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:

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

 ● 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 fijiensis* ATCC 20611*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 |
| 2-Methyloxolane | Infant formula products | 3 |
|  | Foods for infants | 5 |
|  | Formulated supplementary foods for young children | 5 |
|  | All other foods | 20 |
| 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 *Bacillus licheniformis* containing the α-amylase gene from *Cytophaga* species | For use in:(a) brewing;(b) the production of potable alcohol; and(c) starch processing. | GMP |
| α-Amylase (EC 3.2.1.1) sourced from *Bacillus subtilis* containing the α-amylase gene from *Thermoactinomyces vulgaris* | For use in the manufacture of bakery products | 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 |
| β-Amylase (EC 3.2.1.2) sourced from *Bacillus licheniformis* containing the β-amylase gene from *Priestia flexa* (basionym *Bacillus flexus*) | For use in starch processing to manufacture maltose syrup | GMP |
| α-Arabinofuranosidase (EC 3.2.1.55) sourced from *Trichoderma reesei* containing the α-arabinofuranosidase gene from *Talaromyces pinophilus* | For use in:1. grain processing; and
2. the production of potable alcohol.
 | 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 |
| Carboxypeptidase(EC 3.4.16.6) sourced from *Aspergillus oryzae* containing the carboxypeptidasegene from *Aspergillus oryzae* | For use in 1. brewing; and
2. the manufacture of bakery products; and
3. the manufacture and/or processing of the following types of food:
4. flavourings; and
5. proteins; and
6. yeast.
 | GMP |
| Cellulase, protein engineered variant, (EC 3.2.1.4) sourced from *Aspergillus niger* containing the cellulase gene from *Trichoderma reesei*  | For use in brewing and the production of potable alcohol | 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 |
| Chymosin (EC 3.4.23.4) sourced from *Trichoderma reesei* containing the chymosin gene from *Bos taurus* | For use in the manufacture of cheese, cheese products, fermented milk products and rennetted milk products. | 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 |
| Endo-1,4-β-xylanase, protein engineered variant, (EC 3.2.1.8) sourced from *Trichoderma reesei*, containing the endo-1,4-ß-xylanase gene from *Fusarium verticillioides* | For use in starch processing and the production of 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 *Talaromyces leycettanus* | For use in:1. brewing; and
2. fats and oils processing; and
3. grain processing; and
4. the production of potable alcohol.
 | GMP |
| Ethyl acetate | Cell disruption of yeast | GMP |
| Ethylene diamine tetraacetic acid | Metal sequestrant for edible fats and oils and related products | GMP |
| Fructan β-fructosidase, protein engineered variant, (EC 3.2.1.80) sourced from *Trichoderma reesei* containing the fructan β-fructosidase gene from *Lactobacillus crispatus* | For use in the manufacture of bakery products | GMP |
| β-Fructofuranosidase (EC 3.2.1.26) sourced from *Trichoderma reesei* containing the β-fructofuranosidase gene from *Aspergillus niger*  | For use in the production of short-chain fructooligosaccharides; and to produce a reduction in sugar levels in treated fruit and vegetable products  | GMP |
| Fructosyltransferase, immobilised, (EC 2.4.1.9) derived from *Aspergillus oryzae* | For use in the manufacture of short-chain fructooligosaccharides from sucrose | GMP |
| Gibberellic acid | Barley germination | GMP |
| Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Gloeophyllum sepiarium* | For use in:1. baking;
2. brewing;
3. the production of distilled alcohol; and

