Schedule 18 Processing aids

***Note 1*** This instrument is a standard under the *Food Standards Australia New Zealand Act 1991* (Cth). The standards together make up the *Australia New Zealand Food Standards Code.* See also section 1.1.1—3.

Substances used as processing aids are regulated by Standard 1.1.1 and Standard 1.3.3. This standard lists substances that may be used as processing aids for paragraph 1.1.2—13(3)(a) and contains permissions to use substances as processing aids for Standard 1.3.3.

***Note 2*** The provisions of the Code that apply in New Zealand are incorporated in, or adopted under, the *Food Act 2014* (NZ). See also section 1.1.1—3.

S18—1 Name

This Standard is *Australia New Zealand Food Standards Code* – Schedule 18 – Processing aids.

***Note*** Commencement:This Standard commences on 1 March 2016, being the date specified as the commencement date in notices in the *Gazette* and the New Zealand Gazette under section 92 of the *Food Standards Australia New Zealand Act 1991* (Cth). See also section 93 of that Act.

S18—2 Generally permitted processing aids—substances for section 1.3.3—4

(1) For paragraph 1.3.3—4(2)(b), the substances are:

Generally permitted processing aids

|  |
| --- |
| 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 |

(2) In this section:

***silica*** or ***silicates*** includes:

(a) sodium calcium polyphosphate silicate; and

(b) sodium hexafluorosilicate; and

(c) sodium metasilicate; and

(d) sodium silicate; and

(e) silica; and

(f) modified silica;

that complies with a specification in section S3—2 or S3—3.

***Note*** Silicates that are additives permitted at GMP (see section S16—2) may also be used as processing aids, in accordance with paragraph 1.3.3—4(2)(a).

S18—3 Permitted processing aids for certain purposes

For section 1.3.3—5, the substances, foods and maximum permitted levels are:

Permitted processing aids for certain purposes (section 1.3.3—5)

| Substance | Maximum permitted level (mg/kg) |
| --- | --- |
| Technological purpose—Antifoam agent | | |
| Butanol | 10 | |
| Oxystearin | GMP | |
| Polydimethylsiloxane | 10 | |
| Polyethylene glycol dioleate | GMP | |
| Polyethylene/ polypropylene glycol copolymers | GMP | |
| Soap | GMP | |
| Sorbitan monolaurate | 1 | |
| Sorbitan monooleate | 1 | |
| Technological purpose—Catalyst | | |
| Chromium (excluding chromium VI) | 0.1 | |
| Copper | 0.1 | |
| 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 | |
| Technological purpose—decolourants, clarifying, filtration and adsorbent agents | | |
| Acid clays of montmorillonite | GMP | |
| Chloromethylated aminated styrene‑divinylbenzene resin | GMP | |
| Co-extruded polystyrene and polyvinyl polypyrrolidone | 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 polypyrrolidone | GMP | |
| Potassium ferrocyanide | 0.1 | |
| Technological purpose—desiccating preparation | | |
| Aluminium sulphate | GMP | |
| Ethyl esters of fatty acids | GMP | |
| Short chain triglycerides | GMP | |
| Technological purpose—ion exchange resin |  | |
| 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 tetraethylenepentamine 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 amount of cellulose | GMP | |
| Regenerated cellulose, cross-linked and alkylated with epichlorohydrin, then derivatised with tertiary amine groups whereby the amount of epichlorohydrin is no more than 10% of the starting amount 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 amount 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 amount 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 | |
| Technological purpose—lubricant, release and anti-stick agent |  | |
| Acetylated mono- and diglycerides | 100 | |
| Mineral oil based greases | GMP | |
| Thermally oxidised soya-bean oil | 320 | |
| White mineral oil | GMP | |
| Technological purpose—carrier, solvent, diluent |  | |
| 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 | |

S18—4 Permitted enzymes

(1) For section 1.3.3—6, the enzymes and sources are set out in:

(a) subsection (3) (permitted enzymes of animal origin); and

(b) subsection (4) (permitted enzymes of plant origin); and

(c) subsection (5) (permitted enzymes of microbial origin).

(2) The sources listed in relation to enzymes of microbial origin may contain additional copies of genes from the same organism.

***Note 1*** EC, followed by a number, means the number the Enzyme Commission uses to classify the principal enzyme activity, which is known as the Enzyme Commission number.

***Note 2*** ATCC, followed by a number, means the number which the American Type Culture Collection uses to identify a prokaryote.

***Note 3*** Some enzyme sources identified in this section are protein engineered. If such an enzyme is used as a processing aid, the resulting food may have as an ingredient a food produced using gene technology, and the requirements relating to foods produced using gene technology will apply—see Standard 1.2.1 and Standard 1.5.2. The relevant enzymes are the following:

● Glycerophospholipid cholesterol acyltransferase, protein engineered variant;

● Lipase, triacylglycerol, protein engineered variant;

● Maltotetraohydrolase, protein engineered variant;

(3) The permitted enzymes of animal origin are:

Permitted enzymes (section 1.3.3—6)—Enzymes of animal origin

| 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 A2 (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 |

(4) The permitted enzymes of plant origin are:

Permitted enzymes (section 1.3.3—6)—Enzymes of plant origin

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

(5) The permitted enzymes of microbial origin are:

