

# **STANDARD 1.3.3**

## **PROCESSING AIDS**

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### **Purpose**

This Standard regulates the use of processing aids in food manufacture, prohibiting their use in food unless there is a specific permission within this Standard.

Standard 1.3.1 regulates the use of food additives.

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### **Clauses**

#### **1 Interpretation**

(1) In this Standard –

**approved food for use of phage** means food that –

- (a) is ordinarily consumed in the same state as that in which it is sold; and
- (b) is solid; and
- (c) is one of the following –

- (i) meat;
- (ii) meat product;
- (iii) fish;
- (iv) fish product;
- (v) fruit;
- (vi) fruit product;
- (vii) vegetable;
- (viii) vegetable product;
- (ix) cheese; and

(d) is not one of the following –

- (i) nuts in the shell and whole;
- (ii) raw fruits and vegetables that are intended for hulling, peeling or washing by the consumer.

**dairy ingredient** means an ingredient that is derived from a dairy source.

**EC number** (Enzyme Commission number) means the number which the Enzyme Commission uses to classify the principal enzyme activity.

**maximum permitted level** means the maximum amount of the processing aid which may be present in the food as specified in the Tables to clauses 3 to 18.

**processing aid** means a substance listed in clauses 3 to 19, where –

- (a) the substance is used in the processing of raw materials, foods or ingredients, to fulfil a technological purpose relating to treatment or processing, but does not perform a technological function in the final food; and
- (b) the proportion of the processing aid is no more than the maximum level necessary to achieve one or more technological functions under conditions of Good Manufacturing Practice (GMP).

**silica or silicates** includes sodium calcium polyphosphate silicate, sodium hexafluorosilicate, sodium metasilicate, sodium silicate, silica and modified silica that complies with a monograph specification in clause 2 or clause 3 of Standard 1.3.4.

(2) In this Standard, the letters ‘ATCC’ followed by a number is a reference to the number which the American Type Culture Collection uses to identify a prokaryote.

## 2 General prohibition on the use of processing aids

Unless expressly permitted in this Standard, processing aids must not be added to food.

## 3 Generally permitted processing aids

Subject to clause 3A, the following processing aids may be used in the course of manufacture of any food at a level necessary to achieve a function in the processing of that food –

- (a) foods, including water; and
- (b) food additives listed in Schedule 2 of Standard 1.3.1; and
- (c) a processing aid specified in the Table to this clause.

**Table to clause 3**

Activated carbon
Ammonia
Ammonium hydroxide
Argon
Bone phosphate
Carbon monoxide
Diatomaceous earth
Ethoxylated fatty alcohols
Ethyl alcohol
Fatty acid polyalkylene glycol ester
Furcellaran
Hydrogenated glucose syrups
Isopropyl alcohol
Magnesium hydroxide
Oleic acid
Oleyl oleate

Oxygen
Perlite
Phospholipids
Phosphoric acid
Polyethylene glycols
Polyglycerol esters of fatty acids
Polyglycerol esters of interesterified ricinoleic acid
Polyoxyethylene 40 stearate
Potassium hydroxide
Propylene glycol alginate
Silica or silicates
Sodium hydroxide
Sodium lauryl sulphate
Sulphuric acid
Tannic acid

### 3A Restriction on the use of carbon monoxide in the processing of fish

(1) Carbon monoxide must not be used in the processing of fish as a food where its use results in a change to or fixes the colour of the flesh of the fish.

(2) To avoid doubt, subclause (1) does not apply to carbon monoxide that is naturally present or naturally occurring in smoke used in the processing of fish as food.

(3) Fish that has been treated with carbon monoxide prior to the commencement of Item 1.2 of the Schedule to the Food Standards (Proposal P1019 – Carbon Monoxide as a Processing Aid for Fish) Variation shall not be taken to comply with subclause 3A(1) by virtue of subclause 1(2) of Standard 1.1.1.

### 4 Permitted antifoam agents

The processing aids listed in the Table to this clause may be used as an antifoam agent in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 4**

Substance	Maximum permitted level (mg/kg)
Butanol	10
Oxystearin	GMP
Polydimethylsiloxane	10
Polyethylene glycol dioleate	GMP
Polyethylene/ polypropylene glycol copolymers	GMP
Soap	GMP
Sorbitan monolaurate	1
Sorbitan monooleate	1

### 5 Permitted catalysts

The processing aids listed in the Table to this clause may be used as a catalyst in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 5**

Substance	Maximum permitted level (mg/kg)
Chromium (excluding chromium VI)	0.1
Copper	0.1

Substance	Maximum permitted level (mg/kg)
Molybdenum	0.1
Nickel	1.0
Peracetic acid	0.7
Potassium ethoxide	1.0
Potassium (metal)	GMP
Sodium (metal)	GMP
Sodium ethoxide	1.0
Sodium methoxide	1.0

## 6 Permitted decolourants, clarifying, filtration and adsorbent agents

The processing aids listed in the Table to this clause may be used as decolourants, clarifying, filtration and adsorbent agents in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

Table to clause 6

Substance	Maximum permitted level (mg/kg)
Acid clays of montmorillonite	GMP
Chloromethylated aminated styrene-divinylbenzene resin	GMP
Co-extruded polystyrene and polyvinyl pyrrolidone	GMP
Copper sulphate	GMP
Dimethylamine-epichlorohydrin copolymer	150
Dimethyldialkylammonium chloride	GMP
Divinylbenzene copolymer	GMP
High density polyethylene co-extruded with kaolin	GMP
Iron oxide	GMP
Fish collagen, including Isinglass	GMP
Magnesium oxide	GMP
Modified polyacrylamide resins	GMP
Nylon	GMP
Phytates (including phytic acid, magnesium phytate & calcium phytate)	GMP
Polyester resins, cross-linked	GMP
Polyethylene	GMP
Polypropylene	GMP
Polyvinyl pyrrolidone	GMP
Potassium ferrocyanide	0.1

## 7 Permitted desiccating preparations

The processing aids listed in the Table to this clause may be used as desiccating preparations in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

Table to clause 7

Substance	Maximum permitted level (mg/kg)
Aluminium sulphate	GMP
Ethyl esters of fatty acids	GMP
Short chain triglycerides	GMP

## 8 Permitted ion exchange resins

The processing aids listed in the Table to this clause may be used as an ion exchange resin in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 8**

