 0,2 % (Karl Fischer method)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 1 mg/kg
Mercury	Not more than 1 mg/kg

E 574 GLUCONIC ACID

Synonyms	D-gluconic acid, dextronic acid
Definition	Gluconic acid is an aqueous solution of gluconic acid and glucono-delta-lactone
Chemical name	Gluconic acid
Chemical formula	$C_6H_{12}O_7$ (gluconic acid)
Molecular weight	196,2
Assay	Content not less than 50,0 % (as gluconic acid)
Description	Colourless to light yellow, clear syrupy liquid
Identification	
A. Formation of phenylhydrazine derivative positive	Compound formed melts between 196 °C and 202 °C with decomposition
Purity	
Residue on ignition	Not more than 1,0 %
Reducing matter	Not more than 0,75 % (as D-glucose)
Chloride	Not more than 350 mg/kg
Sulphate	Not more than 240 mg/kg
Sulphite	Not more than 20 mg/kg
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 575 GLUCONO-DELTA-LACTONE

Synonyms	Gluconolactone, GDL, D-gluconic acid delta-lactone, delta-gluconolactone
Definition	Glucono-delta-lactone is the cyclic 1,5-intramolecular ester of D-gluconic acid. In aqueous media it is hydrolysed to an equilibrium mixture of D-gluconic acid (55 %-66 %) and the delta- and gamma-lactones
Chemical name	D-Glucono-1,5-lactone
EINECS	202-016-5
Chemical formula	$C_6H_{10}O_6$
Molecular weight	178,14
Assay	Content not less than 99,0 % on the anhydrous basis
Description	Fine, white, nearly odourless, crystalline powder

Identification	
A. Formation of phenylhydrazine derivative of gluconic acid positive	Compound formed melts between 196 °C and 202 °C with decomposition
B. Solubility	Freely soluble in water. Sparingly soluble in ethanol
C. Melting point	152 °C ± 2 °C
Purity	
Water	Not more than 1,0 % (Karl Fischer method)
Reducing substances	Not more than 0,75 % (as D-glucose)
Lead	Not more than 2 mg/kg

E 576 SODIUM GLUCONATE

Synonyms	Sodium salt of D-gluconic acid
Definition	
Chemical name	Sodium D-gluconate
EINECS	208-407-7
Chemical formula	$C_6H_{11}NaO_7$ (anhydrous)
Molecular weight	218,14
Assay	Content not less than 98,0 %
Description	White to tan, granular to fine, crystalline powder
Identification	
A. Positive test for sodium and for gluconate	
B. Solubility	Very soluble in water. Sparingly soluble in ethanol
C. pH of a 10 % solution	Between 6,5 and 7,5
Purity	
Reducing matter	Not more than 1,0 % (as D-glucose)
Lead	Not more than 2 mg/kg

E 577 POTASSIUM GLUCONATE

Synonyms	Potassium salt of D-gluconic acid
Definition	
Chemical name	Potassium D-gluconate

EINECS	206-074-2
Chemical formula	$C_6H_{11}KO_7$ (anhydrous) $C_6H_{11}KO_7 \cdot H_2O$ (monohydrate)
Molecular weight	234,25 (anhydrous) 252,26 (monohydrate)
Assay	Content not less than 97,0 % and not more than 103,0 % on dried basis
Description	Odourless, free flowing white to yellowish white, crystalline powder or granules
Identification	
A. Positive test for potassium and for gluconate	
B. pH of a 10 % solution	Between 7,0 and 8,3
Purity	
Loss on drying	Anhydrous: not more than 3,0 % (105 °C, 4h, vacuum) Monohydrate: not less than 6 % and not more than 7,5 % (105 °C, 4h, vacuum)
Reducing substances	Not more than 1,0 % (as D-glucose)
Lead	Not more than 2 mg/kg

