

I. PROCESSING AIDS CATEGORIES:

- (1) **Antifoaming Agents:** Substances that reduce and hinder the formation of foam during processing of liquid food products.
- (2) **Catalyst:** Substances that increase the rate of a chemical reaction without itself undergoing any permanent chemical change.
- (3) **Clarifying Agents and Filtration Agents:** Substances that are used to remove suspended solids from liquids by inducing flocculation and those substances which aid in the process of filtration.
- (4) **Lubricants, Release and Antistick Agents:** Substances which help to reduce friction between food contact surfaces and substances that provide critical barrier between molding surface and the substrate facilitating separation of cured part from the mold.
- (5) **Microbial Control Agents, Microbial Nutrients and Microbial Nutrient Adjuncts**
 - (a) **Microbial Control Agents:** Substances that can be used to inactivate target organisms in the processing of foods.
 - (b) **Microbial Nutrients and Microbial Nutrient Adjuncts:** Substances that can be used to enhance the growth of the microbial culture intended to be used in food processing.
- (6) **Solvent for Extraction and Processing:** Processing aids that help in the separation of a particular substance from a mixture by dissolving that substance in a solvent that will dissolve it, but which will not dissolve any other substance in the mixture.
- (7) **Bleaching, Washing, Peeling and Denuding Agents:** Substances that can be used in making food products white or colorless and substances that aid in surface treatment (washing, denuding and peeling) of food specified in these regulations.
- (8) **Flocculating Agents:** Substances that promote flocculation by forming colloids and other suspended particles in liquids to aggregate and forming a floc. Flocculants are used to improve the sedimentation or filterability of small particles.
- (9) **Contact Freezing and Cooling Agents:** Substances that can cause rapid freezing on contact with food.
- (10) **Desiccating Agent:** Substances that extract water and prevent the formation of lumps during manufacturing of food products. They are either soluble or insoluble substances that adsorb water due to their chemical properties.
- (11) **Enzymes:** These are macromolecular biological catalysts which accelerate chemical reactions in the treatment or processing of raw materials, foods, or ingredients. The enzymes may be used as a

processing aid to perform any technological purpose if the enzyme is derived from the corresponding source specified in the table.

(12) Generally permitted processing aids

This category includes processing aids which have different technological functions. They shall be used as per the conditions specified in the corresponding table under these regulations.

II. USE OF PROCESSING AIDS IN FOOD PRODUCTS:

The processing aids listed in Table 1 to Table 12 may be used in the course of manufacture of food specified in the corresponding table, provided the final food contains not more than the corresponding residue level specified in the Table.

TABLE 1: ANTIFOAMING AGENTS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1.	Coconut oil	Juices	GMP
2.	Hydrogenated coconut oil	Confectionary	15
		Vegetable protein	GMP
3.	Polydimethylsiloxane (INS 900a)	Beer, fats & oils, vegetable protein, Juices, Potato processing ⁸¹ [,alcoholic beverages]	10
4.	Polyethylene glycol (INS 1521)	All foods	GMP
5.	Propylene glycol (INS 1520)	All foods	GMP
6.	Sorbitan monolaurate (INS 493)	All foods	1
7.	Sorbitan monooleate (INS 494)	All foods	1
8.	Vegetable fatty acid esters	Juices	GMP
⁸¹ [9.	Polysorbate Sorbitan Monolaurate	Sugar	GMP]

TABLE 2: CATALYST

S. No.	Name of the processing aid	Product Category	Residual Level (mg/kg) Not more than
1	Chromium (excluding chromium VI)	Hydrogenated vegetable oil	0.1
2.	Copper	Hydrogenated vegetable oil	0.1
3.	Molybdenum	Hydrogenated vegetable oil	0.1
4.	Nickel	Polyols	1
		Hardened oil	0.8
		Hydrogenated vegetable oil	1.5
5.	Potassium	Interesterified vegetable oil	1
6.	Potassium ethoxide	Interesterified vegetable oil	1
7.	Sodium	Interesterified vegetable oil	1
8.	Sodium ethoxide	Interesterified vegetable oil	1
9.	Sodium methoxide	Interesterified vegetable oil	1

