

New Zealand Food Safety

Haumaru Kai Aotearoa

Identifying Food Additives



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Food Additives

Additives are used to improve food.

They can:

- improve the keeping quality of a food by making it last longer on the shelf or in the fridge, for example a preservative to prevent the growth of bacteria or a humectant to stop food from drying out;
- improve the taste or appearance of a food, for example by the use of flavours, thickeners and colours.

Another benefit of food additives is that consumers can be offered a wider choice of foods. Many processed foods contain additives. Some common examples are bacon, margarine, ice cream and bread.

Some people believe that because food additives are chemicals they should be banned. However, everything in the world, including us and the food we eat, is made of chemicals. Air, water, glucose and salt are chemicals in the same way that food additives are.

Many food additives occur naturally, such as red colour from beetroot (Beet red), and purple colour from grape skins (anthocyanins). These colours can be extracted and added to foods.

Some food additives found in nature can be manufactured, for example, ascorbic acid. Other additives are manufactured but not found in nature, such as aspartame, which is used to replace sugar.

Controlling the use of additives

Before an additive can be used in foods, Food Standards Australia New Zealand (FSANZ) carries out a safety assessment. All additives go through a safety assessment process. FSANZ checks that the food additive is safe at the level proposed to be used, and that there are good technological reasons for the use of the additive. If FSANZ agrees that a food additive should be permitted, approval of government Ministers is sought. It is only after Ministerial approval that a food additive can be used in foods. The Food Standards Code (this is the joint food law between Australia and New Zealand) says which additives can be used and in what foods.

Additives and adverse reactions (Intolerance, allergies)

A small number of people may have adverse reactions to some food additives, just as some people may be allergic to or have adverse reactions to peanuts, milk or shellfish. Food labelling helps people who are sensitive to certain food additives to avoid them.

Reading the food label

To check what additives are in foods, read the label. All food ingredients, including any additives, must be listed on the label of a food. The ingredients are listed in descending order of ingoing weight.

On the label, within the list of ingredients, the class name of the additive will be listed and then the additive name or code number in brackets.

For example:

Thickener (pectin) or Thickener (440)

(class name) (additive name) (class name) (code number)

Class name

Food additives are grouped into classes according to their function. For example, all colour additives are used to colour food, so are in one group in this booklet. Some food additives have more than one use. See, for example, Soy Lecithin (number 322). It can be used as an antioxidant, and also as an emulsifier. It therefore has two entries in this booklet. Where an additive is capable of being classified in more than one class, the most appropriate class name is used on the label of a food.

In some cases there are optional or alternative class names not listed in this booklet that can be used on the label.

For example, some thickeners can also be called modified starches.

Some additives do not have a legally defined class name. The group of additives that function as propellants (see table in this booklet) have no legally defined class name, so are listed on the label by the specific name of the additive, with no reference to a class name.



Code numbers

Most food additives have code numbers. The numbers listed in this booklet are part of an international numbering system.

Code numbers use less space on labels than names of additives. They also help avoid the confusion caused by some additives having more than one name, or additives with similar names.

Enzymes and flavours are not required to be specifically named, or identified with code numbers. These additives are required to be labelled by their class name only.

Some code numbers may have an “E” in front of them. This means that the food is labelled for the European Union market.

Vitamins and minerals

Vitamins and minerals are not classified as additives, under the Food Standards Code. Some vitamins and minerals have a code number however, as they are also used as food additives. An example of this is Ascorbic acid (vitamin C), which is an antioxidant but can also be added as a vitamin to some foods. Those additives that can also function as a vitamin or mineral are identified in this booklet with an asterisk.

What food additives do

In this booklet, food additives are listed under their class name in numerical order. Look at the beginning of each class to find out what they do. For example, under COLOURS it states what they do and why they are used. You will find, for example, that colour (110) is Sunset yellow FCF.

Food additives

You may wish to check the additives in food. The food additives allowed in New Zealand and Australia are listed below. They are listed in their classes in numerical order.

COLOURS

Colours make foods look more attractive. They are added to help identify flavours, to make food look brighter and to restore colour that may have been lost during processing.