Permitted enzymes (section 1.3.3—6)—Enzymes of microbial origin

| Enzyme | Source |
| --- | --- |
| α-Acetolactate decarboxylase (EC 4.1.1.5) | *Bacillus amyloliquefaciens*  *Bacillus subtilis*  *Bacillus subtilis*, containing the gene for α-Acetolactate decarboxylase isolated from *Bacillus brevis* |
| Aminopeptidase (EC 3.4.11.1) | *Aspergillus oryzae*  *Lactococcus lactis* |
| α-Amylase (EC 3.2.1.1) | *Aspergillus niger*  *Aspergillus oryzae*  *Bacillus amyloliquefaciens*  *Bacillus licheniformis*  *Bacillus licheniformis*, containing the gene for α-Amylase isolated from *Geobacillus stearothermophilus*  *Bacillus subtilis*  *Bacillus subtilis*, containing the gene for α-Amylase isolated from *Geobacillus stearothermophilus*  *Geobacillus stearothermophilus* |
| β-Amylase (EC 3.2.1.2) | *Bacillus amyloliquefaciens*  *Bacillus subtilis* |
| Amylomaltase (EC 2.4.1.25) | *Bacillus amyloliquefaciens*, containing the gene for amylomaltase derived from *Thermus thermophilus* |
| α-Arabinofuranosidase (EC 3.2.1.55) | *Aspergillus niger* |
| Asparaginase (EC 3.5.1.1) | *Aspergillus niger*  *Aspergillus oryzae*  *Bacillus subtilis*, containing the gene for asparaginase isolated from *Pyrococcus furiosus* |
| Aspergillopepsin I (EC 3.4.23.18) | *Aspergillus niger*  *Aspergillus oryzae* |
| Aspergillopepsin II (EC 3.4.23.19) | *Aspergillus niger* |
| Carboxylesterase (EC 3.1.1.1) | *Rhizomucor miehei* |
| Catalase (EC 1.11.1.6) | *Aspergillus niger*  *Micrococcus luteus* |
| Cellulase (EC 3.2.1.4) | *Aspergillus niger*  *Penicillium funiculosum*  *Trichoderma reesei*  *Trichoderma viride* |
| Chymosin (EC 3.4.23.4) | *Aspergillus niger*  *Escherichia coli* K-12 strain GE81  *Kluyveromyces lactis* |
| Chymotrypsin (EC 3.4.21.1) | *Bacillus licheniformis*, containing the gene for chymotrypsin isolated from *Nocardiopsis prasina* |
| Cyclodextrin glucanotransferase (EC 2.4.1.19) | *Paenibacillus macerans* |
| Dextranase (EC 3.2.1.11) | *Chaetomium gracile*  *Penicillium lilacinum* |
| Endo-1,4-beta-xylanase (EC 3.2.1.8) | *Aspergillus niger*  *Aspergillus oryzae*  *Aspergillus oryzae*, containing the gene for Endo-1,4-beta-xylanase isolated from *Aspergillus aculeatus*  *Aspergillus oryzae*, containing the gene for Endo-1,4-beta-xylanase isolated from *Thermomyces lanuginosus*  *Bacillus amyloliquefaciens*  *Bacillus subtilis*  *Humicola insolens*  *Trichoderma reesei* |
| Endo-1,4-beta-xylanase, protein engineered variant (EC 3.2.1.8) | *Bacillus licheniformis*, containing the gene for Endo-1,4-beta-xylanase isolated from *Bacillus licheniformis* |
| Endo-arabinase (EC 3.2.1.99) | *Aspergillus niger* |
| Endo-protease (EC 3.4.21.26) | *Aspergillus niger* |
| β-Fructofuranosidase (EC 3.2.1.26) | *Aspergillus niger*  *Saccharomyces cerevisiae* |
| α-Galactosidase (EC 3.2.1.22) | *Aspergillus niger* |
| β-Galactosidase (EC 3.2.1.23) | *Aspergillus niger*  *Aspergillus oryzae*  *Bacillus circulans* ATCC 31382  *Bacillus licheniformis*, containing the gene for β-Galactosidase isolated from *Bifidobacterium bifidum*  *Kluyveromyces marxianus*  *Kluyveromyces lactis* |
| Glucan 1,3-β-glucosidase (EC 3.2.1.58) | *Trichoderma harzianum* |
| β-Glucanase (EC 3.2.1.6) | *Aspergillus niger*  *Aspergillus oryzae*  *Bacillus amyloliquefaciens*  *Bacillus subtilis*  *Disporotrichum dimorphosporum*  *Humicola insolens*  *Talaromyces emersonii*  *Trichoderma reesei* |
| Glucoamylase (EC 3.2.1.3) | *Aspergillus niger*  *Aspergillus oryzae*  *Rhizopus delemar*  *Rhizopus oryzae*  *Rhizopus niveus* |
| Glucose oxidase (EC 1.1.3.4) | *Aspergillus niger*  *Aspergillus oryzae*, containing the gene for glucose oxidase isolated from *Aspergillus niger* |
| α-Glucosidase (EC 3.2.1.20) | *Aspergillus oryzae*  *Aspergillus niger* |
| β-Glucosidase (EC 3.2.1.21) | *Aspergillus niger* |
| Glutaminase (EC 3.5.1.2) | *Bacillus amyloliquefaciens* |
| Glycerophospholipid cholesterol acyltransferase, protein engineered variant (EC 2.3.1.43) | *Bacillus licheniformis*, containing the gene for glycerophospholipid cholesterol acyltransferase isolated from *Aeromonas salmonicida* subsp. *salmonicida* |
| Hemicellulase endo-1,3-β-xylanase (EC 3.2.1.32) | *Humicola insolens* |
| Hemicellulase multicomponent enzyme (EC 3.2.1.78) | *Aspergillus niger*  *Bacillus amyloliquefaciens*  *Bacillus subtilis*  *Trichoderma reesei* |
| Hexose oxidase (EC 1.1.3.5) | *Hansenula polymorpha*, containing the gene for Hexose oxidase isolated from *Chondrus crispus* |
| Inulinase (EC 3.2.1.7) | *Aspergillus niger* |
| Lipase, monoacylglycerol (EC 3.1.1.23) | *Penicillium camembertii* |
| Lipase, triacylglycerol (EC 3.1.1.3) | *Aspergillus niger*  *Aspergillus oryzae*  *Aspergillus oryzae*, containing the gene for Lipase, triacylglycerol isolated from *Fusarium oxysporum*  *Aspergillus oryzae*, containing the gene for Lipase, triacylglycerol isolated from *Humicola lanuginosa*  *Aspergillus oryzae*, containing the gene for Lipase, triacylglycerol isolated from *Rhizomucor miehei*  *Candida rugosa*  *Hansenula polymorpha*, containing the gene for Lipase, triacylglycerol isolated from *Fusarium heterosporum*  *Mucor javanicus*  *Penicillium roquefortii*  *Rhizopus arrhizus*  *Rhizomucor miehei*  *Rhizopus niveus*  *Rhizopus oryzae* |
| Lipase, triacylglycerol, protein engineered variant (EC 3.1.1.3) | *Aspergillus niger*, containing the gene for lipase, triacylglycerol isolated from *Fusarium culmorum* |
| Lysophospholipase (EC 3.1.1.5) | *Aspergillus niger* |
| Maltogenic α-amylase (EC 3.2.1.133) | *Bacillus subtilis* containing the gene for maltogenic α-amylase isolated from *Geobacillus stearothermophilus* |
| Maltotetraohydrolase, protein engineered variant (EC 3.2.1.60) | *Bacillus licheniformis*, containing the gene for maltotetraohydrolase isolated from *Pseudomonas stutzeri* |
| Metalloproteinase | *Aspergillus oryzae*  *Bacillus amyloliquefaciens*  *Bacillus coagulans*  *Bacillus subtilis* |
| Mucorpepsin (EC 3.4.23.23) | *Aspergillus oryzae*  *Aspergillus oryzae*, containing the gene for Aspartic proteinase isolated from *Rhizomucor meihei*  *Rhizomucor meihei*  *Cryphonectria parasitica* |
| Oryzin (EC 3.4.21.63) | *Aspergillus melleus* |
| Pectin lyase (EC 4.2.2.10) | *Aspergillus niger* |
| Pectinesterase (EC 3.1.1.11) | *Aspergillus niger*  Aspergillus oryzae, containing the gene for pectinesterase isolated from Aspergillus aculeatus |
| Phospholipase A1 (EC 3.1.1.32) | *Aspergillus oryzae*, containing the gene for phospholipase A1 isolated from*Fusarium venenatum* |
| Phospholipase A2 (EC 3.1.1.4) | *Aspergillus niger*, containing the gene isolated from porcine pancreas  *Streptomyces violaceoruber* |
| 3-Phytase (EC 3.1.3.8) | *Aspergillus niger* |
| 4-Phytase (EC 3.1.3.26) | *Aspergillus oryzae*, containing the gene for 4-phytase isolated from *Peniophora lycii* |
| Polygalacturonase or Pectinase multicomponent enzyme (EC 3.2.1.15) | *Aspergillus niger*  *Aspergillus oryzae*  *Trichoderma reesei* |
| Pullulanase (EC 3.2.1.41) | *Bacillus acidopullulyticus*  *Bacillus amyloliquefaciens*  *Bacillus licheniformis*  *Bacillus subtilis*  *Bacillus subtilis*, containing the gene for pullulanase isolated from *Bacillus acidopullulyticus*  *Klebsiella pneumoniae* |
| Serine proteinase (EC 3.4.21.14) | *Aspergillus oryzae*  *Bacillus amyloliquefaciens*  *Bacillus halodurans*  *Bacillus licheniformis*  *Bacillus subtilis* |
| Transglucosidase (EC 2.4.1.24) | *Aspergillus niger* |
| Transglutaminase (EC 2.3.2.13) | *Streptomyces mobaraensis* |
| Trypsin (EC 3.4.21.4) | *Fusarium venenatum*, containing the gene for trypsin isolated from *Fusarium oxysporum* |
| Urease (EC 3.5.1.5) | *Lactobacillus fermentum* |
| Xylose isomerase (EC 5.3.1.5) | *Actinoplanes missouriensis*  *Bacillus coagulans*  *Microbacterium arborescens*  *Streptomyces olivaceus*  *Streptomyces olivochromogenes*  *Streptomyces murinus*  *Streptomyces rubiginosus* |