(d) starch processing for the production of glucose syrups and other starch hydrolysates. | GMP |
| Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Penicillium oxalicum* | For use in:(a) the manufacture of bakery products;(b) brewing; and(c) starch processing for the production of starch hydrolysates, including glucose syrups. | 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 |
| Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Gloeophyllum trabeum* | For use in starch processing and the production of potable alcohol | 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 and
6. beer.
 | 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 |
| Glucose oxidase (EC 1.1.3.4) sourced from *Penicillium rubens* | For use in the manufacture of:(a) cooked products made from a dough including bread;(b) pasta;(c) noodles; and(d) dried egg powder. | 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 antimicrobial 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 *Komagataella phaffii* containing the lipase, triacylglycerol gene from *Fusarium oxysporum* | For use in the manufacture of bread and bakery products. | 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 (EC 3.2.1.133) sourced from *Escherichia coli* containing the maltogenic α-Amylase gene from *Geobacillus stearothermophilus* | For use in baking, brewing and starch processing  | GMP |
| Lipase, triacylglycerol, protein engineered variant, (EC 3.1.1.3) sourced from *Trichoderma reesei* containing the lipase, triacylglycerol gene from *Thermomyces lanuginosus* | For use in the manufacture of bakery and other cereal-based products | GMP |
| Maltogenic α-amylase, protein engineered variant, (EC 3.2.1.133) sourced from *Saccharomyces cerevisiae* containing the gene for maltogenic α-amylase from *Geobacillus stearothermophilus* | For use in the manufacture 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 | Antimicrobial agent for meat, fruit and vegetables | GMP |
| Paraffin | Coatings for cheese and cheese products | GMP |
| Pectinesterase (EC 3.1.1.11) sourced from *Aspergillus oryzae* containing the pectinesterase gene from *Aspergillus tubingensis* | For use during the manufacture and/or processing of the following types of food:1. coffee;
2. fruit and vegetable juices;
3. fruit and vegetable products;
4. wine; and
5. flavouring substances.
 | GMP |
| Phospholipase A1 (EC 3.1.1.32) sourced from *Aspergillus oryzae* containing the phospholipase A1 gene from *Valsaria rubricosa* | For use in the manufacture of bakery products | GMP |
| Phospholipase A1 (EC 3.1.1.32) sourced from *Aspergillus niger* containing the phospholipase A1  gene from *Evansstolkia leycettana* (basionym *Talaromyces leycettanus*) | For use in the degumming of vegetable oils | GMP |
| Polygalacturonase (EC 3.2.1.15) sourced from *Aspergillus oryzae* containing the polygalacturonase gene from *Aspergillus tubingensi* | For use during the manufacture and/or processing of the following types of food:(a)coffee;(b)fruit and vegetable juices;(c)fruit and vegetable products;(d)wine; and(e)flavouring substances. | 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:1. baked products;
2. pasta;
3. noodles;
4. milk;
5. other dairy products;
6. meat;
7. fish;
8. grains;
9. yeast; and
10. egg based products.
 | GMP |
| D-psicose 3-epimerase (EC 5.1.3.30) from *Microbacterium foliorum* | For use in the manufacture of D-allulose | 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 |
| Pullulanase (EC 3.2.1.41) sourced from *Bacillus subtilis* containing the pullulanase gene from *Bacillus deramificans* | For use in starch processing for production of glucose syrups and other starch hydrolysates  | 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 | Antimicrobial 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 |
| Subtilisin, protein engineered variant, (EC 3.4.21.62) sourced from *Bacillus subtilis* containing the gene for subtilisin from *Bacillus clausii* | For use in hydrolysing proteins in foods containing proteins. | 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 |
| Sucrose synthase, protein engineered variant, (EC 2.4.1.13) sourced from *Escherichia coli* K-12 containing the gene for sucrose synthase from *Glycine max* | For the conversion of purified stevia leaf extract to produce one or more of the following: rebaudioside I and rebaudioside M | 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 |
| Thermomycolin (EC 3.4.21.65) sourced from *Trichoderma reesei* containing the thermomycolin gene from *Malbranchea cinnamomea* | To catalyse the hydrolysis of peptide bonds during the manufacture and/or processing of the following types of food:1. meat products;
2. vegetable products; and
3. seafood products.
 | GMP |
| Transglutaminase (EC 2.3.2.13) sourced from *Bacillus licheniformis* containing the transglutaminase gene from *Streptomyces mobaraensis* | For use in1. brewing; and
2. in the manufacture and/or processing of the following types of food:
3. bakery and other cereal-based products, including pasta and noodles;
4. cheese;
5. meat products;
6. fish products;
7. fermented dairy products;
8. egg substitutes;
9. dairy analogues;
10. meat analogues; and
11. fish analogues
 | 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, protein engineered variant, sourced from *Escherichia coli* K-12 containing the UDP-glucosyltransferase gene from *Oryza sativa* | For the conversion of purified stevia leaf extract to produce rebaudioside M | 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 |
| Uridine triphosphate (UTP)-glucose-1-phosphate uridylyltransferase, protein engineered variant, (EC 2.7.7.9) sourced from *Escherichia coli* K-12, containing the gene for UTP-glucose-1-phosphate uridylyltransferase from *Bifidobacterium bifidum* | For the conversion of purified stevia leaf extract to produce one or more of the following: rebaudioside I and rebaudioside M | 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:

* Cellulase, protein engineered variant;
* Endo-1,4-ß-xylanase, protein engineered variant;
* Fructan β-fructosidase, protein engineered variant;
* Glucoamylase, protein engineered variant;
* Lipase, triacylglycerol, protein engineered variant;
* Maltogenic α-amylase, protein engineered variant;
* Protein engineered enzymes used in the manufacture of various steviol glycosides;
* Subtilisin, protein engineered variant.