<b>Substance</b>	<b>Maximum permitted level (mg/kg)</b>
Completely hydrolysed copolymers of methyl acrylate and divinylbenzene	GMP
Completely hydrolysed terpolymers of methyl acrylate, divinylbenzene and acrylonitrile	GMP
Cross-linked phenol-formaldehyde activated with one or both of the following: triethylene tetramine and tetraethylenepentamine	GMP
Cross-linked polystyrene, chloromethylated, then aminated with trimethylamine, dimethylamine, diethylenetriamine, or dimethylethanolamine	GMP
Diethylenetriamine, triethylene-tetramine, or tetraethylenepentamin cross-linked with epichlorohydrin	GMP
Divinylbenzene copolymer	GMP
Epichlorohydrin cross-linked with ammonia	GMP
Epichlorohydrin cross-linked with ammonia and then quaternised with methyl chloride to contain not more than 18% strong base capacity by weight of total exchange capacity	GMP
Hydrolysed copolymer of methyl acrylate and divinylbenzene	GMP
Methacrylic acid-divinylbenzene copolymer	GMP
Methyl acrylate-divinylbenzene copolymer containing not less than 2% by weight of divinylbenzene, aminolysed with dimethylaminopropylamine	GMP
Methyl acrylate-divinylbenzene copolymer containing not less than 3.5% by weight of divinylbenzene, aminolysed with dimethylaminopropylamine	GMP
Methyl acrylate-divinylbenzene-diethylene glycol divinyl ether terpolymer containing not less than 3.5% by weight divinylbenzene and not more than 0.6% by weight of diethylene glycol divinyl ether, aminolysed with dimethaminopropylamine	GMP
Methyl acrylate-divinylbenzene-diethylene glycol divinyl ether terpolymer containing not less than 7% by weight divinylbenzene and not more than 2.3% by weight of diethylene glycol divinyl ether, aminolysed with dimethaminopropylamine and quaternised with methyl chloride	GMP
Reaction resin of formaldehyde, acetone, and tetraethylenepentamine	GMP
Regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide, then derivatised with carboxymethyl groups whereby the amount of epichlorohydrin plus propylene oxide is no more than 70% of the starting quantity of cellulose	GMP
Regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide, then derivatised with tertiary amine groups whereby the amount of epichlorohydrin plus propylene oxide is no more than 70% of the starting quantity of cellulose	GMP
Regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide, then derivatised with quaternary amine groups whereby the amount of epichlorohydrin plus propylene oxide is no more than 250% of the starting quantity of cellulose	GMP
Regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide, then sulphonated, whereby the amount of epichlorohydrin plus propylene oxide employed is no more than 250% of the starting quantity of cellulose	GMP
Styrene-divinylbenzene cross-linked copolymer, chloromethylated then aminated with dimethylamine and oxidised with hydrogen peroxide whereby the resin contains not more than 15% of vinyl N,N-dimethylbenzylamine-N-oxide and not more than 6.5% of nitrogen	GMP
Sulphite-modified cross-linked phenol-formaldehyde, with modification resulting in sulphonic acid groups on side chains	GMP
Sulphonated anthracite coal	GMP
Sulphonated copolymer of styrene and divinylbenzene	GMP
Sulphonated terpolymers of styrene, divinylbenzene, and acrylonitrile or methyl acrylate	GMP
Sulphonated tetrapolymer of styrene, divinylbenzene, acrylonitrile, and methyl acrylate derived from a mixture of monomers containing not more than a total of 2% by weight of acrylonitrile and methyl acrylate	GMP

## 9 Permitted lubricants, release and anti-stick agents

The processing aids listed in the Table to this clause may be used as lubricants, release and anti-stick agents in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 9**

Substance	Maximum permitted level (mg/kg)
Acetylated mono- and diglycerides	100
Mineral oil based greases	GMP
Thermally oxidised soya-bean oil	320
White mineral oil	GMP

### Editorial note:

The Joint FAO/WHO Expert Committee on Food Additives (JECFA) is currently reviewing mineral oils, including white mineral oil. To ensure consistency with the outcomes of this review, FSANZ will review the permission and nomenclature for white mineral oil once the JECFA review is completed.

## 10 Permitted carriers, solvents and diluents

The processing aids listed in the Table to this clause may be used as carriers, solvents and diluents in the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 10**

Substance	Maximum permitted level (mg/kg)
Benzyl alcohol	500
Croscarmellose sodium	GMP
Ethyl acetate	GMP
Glycerol diacetate	GMP
Glyceryl monoacetate	GMP
Glycine	GMP
Isopropyl alcohol	1000
L-Leucine	GMP
Triethyl citrate	GMP

## 11 Permitted processing aids used in packaged water and in water used as an ingredient in other foods

Subject to any qualifications in the Table to this clause, the processing aids listed in the Table may be used in the course of manufacture of packaged water and in water used as an ingredient in other foods provided the water contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 11**

Substance	Maximum permitted level (mg/kg)
Aluminium sulphate	GMP
Ammonium sulphate	GMP
Calcium hypochlorite	5 (available chlorine)
Calcium sodium polyphosphate	GMP
Chlorine	5 (available chlorine)
Chlorine dioxide	1
Cobalt sulphate	2

Substance	Maximum permitted level (mg/kg)
Copper sulphate	2
Cross-linked phenol-formaldehyde activated with one or both of triethylenetetramine or tetraethylenepentamine	GMP
Cross-linked polystyrene, first chloromethylated then aminated with trimethylamine, dimethylamine, diethylenetriamine or dimethylethanolamine	GMP
Diethylenetriamine, triethylenetetramine or tetraethylenepentamine cross-linked with epichlorohydrin	GMP
Ferric chloride	GMP
Ferric sulphate	GMP
Ferrous sulphate	GMP
Hydrofluorosilicic acid (fluorosilicic acid) (only in water used as an ingredient in other foods)	1.5 (as fluoride)
Hydrolyzed copolymers of methyl acrylate and divinylbenzene	GMP
Hydrolyzed terpolymers of methyl acrylate, divinylbenzene and acrylonitrile	GMP
Hydrogen peroxide	5
1-Hydroxyethylidene-1,1-diphosphonic acid	GMP
Lignosulphonic acid	GMP
Magnetite	GMP
Maleic acid polymers	GMP
Methyl acrylate-divinylbenzene copolymer containing not less than 2% divinylbenzene aminolysed with dimethylaminopropylamine	GMP
Methacrylic acid-divinylbenzene copolymer	GMP
Methyl acrylate-divinylbenzene-diethylene glycol divinyl ether terpolymer containing not less than 3.5% divinylbenzene and not more than 0.6% diethylene glycol divinyl ether, aminolysed with dimethylaminopropylamine	GMP
Modified polyacrylamide resins	GMP
Monobutyl ethers of polyethylene-polypropylene glycol	GMP
Ozone	GMP
Phosphorous acid	GMP
Polyacrylamide (polyelectrolytes)	0.0002 (as acrylamide monomer)
Polyaluminium chloride	GMP
Polydimethyldiallyl ammonium chloride	GMP
Polyoxypropylene glycol	GMP
Potassium permanganate	GMP
Reaction resin of formaldehyde, acetone and tetraethylenepentamine	GMP
Regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide, then sulphonated whereby the amount of epichlorohydrin plus propylene oxide employed is no more than 250% of the starting quantity of cellulose	GMP
Silver ions	0.01
Sodium aluminat	GMP
Sodium fluoride (only in water used as an ingredient in other foods)	1.5 (as fluoride)
Sodium fluorosilicate (Sodium silicofluoride) (only in water used as an ingredient in other foods)	1.5 (as fluoride)
Sodium glucoheptonate	0.08 (measured as cyanide)
Sodium gluconate	GMP
Sodium humate	GMP
Sodium hypochlorite	5 (available chlorine)
Sodium lignosulphonate	GMP
Sodium metabisulphite	GMP
Sodium nitrate	50 (as nitrate)
Sodium polymethacrylate	2.5
Sodium sulphite (neutral or alkaline)	GMP
Styrene-divinylbenzene cross-linked copolymer	0.02 (as styrene)
Sulphonated copolymer of styrene and divinylbenzene	GMP
Sulphonated terpolymers of styrene, divinylbenzene acrylonitrile and methyl acrylate	GMP
Sulphite modified cross-linked phenol-formaldehyde	GMP
Tannin powder extract	GMP
Tetrasodium ethylene diamine tetraacetate	GMP