S18—5 Permitted microbial nutrients and microbial nutrient adjuncts

For section 1.3.3—7, the substances are:

Permitted microbial nutrients and microbial nutrient adjuncts

|  |
| --- |
| 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 |

S18—6 Permitted processing aids for water

For section 1.3.3—8, the substances and maximum permitted levels are:

Permitted processing aids for water (section 1.3.3—8)

| 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 (available chlorine) |
| Cobalt sulphate | 2 |
| 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) |
| Hydrolysed copolymers of methyl acrylate and divinylbenzene | GMP |
| Hydrolysed 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) (as acrylamide monomer) | 0.0002 |
| 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 amount of cellulose | GMP |
| Silver ions | 0.01 |
| Sodium aluminate | 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 |
| Zinc sulphate | GMP |

S18—7 Permitted bleaching, washing and peeling agents—various foods

For section 1.3.3—9, the substances, foods and maximum permitted levels are:

Permitted bleaching, washing and peeling agents (section 1.3.3—9)

|  |  |  |
| --- | --- | --- |
| 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 |

S18—8 Permitted extraction solvents—various foods

For section 1.3.3—10, the substances, foods and maximum permitted levels are:

Permitted extraction solvents (section 1.3.3—10)

| Substance | Food | Maximum permitted level (mg/kg) |
| --- | --- | --- |
| Acetone | Flavouring substances | 2 |
|  | Other foods | 0.1 |
| Benzyl alcohol | All foods | GMP |
| Butane | Flavouring substances | 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 | Flavouring substances | 1 |
|  | Other foods | 0.1 |
| Methanol | All foods | 5 |
| Methylene chloride | Decaffeinated coffee | 2 |
|  | Decaffeinated tea | 2 |
|  | Flavouring substances | 2 |
| Methylethyl ketone | All foods | 2 |
| Propane | All foods | 1 |
| Toluene | All foods | 1 |

S18—9 Permitted processing aids—various technological purposes

(1) For section 1.3.3—11, the substances, foods, technological purposes and maximum permitted levels are set out in the table to subsection (3).