TABLE 3: CLARIFYING AGENTS AND FILTRATION AIDS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1.	Acid clays of montmorillonite	Fruit or vegetable juices, fruit nectars, syrups ⁸¹ [,oils] and wine	GMP
2.	Chitosan sourced from <i>Aspergillus niger</i>	Wine, beer, cider, spirits and food grade ethanol	GMP
3.	Chloro methylated aminated styrene-divinyl benzene resin	Sugar	1
4.	Co-extruded polystyrene and polyvinyl polypyrrolidone	Fruit or vegetable juices, fruit nectars, syrups and ⁸¹ [Alcoholic beverages including low	1

		alcoholic and alcohol free counterparts]	
5.	Copper sulphate (INS 519)	Fruit or vegetable juices, fruit nectars, syrups and wine	GMP
6.	Diatomaceous earth	Fruit or vegetable juices, Alcoholic beverages including low alcoholic and alcohol-free counterparts (as filter powder), ⁸¹ [non-alcoholic beverages, sharbat, sugar syrups, synthetic syrups and fruit syrups] ⁸² [and honey]	GMP
7.	Fish collagen, including isinglass	Fruit or vegetable juices, fruit nectars, syrups and Alcoholic beverages including low alcoholic and alcohol-free counterparts	GMP
8.	Kaolin	Fruit or vegetable juices, fruit nectars, syrups and wine	GMP
9.	Magnesium oxide (INS 530)	Fruit or vegetable juices, fruit nectars, syrups and wine	GMP
10.	Perlite	Starch hydrolysis	GMP
11.	Polyvinyl polypyrrolidone (INS 1201)	Fruit or vegetable juices, fruit nectars, syrups and wine	GMP
12.	Shellac, bleached (INS 904)	Fruit or vegetable juices, fruit nectars, syrups and wine	GMP
13.	Synthetic magnesium silicate (INS 553(i))	Edible oils	GMP
⁸¹ [14.	Calcium oxide (INS 529)	Preparation of Corn Flour	GMP
15.	Phosphoric acid (INS 338)	Sugar	GMP]

⁷³TABLE 4: LUBRICANTS, RELEASE AND ANTISTICK AGENTS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1.	Acetylated mono- and diglycerides (INS 472a)	All foods	100
2.	Bees wax (INS 901)	All foods	GMP
3.	Calcium carbonate (INS 170 (i))	All foods	GMP
4.	Calcium and sodium salts of stearic acid	Confectionery	GMP
5.	Carnauba wax (INS 903)	Confectionery	GMP
6.	Coconut Oil	Confectionery, bakery wares, salts, spices, soups, cereal products	GMP
7.	Glycerin/Glycerol (INS 422)	All foods	GMP
8.	Hydrogenated palm kernel oil (HPKO)	Confectionery and bakery wares	GMP
9.	Hydrogenated vegetable oil (HVO)	All foods	GMP
10.	Icing sugar	Confectionery	GMP
11.	Lecithin (INS 322 (i))	All foods	GMP
12.	Liquid paraffin (INS 905 e)	Confectionery	GMP
13.	Magnesium stearate (INS 470(iii))	Confectionery	GMP
14.	Medium chain Triglyceride (MCT) (C6- C12)	Confectionery, bakery wares and fruit Jelly	GMP
15.	Oleic acid	All foods	GMP
16.	Palm oil/Palmolein	Confectionery, bakery wares, Salts, spices, soups and cereal products	GMP
17.	Rice starch	Confectionery	GMP
18.	Sunflower oil	Confectionery, bakery	GMP

		wares, Salts, spices, soups ⁸¹ [, salts, spices, sauces, salads, protein products, seasonings, fruits & vegetable products, nuts & nut products, cereal] and cereal products	
19.	Soybeanoil	Confectionery and bakery wares	GMP
20.	Thermally oxidised soya-bean oil (INS 479)	All foods	320
21.	White mineral oil (INS 905e)	All foods	GMP]
⁸¹ [22 .	Cocoa powder	Chocolates	GMP
23.	Cottonseed oil	Fruits and vegetables, seasonings, bakery products, fruits & vegetable products, salt, spices and soups, cereal and cereal products, nut and nut products	GMP
24.	Magnesium hydrogen carbonate (INS 504(ii))	Snacks	GMP
26.	Talc (INS 553(iii))	Confectionary	GMP
27.	Tricalcium phosphate (INS 341(iii))	Snacks	GMP]