Substance	Maximum permitted level (mg/kg)
Zinc sulphate	GMP

**Editorial note:**

This clause contains the permissions for fluoride to be used in water that is used as an ingredient in other foods, but not in water presented in packaged form. Standard 2.6.2 contains a voluntary permission to add fluoride to water presented in packaged form.

## 12 Permitted bleaching agents, washing and peeling agents

The processing aids listed in the Table to this clause may be used as bleaching agents, washing and peeling agents in the course of manufacture of the corresponding foods specified in the Table provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Table to clause 12**

Substance	Food	Maximum permitted level (mg/kg)
Benzoyl peroxide	All foods	40 (measured as benzoic acid)
Bromo-chloro-dimethylhydantoin	All foods	1.0 (available chlorine) 1.0 (inorganic bromide) 2.0 (dimethylhydantoin)
Calcium hypochlorite	All foods	1.0 (available chlorine)
Chlorine	All foods	1.0 (available chlorine)
Chlorine dioxide	All foods	1.0 (available chlorine)
Diammonium hydrogen orthophosphate	All foods	GMP
Dibromo-dimethylhydantoin	All foods	2.0 (inorganic bromide) 2.0 (dimethylhydantoin)
2-Ethylhexyl sodium sulphate	All foods	0.7
Hydrogen peroxide	All foods	5
Iodine	Fruits, vegetables and eggs	GMP
Oxides of nitrogen	All foods	GMP
Ozone	All foods	GMP
Peracetic acid	All foods	GMP
Sodium chlorite	All foods	1.0 (available chlorine)
Sodium dodecylbenzene sulphonate	All foods	0.7
Sodium hypochlorite	All foods	1.0 (available chlorine)
Sodium laurate	All foods	GMP
Sodium metabisulphite	Root and tuber vegetables	25
Sodium peroxide	All foods	5
Sodium persulphate	All foods	GMP
Triethanolamine	Dried vine fruit	GMP

**Editorial note:**

FSANZ will review the extent of the use of Iodine as a processing aid three years from the date of the inclusion of Iodine as a processing aid in the Table to clause 12.

## 13 Permitted extraction solvents

The processing aids listed in the Table to this clause may be used as extraction solvents in the course of manufacture of the corresponding foods specified in the Table provided the final food contains no more than the corresponding maximum permitted level specified in the Table.



**Table to clause 13**

Substance	Food	Maximum permitted level (mg/kg)
Acetone	Flavourings	2
	Other foods	0.1
Benzyl alcohol	All foods	GMP
Butane	Flavourings	1
	Other foods	0.1
Butanol	All foods	10
Cyclohexane	All foods	1
Dibutyl ether	All foods	2
Diethyl ether	All foods	2
Dimethyl ether	All foods	2
Ethyl acetate	All foods	10
Glyceryl triacetate	All foods	GMP
Hexanes	All foods	20
Isobutane	Flavourings	1
	Other foods	0.1
Methanol	All foods	5
Methylene chloride	Decaffeinated coffee	2
	Decaffeinated tea	2
	Flavourings	2
Methylethyl ketone	All foods	2
Propane	All foods	1
Toluene	All foods	1

**14 Permitted processing aids with miscellaneous functions**

The processing aids listed in the Table to this clause may be used for the corresponding function specified in the Table, provided the final food contains no more than the corresponding maximum permitted level specified in the Table.

**Editorial note:**

Where meat has been treated using lactoperoxidase from bovine milk, the mandatory labelling requirements in clause 4 of Standard 1.2.3 apply.

**Table to clause 14**

Substance	Function	Maximum permitted level (mg/kg)
Agarose ion exchange resin being agarose cross-linked and alkylated with epichlorohydrin and propylene oxide, then derivatised with tertiary amine groups whereby the amount of epichlorohydrin plus propylene oxide does not exceed 250% by weight of the starting quantity of agarose	Removal of specific proteins and polyphenols from beer	GMP
Ammonium persulphate	Yeast washing agent	GMP
Ammonium sulphate	Decalcification agent for edible casings	GMP
Butanol	Suspension agent for sugar crystals	10
Carbonic acid	Bleached tripe washing agent	GMP
Cetyl alcohol	Coating agent on meat carcasses and primal cuts to prevent desiccation	1.0
Chitosan sourced from <i>Aspergillus niger</i>	Manufacture of wine, beer, cider, spirits and food grade ethanol	GMP

Substance	Function	Maximum permitted level (mg/kg)
Colours permitted in Schedules 2, 3 and 4 of Standard 1.3.1	Applied to the outer surface of meat as a brand for the purposes of inspection or identification	GMP
Cupric citrate	Removal of sulphide compounds from wine	GMP
$\beta$ -Cyclodextrin	Used to extract cholesterol from eggs	GMP
L-Cysteine (or HCl salt)	Dough conditioner	75
Ethyl acetate	Cell disruption of yeast	GMP
Ethylene diamine tetraacetic acid	Metal sequestrant for edible fats and oils and related products	GMP
Gibberellic acid	Barley germination	GMP
Gluteral	Manufacture of edible collagen casings	GMP
Hydrogen peroxide	Control of lactic acid producing microorganisms to stabilise the pH during the manufacture of –  (a) fermented milk; or (b) fermented milk products; or (c) cheese made using lactic acid producing microorganisms; or (d) cheese products made using lactic acid producing microorganisms.	5
	Inhibiting agent for dried vine fruits, fruit and vegetable juices, sugar, vinegar and yeast autolysate	5
	Removal of glucose from egg products	5
	Removal of sulphur dioxide	5
1-Hydroxyethylidene-1,1-diphosphonic acid	Metal sequestrant for use with anti-microbial agents for meat, fruit and vegetables	GMP
Ice Structuring Protein type III HPLC 12	Manufacture of ice cream and edible ices	100
Indole acetic acid	Barley germination	GMP
Lactoperoxidase from bovine milk EC 1.11.1.7	Reduce the bacterial population or inhibit bacterial growth on meat surfaces	GMP
<i>Listeria</i> phage P100	Listericidal treatment for use on approved food for use of phage	GMP
Morpholine	Solubilising agent for coating mixtures on fruits	GMP
Oak	For use in the manufacture of wine	GMP
Octanoic acid	Anti-microbial agent for meat, fruit and vegetables	GMP
Paraffin	Coatings for cheese and cheese products	GMP
Polyvinyl acetate	Preparation of waxes for use in cheese and cheese products	GMP
Potassium bromate	Germination control in malting	Limit of determination of bromate
Sodium bromate	Germination control in malting	Limit of determination of bromate
Sodium chlorite	Anti-microbial agent for meat, fish, fruit and vegetables	Limit of determination of chlorite, chlorate, chlorous acid and chlorine dioxide
Sodium gluconate	Denuding, bleaching & neutralising tripe	GMP
Sodium glycerophosphate	Cryoprotectant for starter culture	GMP