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 |  |

**S18—11 Permission to use cetylpyridinium chloride as an antimicrobial agent**

1. For section 1.3.3—13, the food, maximum permitted levels and conditions are set out in the table to subsection (3).
2. In this section:

 ***Poultry meat*** means the whole or any part of a poultry carcass which:

1. has skin attached; and
2. is intended for human consumption; and
3. is not, or does not include, offal.

 **Note** Subsection 1.1.2—3(2) defines ‘offal’.

1. The table is:

**Permission to use cetylpyridinium chloride as an antimicrobial agent (section 1.3.3—13)**

|  |  |  |
| --- | --- | --- |
| ***Food*** | ***Maximum permitted level (mg/kg)*** | ***Conditions of use*** |
| Raw poultry meat | 13.4 (in the skin) | (1) The concentration of cetylpyridinium chloride in the aqueous wash solution that is applied to the raw poultry meat must not exceed 1% w/v.(2) The raw poultry meat, after being treated with cetylpyridinium chloride, must be rinsed in potable water. |

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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. 47 of Schedule 18 as in force on **29 April 2025** (up to Amendment No. 236). It includes any commenced amendment affecting the compilation to that date.

Prepared by Food Standards Australia New Zealand on **22 May 2025.**

**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 registrationGazette  | Commencement(Cessation) | How affected | Description of amendment |
| --- | --- | --- | --- | --- | --- |
| table to S18—3 | 161 | F2016L0012018 Feb 2016FSC10322 Feb 2016 | 1 March 2016 | am | Correction of spelling of tetraethylenepentamine. |
| table to S18—3 | 168 | F2017L0041411 April 2017FSC11013 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 | F2015L012276 Aug 2015FSC986 Aug 2015 | 1 March 2016 | ad | Entry for chymotrypsin. |
| table to S18—4(5) | 156 | F2015L012286 Aug 2015FSC986 Aug 2015  | 1 March 2016 | ad | Entry for trypsin. |
| table to S18—4(5) | 157 | F2015L013741 Sept 2015FSC993 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 | F2015L013741 Sept 2015FSC993 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 | F2015L013741 Sept 2015FSC993 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 | F2015L019192 Dec 2015FSC1017 Dec 2015 | 1 March 2016 | rs | Entry for asparaginase. |
| table to S18—4(5) | 164 | F2016L0119920 July 2016FSC10621 July 2016 | 21 July 2016 | ad | Entry for glutaminase. |
| table to S18—4(5) | 170 | F2017L0058323 May 2017FSC11225 May 2017 | 25 May 2017 | ad | Entry for oryzin. |
| table to S18—4(5) | 172 | F2017L011365 Sept 2017FSC1147 Sept 2017 | 7 Sept 2017 | am | Entry for β-Galactosidase (EC 3.2.1.23).  |
| S18—9(2) | 164  | F2016L0120420 July 2016FSC10621 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 | F2016L0078712 May 2016FSC10519 May 2016 | 19 May 2016 | ad | Entry for *Salmonella* phage preparation (S16 and FO1a). |
| table to S18—9(3) | 164  | F2016L0120420 July 2016FSC10621 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  | F2016L0120420 July 2016FSC10621 July 2016 | 21 July 2016 | ad | Entry for sulphonate agarose ion exchange resin. |
| table to S18—9(3) | 168 | F2017L0041411 April 2017FSC11013 April 2017  | 13 April 2017 | am | Correction of formatting errors for potassium bromate and sodium bromate. |
| table to S18—9(3) | 172 | F2017L011386 Sept 2017FSC1147 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 | F2017L0138924 Oct 2017FSC11526 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 | F2018L0003310 Jan 2018FSC11711 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 | F2018L0003510 Jan 2018FSC11711 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 2018FSC1193 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 | F2018L0114821 Aug 2018FSC 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 | F2018L0114721 Aug 2018FSC 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 | F2018L0144518 Oct 2018FSC 12223 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 | F2018L0159423 Nov 2018FSC12329 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 | F2019L0003911 Jan 2019FSC12423 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 | F2019L0070430 May 2019FSC1266 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 | F2019L0070930 May 2019FSC1266 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 | F2019L0071230 May 2019FSC1266 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 | F2019L0099517 July 2019FSC12725 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 | F2019L0113712 May 2020FSC13314 May 2020F2019L0113728 Aug 2019FSC1285 Sep 2019Note: This variation was 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 | F2019L0113728 Aug 2019FSC1285 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 | F2019L0113728 Aug 2019FSC1285 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 | F2019L015694 Dec 2019FSC1295 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 | F2020L0002515 Jan 2020FSC13117 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 | F2020L0015320 Feb 2020FSC 13226 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 | F2020L0015320 Feb 2020FSC 13226 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 | F2020L0015320 Feb 2020FSC 13226 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 2020FSC 13226 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 | F2020L0056812 May 2020FSC13314 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 | F2020L0057012 May 2020FSC13314 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 | F2020L0093723 July 2020FSC13428 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 | F2020L0111131 August 2020FSC1363 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 | F2020L0111331 August 2020FSC1363 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 | F2020L015161 December 2020 FSC1373 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 | F2020L015221 December 2020 FSC1373 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 | F2021L006711 June 2021FSC1413 June 2021 | 3 June 2021 | ad | β-Amylase (EC 3.2.1.2) sourced from soybean (*Glycine max*) |
| S18—9(3) | 200 | F2021L006842 June 2021FSC1413 June 2021 | 3 June 2021 | rep | Omit (EC 2.4.1.17) whenever occuring |
| table to S18—9(3) | 201 | F2021L0098414 July 2021FSC14222 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 | F2021L0118124 August 2021FSC14326 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 | F2021L0118124 August 2021FSC14326 August 2021 | 26 August 2021 | ad | Note included on enzyme sources and related standards. |
| Table to S18—9(3) | 203 | F2021L0143614 October 2021FSC 14421 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 | F2022L0003918 January 2022FSC 14620 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*. |
| Table to S18—4 (5) | 208 | F2022L0072227 May 2022FSC 14820 June 2022 | 1 June 2022 | rep |