E 578 CALCIUM GLUCONATE

Synonyms	Calcium salt of D-gluconic acid
Definition	
Chemical name	Calcium di-D-gluconate
EINECS	206-075-8
Chemical formula	$C_{12}H_{22}CaO_{14}$ (anhydrous) $C_{12}H_{22}CaO_{14} \cdot H_2O$ (monohydrate)
Molecular weight	430,38 (anhydrous form) 448,39 (monohydrate)
Assay	Content not less than 98,0 % and not more than 102 % on the anhydrous and monohydrate basis
Description	Odourless, white crystalline granules or powder, stable in air
Identification	
A. Positive test for calcium and for gluconate	
B. Solubility	Soluble in water, insoluble in ethanol
C. pH of a 5 % solution	Between 6,0 and 8,0

Purity	
Loss on drying	Not more than 3,0 % (105 °C, 16h) (anhydrous) Not more than 2,0 % (105 °C, 16h) (monohydrate)
Reducing substances	Not more than 1,0 % (as D-glucose)
Lead	Not more than 2 mg/kg

E 640 GLYCINE AND ITS SODIUM SALT

Synonyms (gly)	Aminoacetic acid, glycocoll
(Na salt)	Sodium glycinate
Definition	
Chemical name (gly)	Aminoacetic acid
(Na salt)	Sodium glycinate
Chemical formula (gly)	$C_2H_5NO_2$
(Na salt)	$C_2H_5NO_2$ Na
EINECS (gly)	200-272-2
(Na salt)	227-842-3
Molecular weight (gly)	75,07
(Na salt)	98
Assay	Content not less than 98,5 % on the anhydrous basis
Description	White crystals or crystalline powder
Identification	
A. Positive test for aminoacid (gly and Na salt)	
B. Positive test for sodium (Na salt)	
Purity	
Loss on drying (gly)	Not more than 0,2 % (105 °C, 3h)
(Na salt)	Not more than 0,2 % (105 °C, 3h)
Residue on ignition (gly)	Not more than 0,1 %
(Na salt)	Not more than 0,1 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 900 DIMETHYL POLYSILOXANE

Synonyms	Polydimethyl siloxane, silicone fluid, silicone oil, dimethyl silicone
Definition	Dimethylpolysiloxane is a mixture of fully methylated linear siloxane polymers containing repeating units of the formula $(CH_3)_2$ SiO and stablised with trimethylsiloxy end-blocking units of the formula $(CH_3)_3$ SiO
Chemical name	Siloxanes and silicones, di-methyl
Chemical formula	$(CH_3)_3$-Si-[O-Si$(CH_3)_2$]n-O-Si$(CH_3)_3$
Assay	Content of total silicon not less than 37,3 % and not more than 38,5 %
Description	Clear, colourless, viscous liquid
Identification	
A. Specific gravity (25°/25 °C)	Between 0,964 and 0,977
B. Refractive index $[n]_D^{25}$	Between 1,400 and 1,405
C. Infrared spectrum characteristic of the compound	
Purity	
Loss on drying	Not more than 0,5 % (150 °C, 4h)
Viscosity	Not less than $1{,}00 \cdot 10^{-4}$ m^2s^{-1} at 25 °C
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 901 BEESWAX

Synonyms	White wax, yellow wax
Definition	Yellow bees wax is the wax obtained by melting the walls of the honeycomb made by the honey bee, *Apis mellifera L.*, with hot water and removing foreign matter White beeswax is obtained by bleaching yellow beeswax
EINECS	232-383-7 (beeswax)
Description	Yellowish white (white form) or yellowish to greyish brown (yellow form) pieces or plates with a fine-grained and non-crystalline fracture, having an agreeable, honey-like odour
Identification	
A. Melting range	Between 62 °C and 65 °C
B. Specific gravity	About 0,96
C. Solubility	Insoluble in water Sparingly soluble in alcohol Very soluble in chloroform and ether

Purity	
Acid value	Not less than 17 and not more than 24
Saponification value	87-104
Peroxide value	Not more than 5
Glycerol and other polyols	Not more than 0,5 % (as glycerol)
Ceresin, paraffins and certain other waxes	Absent
Fats, Japan wax, rosin and soaps	Absent
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 902 CANDELILLA WAX