TABLE 5: MICROBIAL CONTROL AGENTS, MICROBIAL NUTRIENTS AND MICROBIAL NUTRIENT ADJUNCTS

MICROBIAL CONTROL AGENT			
S. No.	Name of the processing aid	Product Category	Residual Level (mg/kg) (Not more than)
1.	Dimethyl dicarbonate* (INS 242)	Wine, Fruits and vegetable juices, Water based flavoured drinks	Non-detectable
2.	Lysozyme (INS 1105)	Alcoholic beverages including low alcoholic and alcohol-free counterparts	GMP

3.	Octanoic acid	Meat, fruit and vegetables	GMP
4.	Sodium metasilicate (INS 550 (ii))	Meat and poultry carcasses and cuts	GMP
5.	Sodium chlorite	Meat, fish, fruit and vegetables	GMP
6.	Salmonella phage preparation (S16 and FO1a)	Raw meat and poultry	GMP

** Maximum usage level shall not be more than 200 mg/kg for wine, 250 mg/kg for fruits and vegetable juices and its products and 250 mg/kg for water based flavoured drinks. Residue shall be analyzed as per method specified in “Joint FAO/WHO Expert Committee on Food Additives (JECFA) specification of Dimethyl dicarbonate”.*

MICROBIAL NUTRIENTS AND MICROBIAL NUTRIENT ADJUNCTS (for sustaining microbial growth)		
S. No.	Name of the processing aid	Residual Level (mg/kg) (Not more than)
7.	Adenine	GMP
8.	Adonitol	GMP
9.	Arginine	GMP
10.	Asparagine	GMP
11.	Aspartic acid	GMP
12.	Ammonium sulphate	GMP
13.	Ammonium sulphite	GMP
14.	Benzoic acid	GMP
15.	Biotin	GMP
16.	Calcium pantothenate	GMP
17.	Calcium propionate (INS 282)	GMP
18.	Copper sulphate (INS 519)	GMP
19.	Cysteine	GMP
20.	Cysteine monohydrochloride	GMP
21.	Dextran	GMP
22.	Ferrous sulphate	GMP
23.	Glutamic acid	GMP
24.	Glycine	GMP
25.	Guanine	GMP
26.	Histidine	GMP
27.	Hydroxyethyl starch	GMP
28.	Inosine	GMP

29.	Inositol	GMP
30.	Manganese chloride	GMP
31.	Manganese sulphate	GMP
32.	Niacin	GMP
33.	Nitric acid	GMP
34.	Pantothenic acid	GMP
35.	Peptone	GMP
36.	Phytates	GMP
37.	Polyvinylpyrrolidone (INS 1201)	GMP
38.	Pyridoxine hydrochloride	GMP
39.	Riboflavin (INS 101 (i))	GMP
40.	Sodium formate	GMP
41.	Sodium molybdate	GMP
42.	Sodium tetraborate	GMP
43.	Thiamine	GMP
44.	Threonine	GMP
45.	Trisodium orthophosphate	GMP
46.	Uracil	GMP
47.	Xanthine	GMP
48.	Zinc chloride	GMP
49.	Zinc sulphate	GMP

TABLE 6: SOLVENT FOR EXTRACTION AND PROCESSING

S. No.	Name of the processing aid	Product Category	Residual Level (mg/kg) (Not more than)
1.	Acetone	⁸¹ [flavouring substances]	30
		Spice oleoresins	30
		Colours	2
		Vegetable oils	0.1
		Other foods	0.1
2.	Benzyl alcohol	Fatty acids, ⁸¹ [flavouring substances], colours	GMP
3.	Butanol	Fatty acids, ⁸¹ [flavouring substances], colours	10
		Spice oleoresins	2
4.	Butan-2-ol	Spice oleoresins	2

5.	Carbon dioxide (INS 290)	⁸¹ [flavouring substances]	GMP
		Spice oleoresins	GMP
6.	Cyclohexane	⁸¹ [flavouring substances], vegetable oils	1
7.	Dibutyl ether	⁸¹ [flavouring substances]	2
8.	Diethyl ether	⁸¹ [flavouring substances], colors	2
		Spice oleoresins	2
9.	Dimethyl ether	⁸¹ [flavouring substances]	2
10.	Ethyl acetate	⁸¹ [flavouring substances]	10
		Spice oleoresins	50
11.	Ethyl alcohol	Spice oleoresins	GMP
		Other Foods	GMP
12.	Ethylene dichloride (1,2 Dichloroethane)	Spice oleoresins	30
13.	Glycerol diacetate	All foods	GMP
14.	Glycerol monoacetate	All foods	GMP
15.	Heptane	⁸¹ [flavouring substances]	1
		Vegetable oils	
16.	Hexane	⁸¹ [flavouring substances], vegetable oils	5
		Spice oleoresins	25
		Chocolate and chocolate products	1
17.	Isobutane	⁸¹ [flavouring substances]	1
		Other foods	0.1
18.	Isopropyl alcohol	Spice oleoresins	50
		Other foods	10
19.	Methyl alcohol	Spice oleoresins	50