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| β-Fructofuranosidase (EC 3.2.1.26)  |

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| Table to S18—9 (3) | 208 | F2022L0072327 May 2022FSC 1481 June 2022 | 1June 2022 | ad | Maltogenic α-Amylase (EC 3.2.1.133) sourced from *Escherichia coli* containing the maltogenic α-Amylase gene from *Geobacillus stearothermophilus*  |
| S18—11 | 211 | F2022L0112526 August 2022FSC1511 September 2022 | 1 September 2022 | ad | Cetylpyridinium chloride as an anti-microbial agent |
| Table to S18—9 (3) | 213 | F2022L0138524 October 2022FSC15327 October 2022 | 27 October 2022 | ad | Thermomycolin (EC 3.4.21.65) sourced from *Trichoderma reesei* containing the thermomycolin gene from *Malbranchea cinnamomea* |
| Table to S18—9 (3) | 213 | F2022L0140026 October 2022FSC15327 October 2022 | 27 October 2022 | ad | Chymosin (EC 3.4.23.4) sourced from *Trichoderma reesei* containing the chymosin gene from *Bos taurus* |
| Table to S18—9 (3) | 214 | F2022L015908 December 2022FSC1548 December 2022 | 8 December 2022 | ad | Polygalacturonase (EC 3.2.1.15) sourced from *Aspergillus oryzae* containing the polygalacturonase gene from *Aspergillus tubingensis* |
| Table to S18—9 (3) | 214 | F2022L015938 December 2022FSC1548 December 2022 | 8 December 2022 | ad | Pectinesterase (EC 3.1.1.11) sourced from *Aspergillus oryzae* containing the pectinesterase gene from *Aspergillus tubingensis* |
| Table to S18—9 (3) | 214 | F2022L015928 December 2022FSC1548 December 2022 | 8 December 2022 | ad | Phospholipase A1 (EC 3.1.1.32) sourced from *Aspergillus oryzae*containing the phospholipase A1 gene from *Valsaria rubricosa* |
| Table to S18—9 (3) | 214 | F2022L015888 December 2022FSC1548 December 2022 | 8 December 2022 | ad | Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Gloeophyllum trabeum* |
| S18—9(3)  | 214 | F2022L015888 December 2022FSC1548 December 2022 | 8 December 2022 | ad | Insert, Glucoamylase, protein engineered variant; to note after table. |
| S18—9(3) | 215 | F2023L0003111 January 2023FSC15516 January 2023 | 16 January 2023 | ad | α-Amylase (EC 3.2.1.1) sourced from *Bacillus licheniformis* containing the α-amylase gene from *Cytophaga*species |
| S18—9(3) | 216 | F2023L001862 March 2023FSC1562 March 2023 | 2 March 2023 | ad | β-Amylase (EC 3.2.1.2) sourced from *Bacillus licheniformis* containing the β-amylase gene from *Priestia flexa* (basionym *Bacillus flexus*) |
| S18—9(3) | 216 | F2023L0014324 Feb 2023FSC1562 March 2023 | 2 March 2023 | ad | Phospholipase A1 (EC 3.1.1.32) sourced from *Aspergillus niger* containing the phospholipase A1 gene from *Evansstolkia leycettana* (basionym *Talaromyces leycettanus*) |
| S18—9(3) | 216 | F2023L0014724 Feb 2023FSC1562 March 2023 | 2 March 2023 | ad | Glucose oxidase (EC 1.1.3.4) sourced from *Penicillium rubens* |