100	Curcumin or Turmeric	155	Brown HT
101*	Riboflavin or Riboflavin 5'-phosphate sodium	160a*	Carotene
102	Tartrazine	160b	Annatto extracts
103	Alkanet or Alkannin	160c	Paprika oleoresins
104	Quinoline yellow	160d	Lycopene
110	Sunset yellow FCF	160e *	b-apo-8'-Carotenal
120	Cochineal or Carmines or Carminic acid	160f *	b-apa-8'-Carotenoic acid methyl or ethyl ester
122	Azorubine or Carmoisine	161a	Flavoxanthin
123	Amaranth	161b	Lutein
124	Ponceau 4R	161c	Kryptoxanthin
127	Erythrosine	161d	Rubixanthin
129	Allura red AC	161e	Violoxanthin
132	Indigotine	161f	Rhodoxanthin
133	Brilliant Blue FCF	162	Beet red
140	Chlorophyll	163	Anthocyanins or Grape skin extract or Blackcurrant extract
141	Chlorophyll-copper complex or Chlorophyllin copper complex, sodium and potassium salts	164	Saffron or Crocetin or Crocin
142	Green S	171	Titanium dioxide
143	Fast green FCF	172	Iron oxide
150a	Caramel I	173	Aluminium
150b	Caramel II	174	Silver
150c	Caramel III	175	Gold
150d	Caramel IV		
151	Brilliant black BN or Brilliant Black PN		
153	Carbon blacks or Vegetable carbon		

PRESERVATIVES

Preservatives are used to improve the safety of food by controlling the growth of mould, bacteria and yeast that cause food to deteriorate.

200	Sorbic acid	213	Calcium benzoate
201	Sodium sorbate	216	Propylparaben or Propyl-p-hydroxybenzoate
202	Potassium sorbate	218	Methylparaben or Methyl-p-hydroxybenzoate
203	Calcium sorbate	220	Sulphur dioxide
210	Benzoic acid	221	Sodium sulphite
211	Sodium benzoate	222	Sodium bisulphite
212	Potassium benzoate		

* Denotes additives that can also be added to a food as a vitamin or mineral, where the Food Standards Code permits. See section on vitamins and minerals page 3.

223	Sodium metabisulphite	251	Sodium nitrate
224	Potassium metabisulphite	252	Potassium nitrate
225	Potassium sulphite	280	Propionic acid
228	Potassium bisulphite	281	Sodium propionate
234	Nisin	282	Calcium propionate
235	Natamycin or Pimaricin	283	Potassium propionate
243	Ethyl lauroyl arginate	385	Calcium disodium ethylenediaminetetraacetate or Calcium disodium EDTA
249	Potassium nitrite	1105	Lysozyme
250	Sodium nitrite		

ACIDITY REGULATORS

Acidity regulators (including acids and alkalis) adjust the acid or alkaline level in food or maintain a sour or sharp taste. An acidified food can retard the growth of some microorganisms.

260	Acetic acid, glacial	353	Metatartaric acid
261	Potassium acetate or Potassium diacetate	354	Calcium tartrate
262	Sodium acetate or Sodium diacetate	355	Adipic acid
263	Calcium acetate	357	Potassium adipate
264	Ammonium acetate	359	Ammonium adipates
270	Lactic acid	363	Succinic acid
296	Malic acid	365	Sodium fumarate
297	Fumaric acid	366	Potassium fumarate
325	Sodium lactate	367	Calcium fumarate
326	Potassium lactate	368	Ammonium fumarate
327*	Calcium lactate	380	Ammonium citrate or Triammonium citrate
328	Ammonium lactate	381*	Ferric ammonium citrate
329	Magnesium lactate	450	Potassium pyrophosphate or Sodium acid pyrophosphate or Sodium pyrophosphate
330	Citric acid	451	Potassium tripolyphosphate or Sodium tripolyphosphate
331	Sodium citrates	500	Sodium carbonate or Sodium bicarbonate
332	Potassium citrates	501	Potassium carbonate or Potassium bicarbonate
333*	Calcium citrate	503	Ammonium bicarbonate or Ammonium hydrogen carbonate
334	Tartaric acid	504*	Magnesium carbonates
335	Sodium tartrate	507	Hydrochloric acid
336	Potassium tartrate or Potassium acid tartrate	514	Sodium sulphates
337	Potassium sodium tartrate	515	Potassium sulphate
338*	Phosphoric acid	526*	Calcium hydroxide
339*	Sodium phosphates	529*	Calcium oxide
340*	Potassium phosphates	575	Glucono delta-lactone
341*	Calcium phosphates	578*	Calcium gluconate
342	Ammonium phosphates	580*	Magnesium gluconate
343*	Magnesium phosphates		
349	Ammonium malate		
350	Sodium malates		
351	Potassium malates		
352	Calcium malates		