(2) In this section:

***amine*** ***agarose ion exchange resin*** means 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 amount of agarose.

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

(a) is ordinarily consumed in the same state in which it is sold; and

(b) is solid; and

(c) is one of the following:

(i) meat or meat product;

(ii) fish or fish product;

(iii) fruit or fruit product;

(iv) vegetable or vegetable product;

(v) cheese; and

(d) is not one of the following:

(i) whole nuts in the shell;

(ii) raw fruits and vegetables that are intended for hulling, peeling or washing by the consumer.

***sulphonate*** ***agarose ion exchange resin*** means agarose cross-linked with epichlorohydrin and reacted with allyl glycidyl ether or propylene oxide, then derivatised with sulphonate groups whereby the amount of epichlorohydrin plus allyl glycidyl ether or propylene oxide does not exceed 250% by weight of the starting quantity of agarose.

(3) The table is:

Permitted processing aids—various purposes (section 1.3.3—11)

| Substance | Technological purpose and food | Maximum permitted level (mg/kg) |
| --- | --- | --- |
| Amine agarose ion exchange resin | Removal of specific proteins and polyphenols from beer | GMP |
| Ammonium bisulphite | For use in the manufacture of wine, sparkling wine and fortified wine as a microbial nutrient and microbial nutrient adjunct. | GMP |
| Ammonium persulphate | Yeast washing agent | GMP |
| Ammonium sulphate | Decalcification agent for edible casings | GMP |
| α-Amylase (EC 3.2.1.1) sourced from *Aspergillus niger* containing the α-Amylase gene from *Rhizomucor pusillus* | For use in starch processing and the production of potable alcohol | GMP |
| α-Amylase (EC 3.2.1.1) sourced from *Trichoderma reesei* containing the α-Amylase gene from *Aspergillus kawachii* | For use in brewing and the production of potable alcohol. | GMP |
| β-Amylase (EC 3.2.1.2) sourced from soybean (*Glycine max*) | For use in starch processing to manufacture maltose syrup | GMP |
| Aqualysin 1 (EC 3.4.21.111) sourced from *Bacillus subtilis* containing the aqualysin 1 gene from *Thermus aquaticus* | For use in the manufacture of bakery products | GMP |
| Aspergillopepsin I (EC 3.4.23.18) sourced from *Trichoderma reesei* containing the gene for aspergillopepsin Iisolated from *Trichoderma reesei* | For use in the manufacture of potable alcohol and of animal and vegetable protein products. | 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 |
| Chitin-glucan | For use in the manufacture of wine, sparkling wine and fortified wine as a decolourant, clarifying, filtration and absorbent agent. | GMP |
| Chitosan sourced from *Aspergillus niger* | Manufacture of wine, beer, cider, spirits and food grade ethanol | GMP |
| A colouring that is an additive permitted at GMP, a colouring permitted at GMP, or a colouring permitted to a maximum level | 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 |
| β-Cyclodextrin | Used to extract cholesterol from eggs | GMP |
| β-Galactosidase (EC 3.2.1.23) from *Papiliotrema terrestris* strain AE‑BLC. | For use in the production of \*galacto‑oligosaccharides from lactose. | GMP |
| β-Galactosidase (EC 3.2.1.23) sourced from *Bacillus subtilis* containing the gene for β-galactosidase isolated from *Bifidobacterium bifidum*. | For use in the production of lactose reduced dairy foods and for the production of galacto-oligosaccharides. | GMP |
| β-Galactosidase (EC 3.2.1.23) sourced from *Bacillus subtilis* containing the β-galactosidase gene from *Lactobacillus delbrueckii* subsp. *bulgaricus* | For use in the production of lactose reduced dairy foods. | GMP |
| L-Cysteine (or HCl salt) | Dough conditioner | 75 |
| Endo-1,4-beta-xylanase (EC 3.2.1.8) from *Bacillus subtilis*, containing the gene for Endo-1,4-beta-xylanase isolated from *Pseudoalteromonas haloplanktis*. | For use in the manufacture of bakery and other cereal-based products. | GMP |
| Endo-1,4-ß-xylanase, protein engineered variant, (EC 3.2.1.8) from *Trichoderma reesei,* containing thegene for endo-1,4-ß-xylanase isolated from *Thermopolyspora flexuosa* | For depolymerisation of arabinoxylans during the manufacture and/or processing of the following types of food:  (a) bakery products;  (b) cereal products;  (c) grain;  (d) cereal based beverages (including beer); and  (e) potable alcohol | GMP |
| Endo-1,4-beta-xylanase (EC 3.2.1.8) sourced from *Trichoderma reesei* containing the endo-1,4-beta-xylanase gene from *Aspergillus niger*. | For use in the manufacture of bakery and other cereal-based products, including cereal-based beverages | GMP |
| 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 |
| Glucoamylase (EC 3.2.1.3) sourced from *Aspergillus niger* containing the gene for glucoamylase isolated from *Talaromyces emersonii* | To hydrolyse starch in the manufacture of syrups, beverages, cereal-based products, fruit products and vegetable products | GMP |
| Glucoamylase (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Trametes cingulata* | For use in starch processing and the production of potable alcohol | GMP |
| Glucoamylase (EC 3.2.1.3) sourced from *Trichoderma reesei* containing the glucoamylase gene from *Trichoderma reesei* | For use in:  (a)  brewing;  (b)  the manufacture of bakery products;  (c)   the production of potable alcohol; and  (d)  starch processing. | GMP |
| α-Glucosidase (EC 3.2.1.20) sourced from *Trichoderma reesei* containing the α‑glucosidase gene from *Aspergillus niger* | For use in the manufacture and/or processing of the following types of food:   1. potable alcohol; 2. lysine; 3. organic acids; 4. monosodium glutamate and other biochemicals; and 5. isomalto-oligosaccharides and other sweeteners. | GMP |
| Glucose oxidase (EC 1.1.3.4) sourced from *Trichoderma reesei* containing the glucose oxidase gene from *Penicillium amagasakiense* | For use in:   1. the manufacture of bakery and other cereal-based products; and 2. egg processing. | 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;  (b) fermented milk products;  (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 | 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 |