20.	Methylene chloride (Dichloromethane)	Decaffeinated tea	2
		Decaffeinated coffee	10
		⁸¹ [flavouring substances]	2
		Spice oleoresins	30
		Vegetable oils	0.02
21.	Methyl ethyl ketone (butanone)	Fatty acids, ⁸¹ [flavouring substances], colourings, decaffeination of coffee, tea	2
22.	Methyl tert-butyl ether	Spice oleoresins	2
23.	Propane	⁸¹ [flavouring substances]	1
		Edible oils	0.1
24.	Propan-1-ol	Spice oleoresins	1
25.	Toluene	⁸¹ [flavouring substances]	1
26.	Water	Spice oleoresins	GMP

TABLE 7: BLEACHING, WASHING, DENUDING AND PEELING AGENTS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1.	Ammonium persulphate (INS 923)	Yeast	GMP
2.	Benzoyl peroxide (INS 928)	Fruits and vegetables	40 (as benzoic acid)
3.	Calcium hypochlorite	Fruits and vegetables, flours and starches, water	1 (as available chlorine)
4.	Carbonic acid	Tripe	GMP
5.	Chlorine (INS 925)	Fruits and vegetables, flours and starches	1 (as available chlorine)
6.	Chlorine dioxide	Fruits and vegetables, flours and starches	1 (as available chlorine)

7.	Diammonium hydrogen orthophosphate	Canned fruits and vegetables	GMP
8.	Hydrogen peroxide	Fruits and vegetables, flours and starches	5
9.	Peracetic acid	Fruits and vegetables	GMP
10.	Sodium bisulphite	Root and tuber vegetables (not meant for those intended to be served or sold raw/fresh to consumers)	GMP
11.	Sodium hypochlorite	Fruits and vegetables, flours and starches	1 (as available chlorine)
12.	Sodium gluconate (INS 576)	Tripe	GMP
13.	Sodium laurate	Fruits and vegetables	GMP
14.	Sodium/ Potassium metabisulphite	Root and tuber vegetables (not meant for those intended to be served or sold raw/fresh to consumers)	25
15.	Sodium peroxide	Root and tuber vegetables	5
⁸² [16.]	Calcium oxide (INS 529) (on dry basis)	Dried Ginger; whole and powder (unbleached or bleached)	20,000]

TABLE 8: FLOCCULATING AGENTS

S. No.	Name of the processing aid	Product Category	Residual level mg/kg (Not more than)
1.	Citric acid (INS 330)	Unripened cheese – Paneer and Chhana	GMP
2.	Glucono delta lactone (INS 575)		
3.	Lactic acid (INS 270)		
4.	Malic acid (INS 296)		
5.	Sour whey		

6.	Vinegar		
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TABLE 9: CONTACT FREEZING AND COOLING AGENTS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1	Liquid Nitrogen (INS 941)	Dairy-based desserts - Ice cream	GMP

TABLE 10: DESICCATING AGENTS

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
1	Corn starch	Icing sugar	GMP

⁷³[TABLE 11: ENZYMES (for treatment or processing of raw materials, foods, or ingredients)]

S.No	Name of the Enzyme* [in order of Enzyme Commission (EC) number]	Source*	Residual level (mg/kg) (Not more than)
1.	Glucose oxidase (EC No. 1.1.3.4)	<i>Aspergillusniger</i>	GMP
		<i>Aspergillusoryzae</i>	
2.	Catalase (EC No. 1.11.1.6)	<i>Aspergillusniger</i>	GMP
3.	Glycero-phospholipid cholesterol acyltransferase (EC No. 2.3.1.43)	<i>Bacillus licheniformis</i>	GMP
4.	Transglutaminase (EC No. 2.3.2.13)	<i>Streptomyces mobaraensis</i>	GMP