ANTIOXIDANTS

Antioxidants help to stop oils and fats from deteriorating and developing rancid flavours. They also slow down colour and flavour changes so foods made using oils and fats can be kept for longer.

300*	Ascorbic acid	320	Butylated hydroxyanisole
301*	Sodium ascorbate	321	Butylated hydroxytoluene
302*	Calcium ascorbate	322	Lecithin
303*	Potassium ascorbate	330	Citric acid
304*	Ascorbyl palmitate	331	Sodium citrates
307*	alpha – Tocopherol	332	Potassium citrates
307b*	Tocopherols concentrate, mixed	333*	Calcium citrate
308	gamma – Tocopherol	334	Tartaric acid
309	delta – Tocopherol		Calcium disodium ethylenediaminetetraacetate or Calcium disodium EDTA
310	Propyl gallate	385	
311	Octyl gallate	392	Rosemary extract
312	Dodecyl gallate	512	Stannous chloride
315	Erythorbic acid	586	4-hexylresorcinol
316	Sodium erythorbate	1102	Glucose oxidase
319	tert-Butylhydroquinone		

EMULSIFIERS, STABILISERS, THICKENERS AND GELLING AGENTS

Emulsifiers	are used to ensure that mixtures of oil and water based ingredients stay mixed together.
Stabilisers	make it possible for two or more ingredients (which usually don't stay mixed) to stay together.
Thickeners	thicken food and ensure uniform consistency. These include modified starches.
Gelling agents	modify food texture through the formation of a gel. This helps food to set.

181	Tannic acid or tannins	405	Propylene glycol alginate
322	Lecithin	406	Agar
331	Sodium citrates	407	Carrageenan
332	Potassium citrates	407a	Processed eucheuma seaweed
333*	Calcium citrate	409	Arabinogalactan or Larch gum
336	Potassium tartrate or Potassium acid tartrate	410	Locust bean gum or Carob bean gum
337	Potassium sodium tartrate	412	Guar gum
339*	Sodium phosphates	413	Tragacanth gum
340*	Potassium phosphates	414	Acacia gum or Gum arabic
341*	Calcium phosphates	415	Xanthan gum
400	Alginic acid	416	Karaya gum
401	Sodium alginate	418	Gellan gum
402	Potassium alginate	420	Sorbitol or Sorbitol syrup
403	Ammonium alginate	421	Mannitol
404	Calcium alginate	422	Glycerin or glycerol
		431	Polyoxyethylene (40) stearate

* Denotes additives that can also be added to a food as a vitamin or mineral, where the Food Standards Code permits. See section on vitamins and minerals page 3.