Definition	Candelilla wax is a purified wax obtained from the leaves of the candelilla plant, *Euphorbia antisyphilitica*
EINECS	232-347-0
Description	Hard, yellowish brown, opaque to translucent wax
Identification	
A. Specific gravity	About 0,983
B. Melting range	Between 68,5 °C and 72,5 °C
C. Solubility	Insoluble in water Soluble in chloroform and toluene
Purity	
Acid value	Not less than 12 and not more than 22
Saponification value	Not less than 43 and not more than 65
Glycerol and other polyols	Not more than 0,5 % (as glycerol)
Ceresin, paraffins and certain other waxes	Absent
Fats, Japan wax, rosin and soaps	Absent
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 903 CARNAUBA WAX

Definition	Carnauba wax is a purified wax obtained from the leaf buds and leaves of the Brazilian Mart wax palm, *Copernicia cereferia*
EINECS	232-399-4
Description	Light brown to pale yellow powder or flakes or hard and brittle solid with a resinous fracture
Identification	
A. Specific gravity	About 0,997
B. Melting range	Between 82 °C and 86 °C
C. Solubility	Insoluble in water Partly soluble in boiling ethanol Soluble in chloroform and diethyl ether
Purity	
Sulphated ash	Not more than 0,25 %
Acid value	Not less than 2 and not more than 7
Ester value	Not less than 71 and not more than 88
Unsaponifiable matter	Not less than 50 % and not more than 55 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 904 SHELLAC

Synonyms	Bleached shellac, white shellac
Definition	Shellac is the purified and bleached lac, the resinous secretion of the insect *Laccifer (Tachardia) lacca* Kerr (Fam. *Coccidae*)
EINECS	232-549-9
Description	Bleached shellac — off-white, amorphous, granular resin Wax-free bleached shellac — light yellow, amorphous, granular resin
Identification	
A. Solubility	Insoluble in water; freely (though very slowly) soluble in alcohol; slightly soluble in acetone
B. Acid value	Between 60 and 89

Purity	
Loss on drying	Not more than 6,0 % (40 °C, over silica gel, 15h)
Rosin	Absent
Wax	Bleached shellac: not more than 5,5 % Wax-free bleached shellac: not more than 0,2 %
Lead	Not more than 2 mg/kg

E 920 L-CYSTEINE

Definition	L-cysteine hydrochloride or hydrochloride monohydrate. Human hair may not be used as a source for this substance
EINECS	200-157-7 (anhydrous)
Chemical formula	$C_3H_7NO_2S \cdot HCl \cdot n\ H_20$ (where n = 0 or 1)
Molecular weight	157,62 (anhydrous)
Assay	Content not less than 98,0 % and not more than 101,5 % on the anhydrous basis
Description	White powder or colourless crystals
Identification	
A. Solubility	Freely soluble in water and in ethanol
B. Melting range	Anhydrous form melts at about 175 °C
C. Specific rotation	$[\alpha]\ ^{20}_{D}$: between + 5,0° and + 8,0° or $[\alpha]\ ^{25}_{D}$: between + 4,9° and 7,9°
Purity	
Loss on drying	Between 8,0 % and 12,0 % Not more than 2,0 % (anhydrous form)
Residue on ignition	Not more than 0,1 %
Ammonium-ion	Not more than 200 mg/kg
Arsenic	Not more than 1,5 mg/kg
Lead	Not more than 5 mg/kg

E 927b CARBAMIDE

Synonyms	Urea
Definition	
EINECS	200-315-5
Chemical formula	CH_4N_2O

Molecular weight	60,06
Assay	Content not less than 99,0 % on the anhydrous basis
Description	Colourless to white, prismatic, crystalline powder or small, white pellets
Identification	
A. Solubility	Very soluble in water Soluble in ethanol
B. Precipitation with nitric acid	To pass the test a white, crystalline precipitate is formed
C. Colour reaction	To pass the test a reddish-violet colour is produced
D. Melting range	132 °C to 135 °C
Purity	
Loss on drying	Not more than 1,0 % (105 °C, 1h)
Sulphated ash	Not more than 0,1 %
Ethanol-insoluble matter	Not more than 0,04 %
Alkalinity	Passes test
Ammonium-ion	Not more than 500 mg/kg
Biuret	Not more than 0,1 %
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg

E 938 ARGON

Definition	
Chemical name	Argon
EINECS	231-147-0
Chemical formula	Ar
Molecular weight	40
Assay	Not less than 99 %
Description	Colourless, odourless, non-flammable gas
Purity	
Water	Not more than 0,05 %
Methane and other hydrocarbons calculated as methane	Not more than 100 µl/l

E 939 HELIUM

Definition	
Chemical name	Helium
EINECS	231-168-5
Chemical formula	He
Molecular weight	4
Assay	Not less than 99 %
Description	Colourless, odourless, non-flammable gas
Purity	
Water	Not more than 0,05 %
Methane and other hydrocarbons calculated as methane	Not more than 100 µl/l

E 941 NITROGEN

Definition	
Chemical name	Nitrogen
EINECS	231-783-9
Chemical formula	N_2
Molecular weight	28
Assay	Not less than 99 %
Description	Colourless, odourless, non-flammable gas
Purity	
Water	Not more than 0,05 %
Carbon monoxide	Not more than 10 µl/l
Methane and other hydrocarbons calculated as methane	Not more than 100 µl/l
Nitrogen dioxide and nitrogen oxide	Not more than 10 µl/l
Oxygen	Not more than 1 %

E 942 NITROUS OXIDE

Definition	
Chemical name	Nitrous oxide
EINECS	233-032-0
Chemical formula	N_2O

Molecular weight	44
Assay	Not less than 99 %
Description	Colourless, non-flammable gas, sweetish odour
Purity	
Water	Not more than 0,05 %
Carbon monoxide	Not more than 30 µl/l
Nitrogen dioxide and nitrogen oxide	Not more than 10 µl/l

E 948 OXYGEN

Definition	
Chemical name	Oxygen
EINECS	231-956-9
Chemical formula	O_2
Molecular weight	32
Assay	Not less than 99 %
Description	Colourless, odourless, non-flammable gas
Purity	
Water	Not more than 0,05 %
Methane and other hydrocarbons calculated as methane	Not more than 100 µl/l

E 999 QUILLAIA EXTRACT

Synonyms	Soapbark extract, Quillay bark extract, Panama bark extract, Quillai extract, Murillo bark extract, China bark extract
Definition	Quillaia extract is obtained by aqueous extraction of *Quillai saponaria Molina*, or other *Quillaia* species, trees of the family *Rosaceae*. It contains a number of triterpenoid saponins consisting of glycosides of quillaic acid. Some sugars including glucose, galactose, arabinose, xylose, and rhamnose are also present, along with tannin, calcium oxalate and other minor components
Description	Quillaia extract in the powder form is light brown with a pink tinge. It is also available as an aqueous solution
Identification	
A. pH of a 2,5 % solution	Between 4,5 and 5,5
Purity	
Water	Not more than 6,0 % (Karl Fischer method) (powder form only)

Arsenic	Not more than 2 mg/kg
Lead	Not more than 5 mg/kg
Mercury	Not more than 1 mg/kg

E 1103 INVERTASE

Definition	Invertase is produced from *Saccharomyces cerevisiae*
Systematic name	β-D-Fructofuranoside fructohydrolase
Enzyme Commission No	EC 3.2.1.26
EINECS	232-615-7
Purity	
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg
Cadmium	Not more than 0,5 mg/kg
Total bacterial count	Not more than 50 000/g
Salmonella spp.	Absent by test in 25 g
Coliforms	Not more than 30/g
E. coli	Absent by test in 25 g