| S18—9(3) | 217 | F2023L0044918 April 2023FSC15721 April 2023 | 21 April 2023 | ad | Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Penicillium oxalicum* |
| S18—9(3) | 219 | F2023L0056523 May 2023FSC15926 May 2023 | 26 May 2023 | ad | α-Amylase (EC 3.2.1.1) sourced from *Bacillus subtilis* containing the α-amylase gene from *Thermoactinomyces vulgaris* |
| S18—9(4)2 | 220 | F2023L0100411 July 2023FSC16019 July 2023 | 19 July 2023 | rs | Repeal and substitute note 3 |
| Table to S18—9(3) | 220 | F2023L0100411 July 2023FSC16019 July 2023 | 19 July 2023 | rs | Repeal and substitute column 2 in Table |
| S18—9(3 | 221 | F2023L0112429 Aug 2023FSC1611 Sept 2023 | 1 September 2023 | ad | α-Arabinofuranosidase (EC3.2.1.55) sourced from *Trichoderma**reesei* containing the αarabinofuranosidase gene from *Talaromyces pinophilus* |
| S18—9(3) | 221 | F2023L0112028 Aug 2023FSC1611 Sept 2023 | 1 September 2023 | ad | Endo-1,4-beta-xylanase (EC3.2.1.8) sourced from *Trichoderma**reesei* containing the endo-1,4-beta-xylanase gene from *Talaromyces**leycettanus* |
| S18—9(3) | 221 | F2023L0112128 Aug 2023FSC1611 Sept 2023 | 1 September 2023 | ad | Carboxypeptidase (EC 3.4.16.6)sourced from *Aspergillus oryzae*containing the carboxypeptidasegene from *Aspergillus oryzae* |
| S18—9(3) | 222 | F2023L0140220 October 2023FSC16230 October 2023 | 30 October 2023 | rs | Repeal and substitute S18-9(3) entry for α-Glucosidase (EC 3.2.1.20) sourced from *Trichoderma reesei* containing the α glucosidase gene from *Aspergillus niger* |
| S18—9(3) | 223 | F2023L0155427 Nov 2023FSC16330 Nov 2023 | 30 November 2023 | ad | Endo-1,4-β-xylanase, protein engineered variant, (EC 3.2.1.8) sourced from *Trichoderma reesei*, containing the endo-1,4-ß-xylanase gene from *Fusarium verticillioides* |
| S18—9(3) | 225 | F2024L0007917 January 2024FSC16519 January 2024 | 19 January 2024 | ad | Entries for the following new enzymes, each with a technological purposes and maximum permitted level;Sucrose synthase, protein engineered variant, (EC 2.4.1.13) sourced from *Escherichia coli* K-12 containing the gene for sucrose synthase from *Glycine max*Uridine diphosphate (UDP)- glucosyltransferase, protein engineered variant, sourced from *Escherichia coli* K-12 containing the UDP-glucosyltransferase gene from *Oryza sativa*Uridine triphosphate (UTP)-glucose-1-phosphate uridylyltransferase, protein engineered variant, (EC 2.7.7.9) sourced from *Escherichia coli* K-12, containing the gene for UTP-glucose-1-phosphate uridylyltransferase from *Bifidobacterium bifidum* |
| S18—9(3) | 225 | F2024L0007817 January 2024FSC16519 January 2024 | 19 January 2024 | ad | Insert new entry Fructan β-fructosidase |
| S18—9(3) | 225 | F2024L0007817 January 2024FSC16519 January 2024 | 19 January 2024 | rs | Omit and substitute note after table to protein engineered variants of enzymes listed in the note. |