432	Polysorbate 20 or Polyoxyethylene sorbitan monolaurate	481	Sodium lactylate or Sodium oleyl lactylate or Sodium stearoyl lactylate
433	Polysorbate 80 or Polyoxyethylene (20) sorbitan monooleate	482	Calcium lactylate or Calcium oleyl lactylate or Calcium stearoyl lactylate
435	Polysorbate 60 or Polyoxyethylene (20) sorbitan monostearate	491	Sorbitan monostearate
436	Polysorbate 65 or Polyoxyethylene (20) sorbitan tristearate	492	Sorbitan tristearate
440	Pectins	501	Potassium carbonate or Potassium bicarbonate
442	Ammonium salts of phosphatidic acid	508	Potassium chloride
444	Sucrose acetate isobutyrate	541	Sodium aluminium phosphate
445	Glycerol esters of wood rosin	542*	Bone phosphate
450	Potassium pyrophosphate or Sodium acid pyrophosphate or Sodium pyrophosphate	900a	Polydimethylsiloxane or Dimethylpolysiloxane
451	Potassium triphosphosphate or sodium triphosphosphate	965	Maltitol and Maltitol syrup or Hydrogenated glucose syrup
452	Potassium polymetaphosphate or Sodium metaphosphate, insoluble or Sodium polyphosphates, glassy	967	Xylitol
455	Yeast mannoproteins	999(i)	Quillaia extract (type 1)
460	Cellulose, microcrystalline or powdered	999 (ii)	Quillaia extract (type 2)
461	Methyl cellulose	1001	Choline salts
463	Hydroxypropyl cellulose	1101	Proteases (papain, bromelain, ficin)
464	Hydroxypropyl methylcellulose	1200	Polydextrose
465	Methyl ethyl cellulose	1201	Polyvinylpyrrolidone
466	Sodium carboxymethylcellulose	1400	Dextrin roasted starch
470	Aluminium, calcium, sodium, magnesium, potassium and ammonium salts of fatty acids	1401	Acid treated starch
471	Mono- and di-glycerides of fatty acids	1402	Alkaline treated starch
472a	Acetic and fatty acid esters of glycerol	1403	Bleached starch
472b	Lactic and fatty acid esters of glycerol	1404	Oxidised starch
472c	Citric and fatty acid esters of glycerol	1405	Enzyme treated starches
472e	Diacetyltartaric and fatty acid esters of glycerol	1410	Monostarch phosphate
472f	Mixed tartaric, acetic and fatty acid esters of glycerol	1412	Distarch phosphate
473	Sucrose esters of fatty acids	1413	Phosphated distarch phosphate
475	Polyglycerol esters of fatty acids	1414	Acetylated distarch phosphate
476	Polyglycerol esters of interesterified ricinoleic acid	1420	Starch acetate esterified with acetic anhydride
477	Propylene glycol mono- and di-esters or Propylene glycol esters of fatty acids	1422	Acetylated distarch adipate
480	Diocetyl sodium sulphosuccinate	1440	Hydroxypropyl starch
		1442	Hydroxypropyl distarch phosphate
		1450	Starch sodium octenylsuccinate
		1451	Acetylated oxidised starch
		1522	Calcium lignosulphonate(40-65)

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ANTICAKING AGENTS

Anticaking agents reduce the tendency of particles to stick together so that products like salt flow freely.

170*	Calcium carbonate	542*	Bone phosphate
341*	Calcium phosphates	551	Silicon dioxide, amorphous
343*	Magnesium phosphates	552	Calcium silicate
381*	Ferric ammonium citrate	553	Magnesium silicate or Talc
460	Cellulose, microcrystalline or powdered	554	Sodium aluminosilicate
470	Aluminium, calcium, sodium, magnesium, potassium and ammonium salts of fatty acids	555	Potassium aluminium silicate
500	Sodium carbonate or Sodium bicarbonate	556	Calcium aluminium silicate
504*	Magnesium carbonates	558	Bentonite
530*	Magnesium oxide	559	Aluminium silicate
535	Sodium ferrocyanide	560	Potassium silicate
536	Potassium ferrocyanide	900a	Polydimethylsiloxane or Dimethylpolysiloxane
		953	Isomalt

HUMECTANTS

Humectants keep food moist and stop it from drying out.

325	Sodium lactate	966	Lactitol
326	Potassium lactate	967	Xylitol
350	Sodium malates	968	Erythritol
420	Sorbitol or sorbitol syrup	1200	Polydextrose
421	Mannitol	1518	Triacetin
422	Glycerin or glycerol	1520	Propylene glycol
914	Oxidised polyethylene		
965	Maltitol and Maltitol syrup or Hydrogenated glucose syrup		

RAISING AGENTS

Raising agents are used in bakery products to make them rise.