E 1200 POLYDEXTROSE

Synonyms	Modified polydextroses
Definition	Randomly bonded glucose polymers with some sorbitol end-groups, and with citric acid or phosphoric acid residues attached to the polymers by mono or diester bonds. They are obtained by melting and condensation of the ingredients and consist of approximately 90 parts D-glucose, 10 parts sorbitol and 1 part citric acid or 0,1 part phosphoric acid. The 1,6-glucosidic linkage predominates in the polymers but other linkages are present. The products contain small quantities of free glucose, sorbitol, levoglucosan (1,6-anhydro-D-glucose) and citric acid and may be neutralised with any food grade base and/or decolorised and deionised for further purification. The products may also be partially hydrogenated with Raney nickel catalyst to reduce residual glucose. Polydextrose-N is neutralised polydextrose
Assay	Content not less than 90 % of polymer on the ash free and anhydrous basis
Description	White to light tan-coloured solid. Polydextroses dissolve in water to give a clear, colourless to straw coloured solution
Identification	
A. Positive tests for sugar and for reducing sugar	
B. pH of a 10 % solution	Between 2,5 and 7,0 for polydextrose Between 5,0 and 6,0 for polydextrose-N

Purity	
Water	Not more than 4,0 % (Karl Fischer method)
Sulphated ash	Not more than 0,3 % (polydextrose) Not more than 2,0 % (polydextrose N)
Nickel	Not more than 2 mg/kg for hydrogenated polydextroses
1,6-Anhydro-D-glucose	Not more than 4,0 % on the ash-free and the dried basis
Glucose and sorbitol	Not more than 6,0 % combined on the ash-free and the dried basis; glucose and sorbitol are determined separately
Molecular weight limit	Negative test for polymers of molecular weight greater than 22,000
5-Hydroxymethylfurfural	Not more than 0,1 % (polydextrose) Not more than 0,05 % (polydextrose-N)
Lead	Not more than 0,5 mg/kg

E 1404 OXIDISED STARCH

Definition	Oxidised starch is starch treated with sodium hypochlorite
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Carboxyl groups	Not more than 1,1 %
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1410 MONOSTARCH PHOSPHATE

Definition	Monostarch phosphate is starch esterified with ortho-phosphoric acid, or sodium or potassium ortho-phosphate or sodium tripolyphosphate
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Residual phosphate	Not more than 0,5 % (as P) for wheat or potato starch Not more than 0,4 % (as P) for other starches
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1412 DISTARCH PHOSPHATE

Definition	Distarch phosphate is starch cross-linked with sodium trimetaphosphate or phosphorus oxychloride
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches

Residual phosphate	Not more than 0,5 % (as P) for wheat or potato starch Not more than 0,4 % (as P) for other starches
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1413 PHOSPHATED DISTARCH PHOSPHATE

Definition	Phosphated distarch phosphate is starch having undergone a combination of treatments as described for monostarch phosphate and for distarch phosphate
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Residual phosphate	Not more than 0,5 % (as P) for wheat or potato starch Not more than 0,4 % (as P) for other starches
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1414 ACETYLATED DISTARCH PHOSPHATE

Definition	Acetylated distarch phosphate is starch cross-linked with sodium trimetaphosphate or phosphorus oxychloride and esterified by acetic anhydride or vinyl acetate
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles

Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Acetyl groups	Not more than 2,5 %
Residual phosphate	Not more than 0,14 % (as P) for wheat or potato starch Not more than 0,04 % (as P) for other starches
Vinyl acetate	Not more than 0,1 mg/kg
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1420 ACETYLATED STARCH

Synonyms	Starch acetate
Definition	Acetylated starch is starch esterified with acetic anhydride or vinyl acetate
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Acetyl groups	Not more than 2,5 %

Vinyl acetate	Not more than 0,1 mg/kg
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1422 ACETYLATED DISTARCH ADIPATE

Definition	Acetylated distarch adipate is starch cross-linked with adipic anhydride and esterified with acetic anhydride
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Acetyl groups	Not more than 2,5 %
Adipate groups	Not more than 0,135 %
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1440 HYDROXYPROPYL STARCH

Definition	Hydroxypropyl starch is starch etherified with propylene oxide
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles

Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Hydroxypropyl groups	Not more than 7,0 %
Propylene chlorohydrin	Not more than 1 mg/kg
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1442 HYDROXYPROPYL DISTARCH PHOSPHATE