5.	Lipase triacylglycerol (EC No. 3.1.1.3)	<i>Rhizopusoryzae</i>	GMP
		<i>Fusariumoxysporum</i>	
		<i>Thermomyceslanuginosus</i>	
		<i>Rhizopusniveus</i>	
		<i>Carica papaya</i>	
		<i>Rhizomucormiehei</i>	
		<i>Aspergillusniger</i>	
		<i>Candida rugosa(cylindracea)</i>	
		Pregastric bovine (calf) tissue	
		Pregastric ovine (lamb) tissue	
		<i>Penicilliumroquefortii</i>	
		Porcine pancreas	
		<i>Mucorjavanicus</i> (<i>Mucorcircinelloides f. circinelloides</i>)	
Rice bran			
6.	Phospholipase A2 (EC No. 3.1.1.4)	<i>Streptomyces violaceoruber</i>	GMP
		⁸¹ [<i>Aspergillus niger</i>	GMP]
7.	Lysophospholipase (EC No. 3.1.1.5)	<i>Aspergillusniger</i>	GMP
8.	Pectin esterase (EC No. 3.1.1.11)	<i>Aspergillusniger</i>	GMP
9.	Acylglycerol lipase (EC No. 3.1.1.23)	<i>Penicilliumcamembertii</i>	GMP
8.	Phospholipase A1 (EC No. 3.1.1.32)	<i>Aspergillusniger</i>	GMP
9.	Phytase (EC No. 3.1.3.8)	<i>Aspergillusniger</i>	GMP
10.	Phosphodiesterase I (EC No. 3.1.4.1)	<i>Leptographiumprocerum</i>	GMP
11.	Phospholipase D (EC No. 3.1.4.4)	<i>Streptomyces cinnamoneus</i>	GMP
12.	Hemicellulase (EC No. 3.2.1)	<i>Aspergillusniger</i>	GMP
		<i>Trichodermareesei/ longibrachiatum</i>	
13.	Alpha amylase (EC No. 3.2.1.1)	<i>Aspergillusoryzae</i>	GMP
		<i>Aspergillusniger</i>	
		<i>Bacillus licheniformis</i>	

		<i>Bacillus amyloliquefaciens</i>	
		<i>Bacillus subtilis</i>	
		<i>Bacillus stearothermophilus</i>	
		Cereal (barley) malt	
14.	Beta amylase (EC No. 3.2.1.2)	Cereal (barley) malt	GMP
		<i>Bacillus amyloliquefaciens</i>	
		<i>Hordeumvulgare (barley)</i>	
		⁸¹ [Soybean	GMP]
15.	Glucan 1,4- α -glucosidase (or Glucoamylase or acid maltase) (EC No. 3.2.1.3)	<i>Aspergillusniger</i>	GMP
		<i>Aspergillusoryzae</i>	
		<i>Trichodermareesei</i>	
		<i>Rhizopusoryzae</i>	
16.	Cellulase (4- β -D-glucan 4- glucanohydrolase) (EC No. 3.2.1.4)	<i>Penicilliumfuniculosum</i>	GMP
		<i>Aspergillusniger</i>	
		<i>Humicolainsolens</i>	
		<i>Rasamsonia (Talaromyces)</i> <i>emersonii</i>	
		<i>Trichodermareesei</i>	
17.	Beta-glucanase (endo- beta glucanase or endo- 1,3-beta- glucanase) (EC No. 3.2.1.6)	<i>Aspergillusniger</i>	GMP
		<i>Bacillus amyloliquefaciens</i>	
		<i>Rasamsonia (Talaromyces)</i> <i>emersonii</i>	
		<i>Trichodermareesei</i>	
		<i>Aspergillusaculeatus</i>	
		<i>Penicilliumfuniculosum</i>	
		<i>Bacillus subtilis</i>	
		<i>Trichodermaharzianum</i>	
		<i>Disporotrichumdimorphosporum</i>	
		<i>Humicolainsolens</i>	
18.	Inulinase (EC No. 3.2.1.7)	<i>Aspergillusniger</i>	GMP
19.	Endo-1,4-beta-xylanase (EC No. 3.2.1.8)	<i>Aspergillusniger</i>	GMP
		<i>Bacillus licheniformis</i>	
		<i>Disporotrichumdimorphosporum</i>	
		<i>Rasamsonia (Talaromyces)</i> <i>emersonii</i>	