500	Sodium carbonate or Sodium bicarbonate	575	Glucono delta-lactone
503	Ammonium bicarbonate or Ammonium hydrogen carbonate	920	L-cysteine monohydrochloride
541	Sodium aluminium phosphate		

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FIRMING AGENTS

Firming agents contribute to firmness of food or interact with gelling agents to produce or strengthen a gel.

509*	Calcium chloride	526	Calcium hydroxide
511*	Magnesium chloride	576	Sodium gluconate
516*	Calcium sulphate	578*	Calcium gluconate
518*	Magnesium sulphate	580*	Magnesium gluconate

FOAMING AGENTS

Foaming agents maintain the uniform dispersion of gases in aerated food.

465	Methyl ethyl cellulose
570	Stearic acid or fatty acid

FLAVOUR ENHANCERS

Flavour enhancers improve the existing flavour and/or taste of food.

620	L-glutamic acid	631	Disodium 5' -inosinate
621	Monosodium L-glutamate or MSG	635	Disodium 5' -ribonucleotides
622	Monopotassium L-glutamate	636	Maltol
623	Calcium glutamate	637	Ethyl maltol
624	Monoammonium L-glutamate	640	Glycine
625	Magnesium glutamate	641	L-Leucine
627	Disodium 5' -guanylate	957	Thaumatococcus

GLAZING AGENTS

Glazing agents help protect a food and make it look shiny.

570	Stearic acid or fatty acid	904	Shellac
901	Beeswax, white and yellow	905b	Petrolatum or Petroleum jelly
903	Carnauba wax		

PROPELLANTS

Propellants are sealed under pressure in an aerosol food container. This enables an aerosol can to spray out its contents, e.g. cream in a can with a nozzle. **Note:** Propellants should be listed on the label by name (e.g. carbon dioxide) rather than using the class name propellant followed by the code number.

290	Carbon dioxide	943b	Isobutane
941	Nitrogen	944	Propane
942	Nitrous oxide	946	Octafluorocyclobutane
943a	Butane		

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BULKING AGENTS

Bulking agents contribute to the volume of a food without contributing significantly to its available energy.

325	Sodium lactate	953	Isomalt
326	Potassium lactate	1200	Polydextrose

ENZYMES

Enzymes describe a group of substances that may have diverse functions. For example, lipases assist in cheesemaking where milk is broken down into curds and whey. Others can act as a stabiliser, or preservative.

1100	alpha-Amylase	1104	Lipases
1101	Proteases (papain, bromelain, ficin)	1105	Lysozyme

SWEETENERS

Sweeteners replace the sweetness normally provided by sugars in foods. Some are intense sweeteners and do not contribute significantly to the available energy of foods.

420	Sorbitol or sorbitol syrup	960	Steviol glycosides
421	Mannitol	961	Neotame
950	Acesulphame potassium	962	Aspartame – acesulphame salt
951	Aspartame	965	Maltitol and Maltitol syrup or Hydrogenated glucose syrup
952	Cyclamate or Calcium cyclamate or Sodium cyclamate	966	Lactitol
953	Isomalt	967	Xylitol
954	Saccharin	968	Erythritol
955	Sucralose	969	Advantame
956	Alitame	–	Monk fruit extract or Luo han guo extract
957	Thaumatococin		

ANTIFOAMING AGENTS

Antifoaming agents stop or reduce foaming.

1505	Triethyl citrate
1521	Polyethylene glycol 8000

MISCELLANEOUS ADDITIVES

Some additives cannot be classified by one of the classes listed.

510	Ammonium chloride (flour treatment agent)
519*	Cupric sulphate (mineral salt)
577	Potassium gluconate (sequestrant)
579*	Ferrous gluconate (colour retention agent)

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Find out more

New Zealand Food Safety has food safety information, tips and hints available for free, including:

- Eating safely when you have food allergies
- Food Safety in the home
- Food Safety for people with low immunity
- Food Safety in pregnancy
- Food Safety for hunters and seafood gatherers

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New Zealand Government