| Inulinase (EC 3.2.1.7) sourced from *Aspergillus oryzae* containing the inulinase gene from *Aspergillus ficuum* | Hydrolysing inulin to produce fructo‑oligosaccharides | GMP |
| Lactoperoxidase from bovine milk EC 1.11.1.7 | Reduce the bacterial population or inhibit bacterial growth on meat surfaces | GMP |
| Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Candida cylindracea* | For use in the manufacture of bakery products and dairy products and in the processing of fats and oils. | GMP |
| Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Trichoderma reesei* containing the gene for lipase, triacylglycerol isolated from *Aspergillus tubingensis* | For use in the production of bakery products, and cereal-based beverages and foods. | GMP |
| Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Trichoderma reesei* containing the gene for lipase, triacylglycerol isolated from *Fusarium oxysporum* | For use in the manufacture of bakery and other cereal-based products | GMP |
| *Listeria* phage P100 | Listericidal treatment for use on approved food for use of phage | GMP |
| Lysophospholipase (EC 3.1.1.5) sourced from *Trichoderma reesei* containing the gene for lysophospholipase isolated from *Aspergillus nishimurae* | For use in starch processing, including the production of syrups | GMP |
| Maltogenic α-amylase, protein engineered variant, (EC 3.2.1.133) sourced form *Saccharomyces cerevisiae* containing the gene for maltogenic α-amylase from *Geobacillus stearothermophilus* | For use in the maufacture of bakery products | GMP |
| Maltogenic α-amylase (EC 3.2.1.133) sourced from *Bacillus licheniformis* containing the gene for maltogenic α-amylase from *Geobacillus stearothermophilus*. | For use in:   1. brewing; 2. the manufacture of bakery products; 3. the production of potable alcohol; and; 4. starch processing. | 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 |
| Polyvinylimidazole-polyvinylpyrrolidone co-polymers | For use in the manufacture of wine, sparkling wine and fortified wine as a decolourant, clarifying, filtration and absorbent agent. | GMP |
| Potassium bromate | Germination control in malting | Limit of determination of bromate |
| Protein engineered enzyme that:  (a) contains both of the following components -  (i) UDP‑glucosyltransferase; and  (ii) sucrose synthase (EC 2.4.1.13); and  (b) is sourced from *Pichia pastoris* strain UGT-A. | For the conversion of purified stevia leaf extract to produce rebaudioside E. | GMP |
| Protein engineered enzyme that: contains both UDP‑glucosyltransferase and sucrose synthase (EC 2.4.1.13) components; and is sourced from *Pichia pastoris* strain UGT-A. | For the conversion of purified stevia leaf extract to produce rebaudioside D. | GMP |
| Protein engineered enzymes that: contain both UDP-glucosyltransferase and sucrose synthase (EC 2.4.1.13) components; and are sourced from both of the following; a *Pichia pastoris* strain expressing UGT-A, and a *Pichia pastoris* strain expressing both UGT-B1 and UGT-B2. | For the conversion of purified stevia leaf extract to produce rebaudioside M | GMP |
| Protein glutaminase (EC 3.5.1.44) sourced from *Chryseobacterium proteolyticum* strain AE-PG | To deamidate proteins during the manufacture and/or processing of the following types of food:  (a) baked products;  (b) pasta;  (c) noodles;  (d) milk;  (e) other dairy products;  (f) meat;  (g) fish;  (h) grains;  (i) yeast; and  (j) egg based products. | GMP |
| Pullulanase (EC 3.2.1.41) sourced from *Bacillus licheniformis* containing the pullulanase gene from *Bacillus deramificans.* | For use in brewing and in starch processing. | GMP |
| *Salmonella* phage preparation (S16 and FO1a) | Reduce population of *Salmonella* species on the surface of raw meat and raw poultry meat during processing. | GMP |
| Silver chloride | For use in the manufacture of wine, sparkling wine and fortified wine to remove fermentation and storage-related odours. | GMP |
| 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 |
| 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 |
| Subtilisin (EC 3.4.21.62) sourced from *Bacillus licheniformis* containing the gene for subtilisin from *Pyrococcus furiosus* | For use in the production of potable alcohol. | GMP |
| Sucrose synthase (EC 2.4.1.13) sourced from *Escherichia coli* K-12 containing the gene for sucrose synthase from *Arabidopsis thaliana* | For the conversion of purified stevia leaf extract to produce one or more of the following: rebaudioside D, rebaudioside M; and rebaudioside AM | GMP |
| Sulphonate agarose ion exchange resin | Production of lactoferrin from bovine milk and milk-related products | 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 |
| Thermolysin (EC 3.4.24.27) sourced from *Anoxybacillus caldiproteolyticus* strain TP-7 | To catalyse the hydrolysis of peptide bonds during the manufacture and/or processing of the following types of food:   1. dairy; 2. egg; 3. meat; 4. fish; 5. protein; 6. yeast; and 7. flavouring | 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 |
| Uridine diphosphate (UDP) glucosyltransferase sourced from *Escherichia coli* K-12 containing the UDP glucosyltransferase gene from *Solanum lycopersicum* | For the conversion of purified stevia leaf extract to produce one or more of the following: rebaudioside D, rebaudioside M; and rebaudioside AM | GMP |
| Uridine diphosphate (UDP) glucosyltransferase sourced from *Escherichia coli* K-12 containing the UDP glucosyltransferase gene from *Stevia rebaudiana* | For the conversion of purified stevia leaf extract to produce one or more of the following: rebaudioside D, rebaudioside M; and rebaudioside AM | GMP |
| Woodflour from untreated *Pinus radiata* | Gripping agent used in the treatment of hides | GMP |