Substance	Function	Maximum permitted level (mg/kg)
Sodium metabisulphite	Dough conditioner	60
	Removal of excess chlorine	60
	Softening of corn kernels for starch manufacture	60 (in the starch)
	Treatment of hides for use in gelatine and collagen manufacture	GMP
Sodium sulphide	Treatment of hides for use in gelatine and collagen manufacture	GMP
Sodium sulphite	Dough conditioner	60
Sodium thiocyanate	Reduce and/or inhibit bacterial population on meat surfaces	GMP
Stearyl alcohol	Coating agent on meat carcasses and primal cuts to prevent desiccation	GMP
Sulphur dioxide	Control of nitrosodimethylamine in malting	750
	Treatment of hides for use in gelatine and collagen manufacture	750
Sulphurous acid	Softening of corn kernels	GMP
	Treatment of hides for use in gelatine and collagen manufacture	GMP
Triethanolamine	Solubilising agent for coating mixtures for fruits	GMP
Urea	Manufacture of concentrated gelatine solutions	1.5 times the mass of the gelatine present
	Microbial nutrient and microbial nutrient adjunct for the manufacture of all foods, except alcoholic beverages	GMP
Woodflour from untreated <i>Pinus radiata</i>	Gripping agent used in the treatment of hides	GMP

**Editorial note:**

The limit of determination is the lowest concentration of a chemical that can be qualitatively detected using a laboratory method and/or item of laboratory equipment (that is, its presence can be detected but not quantified).

For Ice Structuring Protein type III HPLC 12 in the Table to clause 14, the manufacturer and patent holder, Unilever, has undertaken to voluntarily label products where the processing aid has been used in the manufacturing process. This labelling will appear on the product as 'ice structuring protein'. Unilever will also have information about ice structuring protein available to consumers.

**Editorial note:**

If *Listeria* phage P100 has an ongoing technological function it ceases to be a processing aid as defined in subclause 1(1), and operates instead as a food additive. For example, *Listeria* phage P100 may have an ongoing technological function when introduced to liquids. Standard 1.3.1 does not permit the use of *Listeria* phage P100 as a food additive.

**15 Permitted enzymes of animal origin**

The processing aids listed in the Table to this clause may be used as enzymes in the course of manufacture of any food provided the enzyme is derived from the corresponding source specified in the Table.

**Table to clause 15**

Enzyme	Source
Lipase, triacylglycerol EC 3.1.1.3	Bovine stomach; salivary glands or forestomach of calf, kid or lamb; porcine or bovine pancreas
Pepsin EC 3.4.23.1	Bovine or porcine stomach
Phospholipase A <sub>2</sub> EC 3.1.1.4	Porcine pancreas
Thrombin EC 3.4.21.5	Bovine or porcine blood
Trypsin EC 3.4.21.4	Porcine or bovine pancreas

**16 Permitted enzymes of plant origin**

The processing aids listed in the Table to this clause may be used as enzymes in the course of manufacture of any food provided the enzyme is derived from the corresponding source specified in the Table.

**Table to clause 16**

Enzyme	Source
α-Amylase EC 3.2.1.1	Malted cereals
β-Amylase EC 3.2.1.2	Sweet potato ( <i>Ipomoea batatas</i> ) Malted cereals
Actinidin EC 3.4.22.14	Kiwifruit ( <i>Actinidia deliciosa</i> )
Ficin EC 3.4.22.3	<i>Ficus</i> spp.
Fruit bromelain EC 3.4.22.33	Pineapple fruit ( <i>Ananas comosus</i> )
Papain EC 3.4.22.2	<i>Carica papaya</i>
Stem bromelain EC 3.4.22.32	Pineapple stem ( <i>Ananas comosus</i> )

**17 Permitted enzymes of microbial origin**

(1) The processing aids listed in the Table to this clause may be used as enzymes in the course of manufacture of any food provided the enzyme is derived from the corresponding source or sources specified in the Table.

(2) The sources listed in the Table to this clause may contain additional copies of genes from the same organism.

**Editorial note:**

See Division 2 of Standard 1.5.2 – Food produced using Gene Technology for labelling requirements that apply to processing aids produced using gene technology.

**Table to clause 17**

Enzyme	Source
α-Acetolactate decarboxylase EC 4.1.1.5	<i>Bacillus amyloliquefaciens</i> <i>Bacillus subtilis</i> <i>Bacillus subtilis</i> , containing the gene for α-Acetolactate decarboxylase isolated from <i>Bacillus brevis</i>
Aminopeptidase EC 3.4.11.1	<i>Aspergillus oryzae</i> <i>Lactococcus lactis</i>

Enzyme	Source
$\alpha$ -Amylase EC 3.2.1.1	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus licheniformis</i> <i>Bacillus licheniformis</i> , containing the gene for $\alpha$ -Amylase isolated from <i>Geobacillus stearothermophilus</i> <i>Bacillus subtilis</i> <i>Bacillus subtilis</i> , containing the gene for $\alpha$ -Amylase isolated from <i>Geobacillus stearothermophilus</i> <i>Geobacillus stearothermophilus</i>
$\beta$ -Amylase EC 3.2.1.2	<i>Bacillus amyloliquefaciens</i> <i>Bacillus subtilis</i>
Amylomaltase EC 2.4.1.25	<i>Bacillus amyloliquefaciens</i> , containing the gene for amylomaltase derived from <i>Thermus thermophilus</i>
$\alpha$ -Arabinofuranosidase EC 3.2.1.55	<i>Aspergillus niger</i>
Asparaginase EC 3.5.1.1	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i>
Carboxyl proteinase EC 3.4.23.6	<i>Aspergillus melleus</i> <i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Rhizomucor miehei</i>
Carboxylesterase EC 3.1.1.1	<i>Rhizomucor miehei</i>
Catalase EC 1.11.1.6	<i>Aspergillus niger</i> <i>Micrococcus luteus</i>
Cellulase EC 3.2.1.4	<i>Aspergillus niger</i> <i>Penicillium funiculosum</i> <i>Trichoderma reesei</i> <i>Trichoderma viride</i>
Chymosin EC 3.4.23.4	<i>Aspergillus niger</i> <i>Escherichia coli</i> K-12 strain GE81 <i>Kluyveromyces lactis</i>
Cyclodextrin glucanotransferase EC 2.4.1.19	<i>Paenibacillus macerans</i>
Dextranase EC 3.2.1.11	<i>Chaetomium gracile</i> <i>Penicillium lilacinum</i>
Endo-arabinase EC 3.2.1.99	<i>Aspergillus niger</i>
Endo-protease EC 3.4.21.26	<i>Aspergillus niger</i>
$\beta$ -Fructofuranosidase EC 3.2.1.26	<i>Aspergillus niger</i> <i>Saccharomyces cerevisiae</i>
$\alpha$ -Galactosidase EC 3.2.1.22	<i>Aspergillus niger</i>
$\beta$ -Galactosidase EC 3.2.1.23	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Bacillus circulans</i> ATCC 31382 <i>Kluyveromyces marxianus</i> <i>Kluyveromyces lactis</i>
Glucan 1,3- $\beta$ -glucosidase EC 3.2.1.58	<i>Trichoderma harzianum</i>
$\beta$ -Glucanase EC 3.2.1.6	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus subtilis</i> <i>Disporotrichum dimorphosporum</i> <i>Humicola insolens</i> <i>Talaromyces emersonii</i> <i>Trichoderma reesei</i>