		<i>Trichoderma reesei</i> (<i>longibrachiatum</i>)	
		<i>Humicolain solens</i>	
20.	Dextranase (EC No. 3.2.1.11)	<i>Chaetomium merraticum</i>	GMP
21.	Polygalacturonase (pectinase) (EC No. 3.2.1.15)	<i>Aspergillus niger</i>	GMP
		<i>Aspergillus aculeatus</i>	
22.	Lysozyme (EC No. 3.2.1.17)	<i>Gallus gallus</i> egg	GMP
23.	Alpha-glucosidase (EC No. 3.2.1.20)	<i>Aspergillus niger</i>	GMP
		<i>Trichoderma reesei</i>	
24.	Beta-glucosidase (EC No. 3.2.1.21)	<i>Aspergillus niger</i>	GMP
		<i>Kluyveromyces lactis</i>	
		<i>Trichoderma reesei</i> / <i>longibrachiatum</i> CL 847	GMP
25.	Alpha-galactosidase (melibiase) (EC No. 3.2.1.22)	<i>Aspergillus oryzae</i>	GMP
		<i>Aspergillus niger</i>	GMP
		<i>Mortierella vinacea</i>	GMP
		<i>Saccharomyces carlsbergensis</i>	GMP
26.	Beta-galactosidase (lactase) (EC No. 3.2.1.23)	<i>Kluyveromyces lactis</i>	GMP
		<i>Bacillus circulans</i>	
		<i>Saccharomyces sp.</i>	
		<i>Aspergillus niger</i>	
		<i>Aspergillus oryzae</i>	
27.	Beta- fructofuranosidase (invertase or saccharase) (EC No. 3.2.1.26)	<i>Saccharomyces cerevisiae</i>	GMP
		<i>Kluyveromyces fragilis</i>	
		<i>Saccharomyces carlsbergensis</i>	
		<i>Saccharomyces cerevisiae</i>	
28.	Trehalase (EC No. 3.2.1.28)	<i>Trichoderma reesei</i>	GMP
29.	Endo-1,3- β -xylanase (EC No. 3.2.1.32)	<i>Humicolain solens</i>	GMP
30.	Pullulanase	<i>Bacillus acidopullulyticus</i>	GMP

	(EC 3.2.1.41)	<i>Bacillus brevis</i>	
		<i>Bacillus circulans</i>	
		<i>Bacillus naganoensis</i>	
		<i>Klebsiella aerogenes</i>	
31.	Alpha Arabinofuronosidase (EC No. 3.2.1.55)	<i>Aspergillus niger</i>	GMP
32.	Glucan 1,3-beta-glucosidase (EC No. 3.2.1.58)	<i>Trichoderma harzianum</i>	GMP
33.	Mannanase (Mannan endo-1,4-beta-mannosidase) (EC No. 3.2.1.78)	<i>Trichoderma reesei</i>	GMP
		<i>Aspergillus niger</i>	GMP
34.	Protease (Bacteria) (EC No. 3.4)	<i>Bacillus amyloliquefaciens</i>	GMP
		<i>Bacillus licheniformis</i>	
		<i>Bacillus subtilis</i>	
		<i>Geobacillus caldoproteolyticus</i>	
35.	Protease (Fungi) (EC No. 3.4)	<i>Aspergillus niger</i>	GMP
		<i>Aspergillus oryzae</i>	
36.	Amino peptidase (EC No. 3.4.11.1)	<i>Aspergillus oryzae</i>	GMP
37.	Serine protease (subtilisin) (EC No. 3.4.21.62)	<i>Bacillus licheniformis</i>	GMP
⁸¹ [37a]	Oryzin (EC No. 3.4.21.63)	<i>Aspergillus melleus</i>	GMP]
38.	PIII-type proteinase (Lactocepin) (EC No. 3.4.21.96)	<i>Lactococcus lactis</i> subsp. <i>cremoris</i> (strain SK11)	GMP
39.	Papain (EC No. 3.4.22.2)	<i>Carica papaya</i>	GMP
40.	Ficin (EC No. 3.4.22.3)	Figs	GMP
41.	Bromelain (EC No. 3.4.22.33)	<i>Ananas comosus/bracteatus</i>	GMP
42.	Chymosin (EC No. 3.4.23.4)	<i>Kluyveromyces lactis</i>	GMP
⁸¹ [42a]	Aspergillopepsin I (EC No. 3.4.23.18)	<i>Aspergillus niger</i>	GMP
		<i>Aspergillus oryzae</i>	GMP
42b	Aspergillopepsin II (EC No. 3.4.23.19)	<i>Aspergillus niger</i>	GMP]
43.	Endo(thia)peptidase (EC No. 3.4.23.22)	<i>Cryphonectria (Endothia) parasitica</i>	GMP