***Note*** Some enzyme sources identified in this table are protein engineered. If such an enzyme is used as a processing aid, the resulting food may have as an ingredient a food produced using gene technology, and the requirements relating to foods produced using gene technology will apply—see Standard 1.2.1 and Standard 1.5.2. The relevant enzymes are the following:

● Endo-1,4-ß-xylanase, protein engineered variant;

● Maltogenic α-amylase, protein engineered variant;

● Protein engineered enzymes used in the manufacture of various steviol glycosides.

S18—10 Permission to use dimethyl dicarbonate as microbial control agent

For section 1.3.3—12, the foods and maximum permitted addition levels are:

Permission to use dimethyl dicarbonate as microbial control agent (section 1.3.3—12)

| Food | Maximum permitted addition level |
| --- | --- |
| Any of the following: | 250 mg/kg |
| (a) fruit juice; |  |
| (b) vegetable juice; |  |
| (c) fruit juice product; |  |
| (d) vegetable juice product. |  |
| Water based flavoured drinks | 250 mg/kg |
| Formulated beverages | 250 mg/kg |
| Any of the following: | 200 mg/kg |
| (a) wine |  |
| (b) sparkling wine; |  |
| (c) fortified wine; |  |
| (d) fruit wine (including cider and perry); |  |
| (e) vegetable wine; |  |
| (f) mead |  |

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Amendment History

The Amendment History provides information about each amendment to the Schedule. 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 compilation No. 28 of Schedule 18 as in force on **20 January 2022** (up to Amendment No. 205). It includes any commenced amendment affecting the compilation to that date.

Prepared by Food Standards Australia New Zealand on **20 January 2022.**

**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 Schedule 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 Legislation 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

**Schedule 18** was published in the Food Standards Gazette No. FSC96 on 10 April 2015 as part of Amendment 154 (F2015L00452 –- 1 April 2015) and has since been amended as follows:

| Section affected | A’ment No. | FRL registration  Gazette | Commencement  (Cessation) | How affected | Description of amendment |
| --- | --- | --- | --- | --- | --- |
| table to S18—3 | 161 | F2016L00120  18 Feb 2016  FSC103  22 Feb 2016 | 1 March 2016 | am | Correction of spelling of tetraethylenepentamine. |
| table to S18—3 | 168 | F2017L00414  11 April 2017  FSC110  13 April 2017 | 13 April 2017 | rs | Omission of an inadvertent duplication of the entry for ion exchange resin regenerated cellulose, cross-linked and alkylated with epichlorohydrin and propylene oxide and replacement with correct text. |
| table to S18—4(5) | 156 | F2015L01227  6 Aug 2015  FSC98  6 Aug 2015 | 1 March 2016 | ad | Entry for chymotrypsin. |
| table to S18—4(5) | 156 | F2015L01228  6 Aug 2015  FSC98  6 Aug 2015 | 1 March 2016 | ad | Entry for trypsin. |
| table to S18—4(5) | 157 | F2015L01374  1 Sept 2015  FSC99  3 Sept 2015 | 1 March 2016 | am | Entry for aspergillopepsin I previously included in the Code as part of A1091. |
| table to S18—4(5) | 157 | F2015L01374  1 Sept 2015  FSC99  3 Sept 2015 | 1 March 2016 | ad | Entries for endo-1,4-beta-xylanase (EC 3.2.1.8) and endo-1,4-beta-xylanase, protein engineered variant (EC 3.2.1.8) previously included in the Code as part of A1096. |
| table to S18—4(5) | 157 | F2015L01374  1 Sept 2015  FSC99  3 Sept 2015 | 1 March 2016 | rep | Entry for hemicellulase endo-1,4-β-xylanase previously included in the Code as part of A1096. |
| table to S18—4(5) | 159 | F2015L01919  2 Dec 2015  FSC101  7 Dec 2015 | 1 March 2016 | rs | Entry for asparaginase. |
| table to S18—4(5) | 164 | F2016L01199  20 July 2016  FSC106  21 July 2016 | 21 July 2016 | ad | Entry for glutaminase. |
| table to S18—4(5) | 170 | F2017L00583  23 May 2017  FSC112  25 May 2017 | 25 May 2017 | ad | Entry for oryzin. |
| table to S18—4(5) | 172 | F2017L01136  5 Sept 2017  FSC114  7 Sept 2017 | 7 Sept 2017 | am | Entry for β-Galactosidase (EC 3.2.1.23). |
| S18—9(2) | 164 | F2016L01204  20 July 2016  FSC106  21 July 2016 | 21 July 2016 | rs | Replace definition of ‘agarose ion exchange resin’ with definitions of ‘amine agarose ion exchange resin’ and sulphonate agarose ion exchange resin’. |
| table to S18—9(3) | 163 | F2016L00787  12 May 2016  FSC105  19 May 2016 | 19 May 2016 | ad | Entry for *Salmonella* phage preparation (S16 and FO1a). |
| table to S18—9(3) | 164 | F2016L01204  20 July 2016  FSC106  21 July 2016 | 21 July 2016 | rs | Reference to agarose ion exchange resin replaced with amine agarose ion exchange resin. |
| table to S18—9(3) | 164 | F2016L01204  20 July 2016  FSC106  21 July 2016 | 21 July 2016 | ad | Entry for sulphonate agarose ion exchange resin. |
| table to S18—9(3) | 168 | F2017L00414  11 April 2017  FSC110  13 April 2017 | 13 April 2017 | am | Correction of formatting errors for potassium bromate and sodium bromate. |
| table to S18—9(3) | 172 | F2017L01138  6 Sept 2017  FSC114  7 Sept 2017 | 7 September 2017 | ad | Entry for Endo-1,4-beta-xylanase (EC 3.2.1.8) from *Bacillus subtilis*, containing the gene for Endo-1,4-beta-xylanase isolated from *Pseudoalteromonas haloplanktis* |
| table to S18—9(3) | 174 | F2017L01389  24 Oct 2017  FSC115  26 Oct 2017 | 26 October 2017 | ad | Entry for ammonium bisulphite, chitin-glucan, polyvinylimidazole-polyvinylpyrrolidone co-polymers and silver chloride |
| table to S18—9(3) | 176 | F2018L00033  10 Jan 2018  FSC117  11 Jan 2018 | 11 January 2018 | ad | Entry for Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Candida cylindracea* |
| table to S18—9(3) | 176 | F2018L00035  10 Jan 2018  FSC117  11 Jan 2018 | 11 January 2018 | ad | Entry for Aqualysin 1 (EC 3.4.21.111) sourced from *Bacillus subtilis* containing the aqualysin 1 gene from *Thermus aquaticus* |
| table to S18—9(3) | 178 | F2018L00578  3 May 2018  FSC119  3 May 2018 | 3 May 2018 | ad | Entry for Protein glutaminase (EC 3.5.1.44) sourced from *Chryseobacterium proteolyticum* strain AE-PG |
| table to S18—9(3) | 180 | F2018L01148  21 Aug 2018  FSC 121  23 Aug 2018 | 23 August 2018 | ad | Entry for β-Galactosidase (EC 3.2.1.23) from *Papiliotrema terrestris* strain AE‑BLC. |
| table to S18—9(3) | 180 | F2018L01147  21 Aug 2018  FSC 121  23 Aug 2018 | 23 August 2018 | ad | Entry for Endo-1,4-ß-xylanase, protein engineered variant, (EC 3.2.1.8) from *Trichoderma reesei,* containing thegene for endo-1,4-ß-xylanase isolated from *Thermopolyspora flexuosa* |
| table to S18—9(3) | 181 | F2018L01445  18 Oct 2018  FSC 122  23 Oct 2018 | 23 October 2018 | ad | Entry for Thermolysin (EC 3.4.24.27) sourced from *Anoxybacillus caldiproteolyticus* strain TP-7 |
| table to S18—9(3) | 182 | F2018L01594  23 Nov 2018  FSC123  29 Nov 2018 | 29 Nov 2018 | am | Corrections typographical errors, Dimethyldialkylammonium chloride, Technological purpose and Maximum permitted and food level (mg/kg) headings |
| table to S18—9(3) | 183 | F2019L00039  11 Jan 2019  FSC124  23 Jan 2019 | 23 January 2019 | ad | Entry for Protein engineered enzymes that: contain both UDP-glucosyltransferase (EC 2.4.1.17) and sucrose synthase (EC 2.4.1.13) components; and are sourced from both of the following; a *Pichia pastoris* strain expressing UGT-A, and a *Pichia pastoris* strain expressing both UGT-B1 and UGT-B2. |
| table to S18—9(3) | 185 | F2019L00704  30 May 2019  FSC126  6 June 2019 | 6 June 2019 | ad | Entry for Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Trichoderma reesei* containing the gene for lipase, triacylglycerol isolated from *Fusarium oxysporum* |
| table to S18—9(3) | 185 | F2019L00709  30 May 2019  FSC126  6 June 2019 | 6 June 2019 | ad | Entry for Lysophospholipase (EC 3.1.1.5) sourced from *Trichoderma reesei* containing the gene for lysophospholipase isolated from *Aspergillus nishimurae* |