| S18—9(3) | 225 | F2024L0007717 January 2024FSC16519 January 2024 | 19 January 2024 | ad | Pullulanase (EC 3.2.1.41) sourced from *Bacillus subtilis* containing the pullulanase gene from *Bacillus deramificans.* |
| S18—9(3) | 227 | F2024L0046517 April 2024FSC16729 April 2024 | 29 April 2024 | ad | Cellulase, protein engineered variant, (EC 3.2.1.4) sourced from *Aspergillus niger* containing the cellulase gene from *Trichoderma reesei* |
| S18—9(3) | 227 | F2024L0046818 April 2024FSC16729 April 2024 | 29 April 2024 | ad | β-Fructofuranosidase (EC 3.2.1.26) sourced from *Trichoderma reesei* containing the β-fructofuranosidase gene from *Aspergillus niger* |
| S18—9(3) | 228 | F2024L0057928 May 2024FSC16831 May 2024 | 31 May 2024 | ad | Transglutaminase (EC 2.3.2.13) sourced from *Bacillus licheniformis* containing the transglutaminase gene from *Streptomyces mobaraensis* |
| S18-9(3) | 230 | F2024L0098813 August 2024FSC 17015 August 2024 | 15 August 2024 | ad | Subtilisin, protein engineered variant, (EC 3.4.21.62) sourced from *Bacillus subtilis* containing the gene for subtilisin from *Bacillus clausii* |
| S18-9(3) | 230 | F2024L0098813 August 2024FSC 17015 August 2024 | 15 August 2024 | rs | Substitute note after table to Protein engineered enzymes used in the manufacture of various steviol glycosides;Subtilisin, protein engineered variant. |
| S18—9(3) | 233 | F2024L0137728 October 2024FSC17329 October 2024 | 29 October 2024 | ad | Insert D-psicose 3-epimerase (EC 5.1.3.30) from *Microbacterium foliorum into S18*—9(3) table.  |
| S18—9(3) | 233 | F2024L0137828 October 2024FSC173 29 October 2024 | 29 October 2024 | ad | Insert in table Lipase, triacylglycerol, protein engineered variant, (EC 3.1.1.3) sourced from Trichoderma reesei containing the lipase, triacylglycerol gene from *Thermomyces lanuginosus* |
| S18—9(3) | 233 | F2024L0137828 October 2024FSC173 29 October 2024 | 29 October 2024 | rs | Omit dot point list after table identifying protein engineered enzymes and substitute.  |
| S18—8 | 234 | F2025L000128 January 2025FSC 174 13 January 2025 | 13 January 2025 | ad | Insert 2-Methyloxolane into table |
| S18—9(3) | 234 | F2025L000148 January 2025FSC 174 13 January 2025 | 13 January 2025 | ad | Insert Glucoamylase, protein engineered variant, (EC 3.2.1.3) sourced from *Aspergillus niger* containing the glucoamylase gene from *Gloeophyllum sepiarium* |
| S18—9(3) | 236 | F2025L0052124 April 2025FSC 176 29 April 2025 | 29 April 2025 | ad | Insert fructosyltransferase, immobilised, (EC 2.4.1.9) derived from *Aspergillus oryzae* |
| S18—9(3) | 236 | F2025L0052224 April 2025FSC 176 29 April 2025 | 29 April 2025 | ad | Insert lipase, triacylglycerol (EC 3.1.1.3) sourced from *Komagataella phaffii* containing the lipase, triacylglycerol gene from *Fusarium oxysporum* |