44.	Mucorpepsin ⁸¹ [(Aspartic proteinase)] (EC No. 3.4.23.23)	<i>Rhizomucormiehei</i>	GMP
⁸¹ [44a]	Thermolysin (EC No. 3.4.24.27)	<i>Bacillus stearothermophilus</i>	GMP
		<i>Geobacillus caldoproteolyticus</i>	GMP]
45.	Metalloproteinase (Bacillolysin) ⁸¹ [Metalloendopeptidase] (EC No. 3.4.24.28)	<i>Bacillus amyloliquefaciens</i>	GMP
		⁸¹ [<i>Bacillus subtilis</i>]	GMP]
⁸¹ [45a]	Glutaminase (EC No. 3.5.1.2)	<i>Bacillus amyloliquefaciens</i>	GMP
45b	Protein glutaminase (EC No. 3.5.1.44)	<i>Chryseobacterium proteolyticum</i>	GMP]
46.	AMP deaminase (EC No. 3.5.4.6)	<i>Aspergillusmelleus</i>	GMP
		<i>Streptomyces murinus</i>	
47.	Pectin lyase (EC No. 4.2.2.10)	<i>Aspergillusniger</i>	GMP
48.	Glucose isomerase (or xylose isomerase) (EC No. 5.3.1.5)	<i>Streptomyces rubiginosus</i>	GMP
		<i>Streptomyces murinus</i>	GMP
		<i>Streptomyces olivaceus</i>	
		<i>Streptomyces olivochromogenes</i>	
		<i>Microbacteriumarborescens</i>	
		<i>Actinoplanesmissouriensis</i>	

*All enzymes are from non-genetically modified sources]

⁸⁰[TABLE 11 A: Enzymes derived from Genetically Modified Microorganisms (GMM)

S.No .	Enzyme Name	Production Organism	Donor Organism or Source	Functional and technological purpose	Indicative food uses	Residual level (mg/kg) (Not more than)
1.	Glucose oxidase (EC No. 1.1.3.4)	Aspergillus oryzae	Aspergillus niger	Dough stabilizer	Baking and other cereal-based processes (bread, pasta, noodles, snacks)	GMP
		Aspergillus niger	Penicillium chrysogenum	Dough stabilizer, food	Bakery products and	GMP

				preservative, color stabilizer and for reduced alcohol wine production	other cereal based products (e.g. pasta, noodles, snacks), Egg processing, fruit and vegetable processing, Production of beer and other cereal based beverages	
		Aspergillus niger	Aspergillus niger	For conversion of glucose to gluconic acid in presence of dissolved oxygen	In food processing to remove glucose and oxygen and in bakery application	GMP
2.	Hexose oxidase (EC No. 1.1.3.5)	Hansenula polymorpha	Chondrus crispus	To catalyze the oxidation of C6 sugars into their corresponding lactones and hydrogen peroxide	In food processing of wide range of products for dough-strengthening , oxygen scavenging, curd formation and to reduce the occurrence of excessive maillard reactions	GMP
3.	Catalase (EC No. 1.11.1.6)	Aspergillus niger	Aspergillus niger	Catalyzes the decomposition of hydrogen peroxide to water and oxygen	In food processing for enzymatic production of gluconic acid, removal of hydrogen peroxide or generation of oxygen in	GMP

		Trichoderma reesei	Aspergillus niger	Catalyzes the decomposition of hydrogen peroxide to water and oxygen	foods and beverages For egg processing	GMP
4.	Peroxidase (EC No. 1.11.1.7)	Aspergillus niger	Marasmius scorodonium	Preservation of raw milk, yoghurt and cheese	Dairy processing (whey processing) and Production of bakery products	GMP
5.	Phosphatidylcholine-sterol O-acyltransferase (EC No. 2.3.1.43)	Bacillus licheniformis	Aeromonas salmonicida	Modification of phospholipids to lyso-phospholipids and cholesterol ester	Baking, dairy, egg processing, fats and oils Processing, meat processing	GMP
6.	1,4-alpha-glucan branching (EC No. 2.4.1.18)	Bacillus subtilis	Rhodothermus obamensis	Converts amylose into amylopectin	Starch processing	
7.	4-α-glucanotransferase (amylomaltase) (EC No. 2.4.1.25)	Bacillus amyloliquefaciens	Thermus thermophilus	Modification of the structural properties of starch to mimic fat.	Starch processing	GMP
8.	Triacylglycerol Lipase (EC No. 3.1.1.3)	Aspergillus niger	Fusarium culmorum	Improvement of texture of fat in bakery products, flavour modification, interesterification of fats, degumming of oils and fats	Production of bakery products dairy processing oils and fats processing	GMP