Definition	Hydroxypropyl distarch phosphate is starch cross-linked with sodium trimetaphosphate or phosphorus oxychloride and etherified with propylene oxide
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Hydroxypropyl groups	Not more than 7,0 %
Residual phosphate	Not more than 0,14 % (as P) for wheat or potato starch Not more than 0,04 (as P) for other starches
Propylene chlorohydrin	Not more than 1 mg/kg

Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1450 STARCH SODIUM OCTENYL SUCCINATE

Synonyms	SSOS
Definition	Starch sodium octenyl succinate is starch esterified with octenylsuccinic anhydride
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles
Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Octenylsuccinyl groups	Not more than 3 %
Octenylsuccinic acid residue	Not more than 0,3 %
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1451 ACETYLATED OXIDISED STARCH

Definition	Acetylated oxidised starch is starch treated with sodium hypochlorite followed by esterification with acetic anhydride
Description	White or nearly white powder or granules or (if pregelatinised) flakes, amorphous powder or coarse particles

Identification	
A. If not pregelatinised: by microscopic observation	
B. Iodine staining positive (dark blue to light red colour)	
Purity (all values expressed on an anhydrous basis except for loss on drying)	
Loss on drying	Not more than 15,0 % for cereal starch Not more than 21,0 % for potato starch Not more than 18,0 % for other starches
Carboxyl groups	Not more than 1,3 %
Acetyl groups	Not more than 2,5 %
Sulphur dioxide	Not more than 50 mg/kg for modified cereal starches Not more than 10 mg/kg for other modified starches, unless otherwise specified
Arsenic	Not more than 1 mg/kg
Lead	Not more than 2 mg/kg
Mercury	Not more than 0,1 mg/kg

E 1505 TRIETHYL CITRATE

Synonyms	Ethyl citrate
Definition	
Chemical name	Triethyl-2-hydroxypropan-1,2,3-tricarboxylate
EINECS	201-070-7
Chemical formula	$C_{12}H_{20}O_7$
Molecular weight	276,29
Assay	Content not less than 99,0 %
Description	Odourless, practically colourless, oily liquid
Identification	
A. Specific gravity	d_{25}^{25}: 1,135-1,139
B. Refractive index	$[n]_D^{20}$: 1,439-1,441
Purity	
Water	Not more than 0,25 % (Karl Fischer method)
Acidity	Not more than 0,02 % (as citric acid)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg

E 1518 GLYCERYL TRIACETATE

Synonyms	Triacetin
Definition	
Chemical name	Glyceryl triacetate
EINECS	203-051-9
Chemical formula	$C_9H_{14}O_6$
Molecular weight	218,21
Assay	Content not less than 98,0 %
Description	Colourless, somewhat oily liquid having a slightly fatty odour
Identification	
A. Positive tests for acetate and for glycerol	
B. Refractive index	Between 1,429 and 1,431 at 25 °C
C. Specific gravity (25 °C/25 °C)	Between 1,154 and 1,158
D. Boiling range	Between 258° and 270 °C
Purity	
Water	Not more than 0,2 % (Karl Fischer method)
Sulphated ash	Not more than 0,02 % (as citric acid)
Arsenic	Not more than 3 mg/kg
Lead	Not more than 5 mg/kg

E 1520 PROPANE-1,2-DIOL

Synonyms	Propylene glycol
Definition	
Chemical names	1,2-dihydroxypropane
EINECS	200-338-0
Chemical formula	$C_3H_8O_2$
Molecular weight	76,10
Assay	Content not less than 99,5 % on the anhydrous basis
Description	Clear, colourless, hygroscopic, viscous liquid

Identification	
A. Solubility	Soluble in water, ethanol and acetone
B. Specific gravity	d_{20}^{20}: 1,035-1,040
C. Refractive index	$[n]^{20}D$: 1,431-1,433
Purity	
Distillation range	99 % v/v distils between 185 °C-189 °C
Sulphated ash	Not more than 0,07 %
Water	Not more than 1,0 % (Karl Fischer method)
Lead	Not more than 5 mg/kg'