Enzyme	Source
Glucoamylase EC 3.2.1.3	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Rhizopus delemar</i> <i>Rhizopus oryzae</i> <i>Rhizopus niveus</i>
Glucose oxidase EC 1.1.3.4	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> , containing the gene for glucose oxidase isolated from <i>Aspergillus niger</i>
$\alpha$ -Glucosidase EC 3.2.1.20	<i>Aspergillus oryzae</i> <i>Aspergillus niger</i>
$\beta$ -Glucosidase EC 3.2.1.21	<i>Aspergillus niger</i>
Glycerophospholipid cholesterol acyltransferase, protein engineered variant EC 2.3.1.43	<i>Bacillus licheniformis</i> , containing the gene for glycerophospholipid cholesterol acyltransferase isolated from <i>Aeromonas salmonicida</i> subsp. <i>salmonicida</i>
Hemicellulase endo-1,3- $\beta$ -xylanase EC 3.2.1.32	<i>Humicola insolens</i>
Hemicellulase endo-1,4- $\beta$ -xylanase EC 3.2.1.8	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Aspergillus oryzae</i> , containing the gene for Endo-1,4- $\beta$ -xylanase isolated from <i>Aspergillus aculeatus</i> <i>Aspergillus oryzae</i> , containing the gene for Endo-1,4- $\beta$ -xylanase isolated from <i>Thermomyces lanuginosus</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus subtilis</i> <i>Humicola insolens</i> <i>Trichoderma reesei</i>
Hemicellulase multicomponent enzyme EC 3.2.1.78	<i>Aspergillus niger</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus subtilis</i> <i>Trichoderma reesei</i>
Hexose oxidase EC 1.1.3.5	<i>Hansenula polymorpha</i> , containing the gene for Hexose oxidase isolated from <i>Chondrus crispus</i>
Inulinase EC 3.2.1.7	<i>Aspergillus niger</i>
Lipase, monoacylglycerol EC 3.1.1.23	<i>Penicillium camembertii</i>
Lipase, triacylglycerol EC 3.1.1.3	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Aspergillus oryzae</i> , containing the gene for Lipase, triacylglycerol isolated from <i>Fusarium oxysporum</i> <i>Aspergillus oryzae</i> , containing the gene for Lipase, triacylglycerol isolated from <i>Humicola lanuginosa</i> <i>Aspergillus oryzae</i> , containing the gene for Lipase, triacylglycerol isolated from <i>Rhizomucor miehei</i> <i>Candida rugosa</i> <i>Hansenula polymorpha</i> , containing the gene for Lipase, triacylglycerol isolated from <i>Fusarium heterosporum</i> <i>Mucor javanicus</i> <i>Penicillium roquefortii</i> <i>Rhizopus arrhizus</i> <i>Rhizomucor miehei</i> <i>Rhizopus niveus</i> <i>Rhizopus oryzae</i>
Lipase, triacylglycerol, protein engineered variant EC 3.1.1.3	<i>Aspergillus niger</i> , containing the gene for lipase, triacylglycerol isolated from <i>Fusarium culmorum</i>
Lysophospholipase EC 3.1.1.5	<i>Aspergillus niger</i>
Maltogenic $\alpha$ -amylase EC 3.2.1.133	<i>Bacillus subtilis</i> containing the gene for maltogenic $\alpha$ -amylase isolated from <i>Geobacillus stearothermophilus</i>
Maltotetraohydrolase, protein engineered variant EC 3.2.1.60	<i>Bacillus licheniformis</i> , containing the gene for maltotetraohydrolase isolated from <i>Pseudomonas stutzeri</i>

Enzyme	Source
Metalloproteinase	<i>Aspergillus oryzae</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus coagulans</i> <i>Bacillus subtilis</i>
Mucorpepsin EC 3.4.23.23	<i>Aspergillus oryzae</i> <i>Aspergillus oryzae</i> , containing the gene for Aspartic proteinase isolated from <i>Rhizomucor miehei</i> <i>Rhizomucor miehei</i> <i>Cryphonectria parasitica</i>
Pectin lyase EC 4.2.2.10	<i>Aspergillus niger</i>
Pectinesterase EC 3.1.1.11	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> , containing the gene for pectinesterase isolated from <i>Aspergillus aculeatus</i>
Phospholipase A <sub>1</sub> EC 3.1.1.32	<i>Aspergillus oryzae</i> , containing the gene for phospholipase A <sub>1</sub> isolated from <i>Fusarium venenatum</i>
Phospholipase A <sub>2</sub> EC 3.1.1.4	<i>Aspergillus niger</i> , containing the gene isolated from porcine pancreas <i>Streptomyces violaceoruber</i>
3-Phytase EC 3.1.3.8	<i>Aspergillus niger</i>
4-Phytase EC 3.1.3.26	<i>Aspergillus oryzae</i> , containing the gene for 4-phytase isolated from <i>Peniophora lycii</i>
Polygalacturonase or Pectinase multicomponent enzyme EC 3.2.1.15	<i>Aspergillus niger</i> <i>Aspergillus oryzae</i> <i>Trichoderma reesei</i>
Pullulanase EC 3.2.1.41	<i>Bacillus acidopullulyticus</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus licheniformis</i> <i>Bacillus subtilis</i> <i>Bacillus subtilis</i> , containing the gene for pullulanase isolated from <i>Bacillus acidopullulyticus</i> <i>Klebsiella pneumoniae</i>
Serine proteinase EC 3.4.21.14	<i>Aspergillus oryzae</i> <i>Bacillus amyloliquefaciens</i> <i>Bacillus halodurans</i> <i>Bacillus licheniformis</i> <i>Bacillus subtilis</i>
Transglucosidase EC 2.4.1.24	<i>Aspergillus niger</i>
Transglutaminase EC 2.3.2.13	<i>Streptomyces mobaraensis</i>
Urease EC 3.5.1.5	<i>Lactobacillus fermentum</i>
Xylose isomerase EC 5.3.1.5	<i>Actinoplanes missouriensis</i> <i>Bacillus coagulans</i> <i>Microbacterium arborescens</i> <i>Streptomyces olivaceus</i> <i>Streptomyces olivochromogenes</i> <i>Streptomyces murinus</i> <i>Streptomyces rubiginosus</i>