| table to S18—9(3) | 185 | F2019L00712  30 May 2019  FSC126  6 June 2019 | 6 June 2019 | ad | Entry for β-Galactosidase (EC 3.2.1.23) sourced from *Bacillus subtilis* containing the gene for β-galactosidase isolated from *Bifidobacterium bifidum*. |
| table to S18—9(3) | 186 | F2019L00995  17 July 2019  FSC127  25 July 2019 | 25 July 2019 | ad | Entry for Glucoamylase (EC 3.2.1.3) sourced from *Aspergillus niger* containing the gene for glucoamylase isolated from *Talaromyces emersonii* |
| table to S18—9(3) | 187 | F2019L01137  12 May 2020  FSC133  14 May 2020  F2019L01137  28 Aug 2019  FSC128  5 Sep 2019  Note: This variation as not correctly published in Gazette FSC128 | 14 May 2020 | ad | Entry for Lipase, triacylglycerol (EC 3.1.1.3) sourced from *Trichoderma reesei* containing the lipase 3 gene from *Aspergillus tubingensis* |
| table to S18—9(3) | 187 | F2019L01137  28 Aug 2019  FSC128  5 Sep 2019 | 5 September 2019 | ad | Entry for Aspergillopepsin I(EC 3.4.23.18) sourced from *Trichoderma reesei* containing the gene for aspergillopepsin Iisolated from*Trichoderma reesei* |
| table to S18—9(3) | 187 | F2019L01137  28 Aug 2019  FSC128  5 Sep 2019 | 5 September 2019 | ad | Entry for Protein engineered enzyme that: contains both UDP‑glucosyltransferase (EC 2.4.1.17) and sucrose synthase (EC 2.4.1.13) components; and is sourced from *Pichia pastoris* strain UGT-A. |
| table to S18—9(3) | 188 | F2019L01569  4 Dec 2019  FSC129  5 Dec 2019 | 5 December 2019 | ad | Entry for Pullulanase (EC 3.2.1.41) sourced from *Bacillus licheniformis* containing the pullulanase gene from *Bacillus deramificans.* |
| table to S18—9(3) | 190 | F2020L00025  15 Jan 2020  FSC131  17 Jan 2020 | 17 January 2020 | ad | Entry for α-Glucosidase (EC 3.2.1.20) sourced from *Trichoderma reesei* containing the α‑glucosidase gene from *Aspergillus niger.* |
| table to S18—9(3) | 191 | F2020L00153  20 Feb 2020  FSC 132  26 Feb 2020 | 26 February 2020 | ad | Entry for Sucrose synthase (EC 2.4.1.13) sourced from *Escherichia coli* K-12 containing the gene for sucrose synthase from *Arabidopsis thaliana.* |
| table to S18—9(3) | 191 | F2020L00153  20 Feb 2020  FSC 132  26 Feb 2020 | 26 February 2020 | ad | Uridine diphosphate (UDP) glucosyltransferase sourced from *Escherichia coli* K-12 containing the UDP glucosyltransferase gene from *Solanum lycopersicum* |
| table to S18—9(3) | 191 | F2020L00153  20 Feb 2020  FSC 132  26 Feb 2020 | 26 February 2020 | ad | Uridine diphosphate (UDP) glucosyltransferase sourced from *Escherichia coli* K-12 containing the UDP glucosyltransferase gene from *Stevia rebaudiana* |
| table to S18—9(3) | 191 | F2020L00151 Feb 2020  FSC 132  26 Feb 2020 | 26 February 2020 | ad | Inulinase (EC 3.2.1.7) sourced from *Aspergillus oryzae* containing the inulinase gene from *Aspergillus ficuum* |
| table to S18—9(3) | 192 | F2020L00568  12 May 2020  FSC133  14 May 2020 | 14 May 2020 | ad | Entry for Endo-1,4-beta-xylanase (EC 3.2.1.8) sourced from *Trichoderma reesei* containing the endo-1,4-beta-xylanase gene from *Aspergillus niger* |
| table to S18—9(3) | 192 | F2020L00570  12 May 2020  FSC133  14 May 2020 | 14 May 2020 | ad | Entry for Glucose oxidase (EC 1.1.3.4) sourced from *Trichoderma reesei* containing the glucose oxidase gene from *Penicillium amagasakiense* |
| table to S18—9(3) | 193 | F2020L00937  23 July 2020  FSC134  28 July 2020 | 28 July 2020 | ad | Entry for Protein engineered enzyme that: contains both UDP‑glucosyltransferase and sucrose synthase (EC 2.4.1.13) components; and is sourced from *Pichia pastoris* strain UGT-A. |
| table to S18—9(3) | 195 | F2020L01111  31 August 2020  FSC136  3 September 2020 | 3 September 2020 | ad | Entry for Glucoamylase (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Trametes cingulata* |
| table to S18—9(3) | 195 | F2020L01113  31 August 2020  FSC136  3 September 2020 | 3 September 2020 | ad | α-Amylase (EC 3.2.1.1) sourced from *Aspergillus niger* containing the α-Amylase gene from *Rhizomucor pusillus* |
| table to S18—9(3) | 196 | F2020L01516  1 December 2020  FSC137  3 December 2020 | 3 December 2020 | ad | Glucoamylase (EC 3.2.1.3) sourced from *Trichoderma reesei* containing the glucoamylase gene from *Trichoderma reesei* |
| table to S18—9(3) | 196 | F2020L01522  1 December 2020  FSC137  3 December 2020 | 3 December 2020 | ad | α-Amylase (EC 3.2.1.1) sourced from *Trichoderma reesei* containing the α-Amylase gene from *Aspergillus kawachii* |
| table to S18—9(3) | 200 | F2021L00671  1 June 2021  FSC141  3 June 2021 | 3 June 2021 | ad | β-Amylase (EC 3.2.1.2) sourced from soybean (*Glycine max*) |
| S18—9(3) | 200 | F2021L00684  2 June 2021  FSC141  3 June 2021 | 3 June 2021 | rep | Omit (EC 2.4.1.17) whenever occuring |
| table to S18—9(3) | 201 | F2021L00984  14 July 2021  FSC142  22 July 2021 | 22 July 2021 | ad | Subtilisin (EC 3.4.21.62) sourced from *Bacillus licheniformis* containing the gene for subtilisin from *Pyrococcus furiosus* |
| Table to S18—9(3) | 202 | F2021L01181  24 August 2021  FSC143  26 August 2021 | 26 August 2021 | ad | Maltogenic α-amylase, protein engineered variant, (EC 3.2.1.133) sourced from *Saccharomyces cerevisiae* containing the gene from *Geobacillus stearothermophilus*. |
| Note to Table to S18—9(3) | 202 | F2021L01181  24 August 2021  FSC143  26 August 2021 | 26 August 2021 | ad | Note included on enzyme sources and related standards. |
| Table to S18—9(3) | 203 | F2021L01436  14 October 2021  FSC 144  21 October 2021 | 21 October 2021 | ad | β-Galactosidase (EC 3.2.1.23) sourced from *Bacillus subtilis* containing the β-galactosidase gene from *Lactobacillus delbrueckii* subsp. *bulgaricus* |
| Table to S18—9(3) | 205 | F2022L00039  18 January 2022  FSC 146  20 January 2022 | 20 January 2022 | ad | Maltogenic α-amylase (EC 3.2.1.133) sourced from *Bacillus licheniformis* containing the gene for maltogenic α-amylase from *Geobacillus stearothermophilus*. |