**Editorial note:**

*Bacillus amyloliquefaciens* is a separate species from *Bacillus subtilis*.  
*Aspergillus niger* group covers strains known under the names *Aspergillus aculeatus*, *A. awamori*, *A. ficuum*, *A. foetidus*, *A. japonicus*, *A. phoenicis*, *A. saitor* and *A. usamii*.  
*Trichoderma reesei* also known as *Trichoderma longibrachiatum*.  
*Kluyveromyces marxianus* – former names *Saccharomyces fragilis* and *Kluyveromyces fragilis*.  
*Kluyveromyces lactis* – former name *Saccharomyces lactis*.  
*Rhizomucor miehei* – former name *Mucor miehei*.  
*Micrococcus luteus* – former name *Micrococcus lysodeikticus*.  
*Paenibacillus macerans* – former name *Bacillus macerans*.

*Talaromyces emersonii* – former name *Penicillium emersonii*.  
*Klebsiella pneumoniae* – former name *Klebsiella aerogenes*.  
*Streptomyces mobaraensis* – former name *Streptovercillium mobaraensis*.  
*Humicola lanuginosa* also known as *Thermomyces lanuginosus*.  
*Mucor javanicus* also known as *Mucor circinelloides* f. *circinelloides*.  
*Penicillium roquefortii* also known as *Penicillium roqueforti*.  
*Hansenula polymorpha* also known as *Pichia angusta*.  
*Geobacillus stearothermophilus* – former name *Bacillus stearothermophilus*.  
 4-Phytase also known as 6-phytase.

## 18 Permitted microbial nutrients and microbial nutrient adjuncts

The processing aids listed in the Table to this clause may be used as microbial nutrients or microbial nutrient adjuncts in the course of manufacture of any food.

Table to clause 18

Adenine
Adonitol
Ammonium sulphate
Ammonium sulphite
Arginine
Asparagine
Aspartic acid
Benzoic acid
Biotin
Calcium pantothenate
Calcium propionate
Copper sulphate
Cystine
Cysteine monohydrochloride
Dextran
Ferrous sulphate
Glutamic acid
Glycine
Guanine
Histidine
Hydroxyethyl starch
Inosine
Inositol
Manganese chloride
Manganese sulphate
Niacin
Nitric acid
Pantothenic acid
Peptone
Phytates
Polyvinylpyrrolidone
Pyridoxine hydrochloride
Riboflavin
Sodium formate
Sodium molybdate
Sodium tetraborate
Thiamin
Threonine
Uracil
Xanthine
Zinc chloride
Zinc sulphate



**19 Dimethyl dicarbonate as a microbial control agent**

- (1) Dimethyl dicarbonate may be added in the manufacture of a food listed in Column 1 in the Table at a concentration no more than the maximum permitted addition level in Column 2 in the Table.
- (2) Dimethyl dicarbonate must not be present in the food as sold.

**Table to clause 19**

<b>Column 1</b>	<b>Column 2</b>
<b>Food</b>	<b>Maximum permitted addition level (amount of dimethyl dicarbonate/ amount of food)</b>
Fruit and vegetable juices and fruit and vegetable juice product	250 mg/kg
Water-based flavoured drinks	250 mg/kg
Formulated beverages	250 mg/kg
Wine, sparkling wine and fortified wine; and fruit wine, vegetable wine and mead (including cider and perry)	200 mg/kg

## Amendment History

The Amendment History provides information about each amendment to the Standard. The information includes commencement or cessation information for relevant amendments.

These amendments are made under section 92 of the *Food Standards Australia New Zealand Act 1991* unless otherwise indicated. Amendments do not have a specific date for cessation unless indicated as such.

### About this compilation

This is a compilation of Standard 1.3.3 as in force on **30 October 2014** (up to Amendment No. 150). It includes any commenced amendment affecting the compilation to that date.

Prepared by Food Standards Australia New Zealand on **30 October 2014**.

### Uncommenced amendments or provisions ceasing to have effect

To assist stakeholders, the effect of any uncommenced amendments or provisions which will cease to have effect, may be reflected in the Standard as shaded boxed text with the relevant commencement or cessation date. These amendments will be reflected in a compilation registered on the Federal Register of Legislative Instruments including or omitting those amendments and provided in the Amendment History once the date is passed.

The following abbreviations may be used in the table below:

ad = added or inserted	am = amended
exp = expired or ceased to have effect	rep = repealed
rs = repealed and substituted	

**Standard 1.3.3** was published in the Commonwealth of Australia Gazette No. P 30 on 20 December 2000 as part of Amendment No. 53 (F2008B00616 – 30 September 2008) and has been amended as follows:

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table of Provs	64	F2008B00810 23 Dec 2008 FSC6 13 Dec 2002	13 Dec 2002	am	Consequential amendment relating to change to clause 6 heading.
Table of Provs	121	F2011L00213 9 Feb 2011 FSC63 10 Feb 2011	10 Feb 2011	ad, am	Consequential amendment relating to new clause 19.
Table of Provs	144	F2013L02039 3 Dec 2013 FSC 86 5 Dec 2013	5 June 2014	ad	Consequential amendment relating to new clause 3A.
1	88	5 Oct 2006 F2006L03270 FSC30 5 Oct 2006	5 Oct 2006	am	Definition of 'maximum permitted level'.
1	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Reference in the definition of 'maximum permitted level'.
1	94	F2007L04074 11 Oct 2007 FSC36 11 Oct 2007	11 Oct 2007	rs	Definition of 'EC number'.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
1	103	F2008L03741 9 Oct 2008 FSC45 9 Oct 2008	9 Oct 2008	ad	Definition of 'silicates'.
1	111	F2009L03145 13 Aug 2009 FSC53 13 Aug 2009	13 Aug 2009	am	Anomalies relating to silicas and silicates.
1	117	F2010L01841 29 June 2010 FSC59 1 July 2010	1 July 2010	ad	New subclause to clarify the meaning of reference to 'ATCC'.
1	121	F2011L00213 9 Feb 2011 FSC63 10 Feb 2011	10 Feb 2011	am	Definition of 'processing aid' to include new clause 19.
1	124	F2011L01450 8 July 2011 FSC66 11 July 2011	11 July 2011	rep, am	Definition of 'GMP' and a consequential amendment to the definition of 'processing aid'.
1	130	F2012L00929 26 April 2012 FSC72 26 April 2012	26 April 2012	ad	Definition of 'dairy ingredient'.
1	135	F2012L02011 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2012	ad	Definition of 'approved food for use of phage'.
3	144	F2013L02039 3 Dec 2013 FSC 86 5 Dec 2013	5 June 2014	am	Consequential amendment relating to new clause 3A.
3A	144	F2013L02039 3 Dec 2013 FSC 86 5 Dec 2013	5 June 2014	ad	New clause on restriction of the use of carbon monoxide in the processing of fish.
Table to clause 3	70	24 Dec 2008 F2008B00817 FSC12 29 April 2004	29 April 2004	ad	Entry for argon.
Table to clause 3	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
Table to clause 3	101	F2008L03058 14 Aug 2008 FSC43 14 Aug 2008	14 Aug 2008	rep	Editorial note after the Table.
Table to clause 3	111	F2009L03145 13 Aug 2009 FSC53 13 Aug 2009	13 Aug 2009	am	Anomalies relating to silicas and silicates.
Table to clause 4	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
Table to clause 5	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
6	64	F2008B00810 23 Dec 2008 FSC6 13 Dec 2002	13 Dec 2002	rs	Clarification of purposed of clause to include adsorbent agents.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table to clause 6	122	F2011L00694 5 May 2011 FSC64 5 May 2011	5 May 2011	am	Entry for polyvinyl polypyrrolidone to include co-extruded polystyrene.
Table to clause 7	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
Table to clause 8	58	F200800796 10 Dec 2008 P28 20 Dec 2001	20 Dec 2001	ad	Entries for carboxymethyl, quaternary amine and diethyl aminoethyl cellulose-based ion exchange resins.
Table to clause 8	103	F2008L03741 9 Oct 2008 FSC45 9 Oct 2008	9 Oct 2008	am	Wording for 'does not exceed'.
Table to clause 8	103	F2008L03741 9 Oct 2008 FSC45 9 Oct 2008	9 Oct 2008	am	Entry for methyl acrylate-divinylbenzene-diethylene ether terpolymer.
Table to clause 8	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	am	Spelling of dimethylaminopropylamine.
9	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	rs	Editorial note after the clause relating to white mineral oil.
Table to clause 9	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency in Table and Editorial note after Table.
Table to clause 10	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
11	78	F2005L01246 26 May 2005 FSC20, 26 May 2005	26 May 2005	am	Spelling of phosphorous.
11	110	F2009L02678 16 July 2009 FSC52 16 July 2009	16 July 2009	rs	Clause.
11	124	F2011L01450 8 July 2011 FSC66 11 July 2011	11 July 2011	am	Clarification of meaning of the clause.
Table to clause 11	58	F200800796 10 Dec 2008 P28 20 Dec 2001	20 Dec 2001	rs	Entry for regenerated cellulose.
Table to clause 11	67	F2008B00814 24 Dec 2008 FSC9 31 July 2003	31 July 2003	am	Correction of minor typographical errors.
Table to clause 11	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
Table to clause 11	103	F2008L03741 9 Oct 2008 FSC45 9 Oct 2008	9 Oct 2008	am	Wording for 'does not exceed'.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table to clause 11	110	F2009L02678 16 July 2009 FSC52 16 July 2009	16 July 2009	ad	Entries for hydrofluorosilicic acid (fluorosilicic acid), sodium fluoride and sodium fluorosilicate (sodium silicofluoride) and Editorial note after the Table.
Table to clause 11	139	F2013L00248 21 Feb 2013 FSC81 21 Feb 2013	21 February 2013	am	Maximum permitted level for styrene-divinylbenzene cross-linked copolymer.
Table to clause 12	54	F2008B00790 9 Dec 2008 P17, 14 June 2001	14 June 2001	ad	Entry for bromo-chloro-dimethylhydantoin.
Table to clause 12	78	F2005L01246 26 May 2005 FSC20, 26 May 2005	26 May 2005	ad	Entry for iodine and related Editorial note.
Table to clause 12	101	F2008L03058 14 Aug 2008 FSC43 14 Aug 2008	14 Aug 2008	am	Editorial note after the Table.
Table to clause 12	131	F2012L01060 22 May 2012 FSC73 24 May 2012	24 May 2012	ad	Entry for dibromo-dimethylhydantoin.
Table to clause 13	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
Table to clause 13	130	F2012L00929 26 April 2012 F2012L00930 26 April 2012 FSC72 26 April 2012	26 April 2012	ad	Entries for dimethyl ether.
Table to clause 13	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	rs	Entries for dimethyl ether to form a single entry.
14	65	23 Dec 2008 F2008B00812 FSC7 27 Feb 2003	27 Feb 2003	ad	New Editorial note preceding the clause referring to permission for lactoperoxidase.
14	124	F2011L01450 8 July 2011 FSC66 11 July 2011	11 July 2011	am	Clarification of meaning of the clause.
Table to clause 14	64	F2008B00810 23 Dec 2008 FSC6 13 Dec 2002	13 Dec 2002	am	Entry for ethylene oxide.
Table to clause 14	65	23 Dec 2008 F2008B00812 FSC7 27 Feb 2003	27 Feb 2003	ad	Entry for sodium thiocyanate.
Table to clause 14	65	23 Dec 2008 F2008B00812 FSC7 27 Feb 2003	27 Feb 2003	ad	Permission for lactoperoxidase.
Table to clause 14	70	24 Dec 2008 F2008B00817 FSC12 29 April 2004	29 April 2004	ad	Entries for cupric citrate on a bentonite base and sodium chlorite and related Editorial note.
Table to clause 14	72	F2008B00819 24 Dec 2008 FSC14 20 May 2004	20 May 2004	am	Reference from 'oak chips' to refer to 'oak'.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table to clause 14	78	F2005L01246 26 May 2005 FSC20, 26 May 2005	26 May 2005	ad	Entries for 1-hydroxyethylidene-1,1-diphosphonic acid and octanoic acid.
Table to clause 14	83	F2005L03673 24 Nov 2005 FSC25 24 Nov 2005	24 Nov 2005	ad	Reference to Ice structuring protein type III HPLC 12 in table and in Editorial note after the Table.
Table to clause 14	88	5 Oct 2006 F2006L03270 FSC30 5 Oct 2006	5 Oct 2006	rep	Entry ethylene oxide.
Table to clause 14	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency in Table and Editorial note before Table.
Table to clause 14	94	F2007L04074 11 Oct 2007 FSC36 11 Oct 2007	11 Oct 2007	rs	Entry for cupric citrate
Table to clause 14	96	F2008L00523 21 Feb 2008 FSC38 21 Feb 2008	21 Feb 2008	ad	Entry for agarose ion exchange resin.
Table to clause 14	101	F2008L03058 14 Aug 2008 FSC43 14 Aug 2008	14 Aug 2008	am	Editorial note after the Table.
Table to clause 14	124	F2011L01450 8 July 2011 FSC66 11 July 2011	11 July 2011	am	Entry for lactoperoxidase.
Table to clause 14	124	F2011L01450 8 July 2011 FSC66 11 July 2011	11 July 2011	ad	Entry for colours permitted in Schedules 2, 3 and 4 of Standard 1.3.1.
Table to clause 14	135	F2012L02011 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	ad	Entry for <i>Listeria</i> phage P100 and a related Editorial note after the Table.
Table to clause 14	137	F2012L02254 26 Nov 2012 FSC79 29 Nov 2012	29 Nov 2012	am	Entry for hydrogen peroxide.
Table to clause 14	145	F2014L00033 6 Jan 2014 FSC87 9 Jan 2014	9 Jan 2014	ad	Entry for chitosan sourced from <i>Aspergillus niger</i> .
Table to clause 14	150	F2014L01427 28 Oct 2014 FSC92 30 Oct 2014	30 Oct 2014	am	Entry for hydrogen peroxide to clarify application of requirements.
Table to clause 15	94	F2007L04074 11 Oct 2007 FSC36 11 Oct 2007	11 Oct 2007	rs	Table.
Table to clause 16	94	F2007L04074 11 Oct 2007 FSC36 11 Oct 2007	11 Oct 2007	rs	Table.
Table to clause 16	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	rs	Entry for bromelain and insert entries for stem bromelain and fruit bromelain.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
17	117	F2010L01841 29 June 2010 FSC59 1 July 2010	1 July 2010	ad	Editorial Note after the clause relating to labelling requirements for processing aids produced using gene technology.
Table to clause 17	58	F200800796 10 Dec 2008 P28 20 Dec 2001	20 Dec 2001	ad	Entries for 6-phytase and new source for Lipase, triacylglycerol.
Table to clause 17	58	F200800796 10 Dec 2008 P28 20 Dec 2001	20 Dec 2001	rs	Entry for phytase and pectinesterase.
Table to clause 17	59	F2008B00797 10 Dec 2008 FSC1 9 May 2002	9 May 2002	am	Entry for chymosin.
Table to clause 17	60	F2008B00798 19 Dec 2008 FSC2 20 June 2002	20 June 2002	am	Entry for lipase, triacylglycerol.
Table to clause 17	65	23 Dec 2008 F2008B00812 FSC7 27 Feb 2003	27 Feb 2003	ad	New source for glucose oxidase.
Table to clause 17	66	F2008B00813 23 Dec 2008 FSC8 22 May 2003	22 May 2003	ad	Entry for transglucosidase.
Table to clause 17	67	F2008B00814 24 Dec 2008 FSC9 31 July 2003	31 July 2003	ad	New source for $\alpha$ -amylase.
Table to clause 17	67	F2008B00814 24 Dec 2008 FSC9 31 July 2003	31 July 2003	ad	Inclusion of alternate name for <i>Humicola lanuginosa</i> in Editorial note after the Table.
Table to clause 17	68	F2008B00815 24 Dec 2008 FSC10 18 Sept 2003	18 Sept 2003	ad	Entry for hexose oxidase.
Table to clause 17	70	24 Dec 2008 F2008B00817 FSC12 29 April 2004	29 April 2004	ad	Entries for lysophospholipase and urease.
Table to clause 17	75	F2008B00822 24 Dec 2008 FSC17 16 Dec 2004	16 Dec 2004	ad	Entry for phospholipase A <sub>2</sub> .
Table to clause 17	83	F2005L03673 24 Nov 2005 FSC25 24 Nov 2005	24 Nov 2005	am	Entry for lipase, triacylglycerol.
Table to clause 17	86	F2006L01578 25 May 2006 FSC28 25 May 2006	25 May 2006	ad	New source for lipase, triacylglycerol in Table and Editorial note after the Table.
Table to clause 17	87	F2006L02539 3 Aug 2006 FSC29 8 Aug 2006	8 Aug 2006	ad	New source for lipase, triacylglycerol in Table and Editorial note after the Table.
Table to clause 17	87	F2006L02539 3 Aug 2006 FSC29 8 Aug 2006	8 Aug 2006	ad	Entry for phospholipase A <sub>1</sub> .
Table to clause 17	90	F2006L03956 7 Dec 2006 FSC32 7 Dec 2006	7 Dec 2006	ad	New source for lipase, triacylglycerol in Table and Editorial note after the Table

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table to 17	94	F2007L04074 11 Oct 2007 FSC36 11 Oct 2007	11 Oct 2007	rs	Table and Editorial note after the Table.
Table to clause 17	100	F2008L02396 10 Jul 2008 FSC42 10 July 2008	10 July 2008	ad	Entry for asparaginase.
Table to clause 17	104	F2008L04541 4 Dec 2008 FSC46 4 De 2008	4 Dec 2008	ad	New source for asparaginase.
Table to clause 17	107	F2009L01618 30 Apr 2009 FSC49 30 April 2009	30 April 2009	ad	New source for phospholipase A <sub>2</sub> .
Table to clause 17	108	F2009L02066 28 May 2009 FSC50 28 May 2009	28 May 2009	ad	New source for cellulase.
Table to clause 17	111	F2009L03145 13 Aug 2009 FSC53 13 Aug 2009	13 Aug 2009	rep, am	Duplicated entry for asparaginase and consequential amendment to ammonium chloride.
Table to clause 17	117	F2010L01841 29 June 2010 FSC59 1 July 2010	1 July 2010	ad	New source for β-galactosidase and entry for maltotetraohydrolase..
Table to clause 17	119	F2010L02542 30 Sept 2010 FSC61 30 Sept 2010	30 Sept 2010	ad	Entry for a protein-engineered variant of triacylglycerol lipase.
Table to clause 17	125	F2011L01830 7 Sept 2011 FSC67 8 Sept 2011	8 Sept 2011	ad	Entry for glycerophospholipid cholesterol acyltransferase.
Table to clause 17	128	F2011L01830 10 Jan 2012 FSC70 12 Jan 2012	12 January 2012	ad	Entry for endo-protease.
Table to clause 17	131	F2012L01060 22 May 2012 FSC73 24 May 2012	24 May 2012	ad	Entry for amyloamylase.
Table to clause 17	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	am	Spelling of <i>Lactococcus</i> , <i>Micrococcus</i> , <i>Rhizopus</i> and <i>amyloliquefaciens</i> .
Table to clause 17	135	F2012L02014 10 Oct 2012 FSC77 11 Oct 2012	11 Oct 2011	am	Formatting error in Editorial note after the Table.
Table to clause 17	142	30 July 2013 F2013 L01465 FSC84 1 Aug 2012	1 Aug 2013	rep	Entry for invertase.
Table to clause 17	142	30 July 2013 F2013 L01465 FSC84 1 Aug 2012	1 Aug 2013	ad	Entry for β-Fructofuranosidase.
Table to clause 18	56	F2008B00794 9 Dec 2008 P24 20 Sept 2001	20 Sept 2001	ad	To insert an Australia only Standard for ethylene oxide until 30 September 2003.
Table to clause 18	70	24 Dec 2008 F2008B00817 FSC12 29 April 2004	29 April 2004	ad	Entry for ammonium sulphite.



Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Table to clause 18	91	15 Feb 2007 F2007L00373 FSC33 15 Feb 2007	15 Feb 2007	am	Errors and duplications, remove anomalies and improve consistency.
19	121	F2011L00213 9 Feb 2011 FSC63 10 Feb 2011	10 Feb 2011	ad, am	New clause relating to dimethyl dicarbonate