		Kluyveromyces lactis	Calf, goat, lamb	Improvement of texture of bakery products, flavour modification, interesterification of fats, degumming of oils and fats	Production of bakery products, dairy processing, oils and fats processing	GMP
		Hansenula polymorpha	Fusarium heterosporum	Improvement of texture of bakery products, modifying egg yolk for use in cake preparation and degumming of oils and fats	Production of Bakery products, egg processing, fats and oils processing	GMP
		Aspergillus niger	Candida antarctica	Degumming of oils and fats	Oils and Fats processing	GMP
		Aspergillus oryzae	Humicola lanuginosa and Fusarium oxysporum	Improvement of texture of bakery products, flavour modification, modifying egg yolk for use in cake preparation, interesterification of fats, degumming of oils and fats	Bakery and other cereal-based products (bread, pasta, noodles, snacks), brewing and other cereal-based beverages, egg processing, oils and fats processing	GMP
		Aspergillus oryzae	Fusarium oxysporum	Improvement of texture of bakery products, flavour modification, modifying egg yolk for use in cake preparation	Bakery and other cereal-based products (bread, pasta, noodles, snacks) Egg processing,	GMP

				interesterification of fats, degumming of oils and fats	brewing and other cereal-based beverages	
		Aspergillus oryzae	Thermomyces lanuginosus	Improvement of texture of bakery products, flavour modification, modifying egg yolk for use in cake preparation, interesterification of fats, degumming of oils and fats	Bakery and other cereal-based products (bread, pasta, noodles, snacks), brewing and other cereal-based beverages egg processing oils and fats processing	GMP
		Aspergillus oryzae	Rhizomucor miehei	Interesterification of fats, degumming of oils and fats	oils and fats processing	GMP
		Trichoderma reesei	Aspergillus niger	As a processing aid in food manufacturing to catalyze the hydrolysis of ester bonds in triglycerides primarily in 1 and 3 positions of fatty acids in triglycerides with release of fatty acids and glycerol	For use in baking and brewing process, in the manufacture of cereal beverage, in pasta production, and in potable alcohol production	GMP
9.	Phospholipase A2 (EC No. 3.1.1.4)	Aspergillus niger	Porcine pancreas	Oil degumming	Production of bakery products , egg processing, oils and fats processing	GMP
10.	Lysophospholipase (EC No.	Aspergillus niger	Aspergillus niger	Dough stabilizer, Improvement of texture of	Bakery and other cereal-based products(brea	GMP

	3.1.1.5)			bakery products, enhance filtration rate of syrups, De-gumming of oils and fats	d, pasta, noodles, snacks) starch based products oils and fats processing	
11.	Pectin esterase (EC No. 3.1.1.11)	Aspergillus niger	Aspergillus niger	Juice extraction, concentration and clarification of fruit juices, gelation of fruit, and to modify texture and rheology of fruit and vegetable-based products	Fruit and vegetable products, flavouring production	GMP
		Aspergillus oryzae	Aspergillus aculeatus	Juice extraction, concentration and clarification of fruit juices, gelation of fruit, and to modify texture and rheology of fruit and vegetable-based products	Fruit and vegetable products	GMP
12.	Phospholipase A1 (EC No. 3.1.1.32)	Aspergillus oryzae	Fusarium venenatum	To modify the functionality of dairy products and its ingredients	Milk and dairy based products	GMP
		Aspergillus niger	Aspergillus niger	De-gumming of oils and fats	Oils and fats processing	GMP
		Aspergillus niger	Talaromyces leycettanus	De-gumming of oils and fats	Oils and Fats processing	GMP
13.	3-phytase (EC No. 3.1.3.8)	Aspergillus niger	Aspergillus niger (A. niger also include A. tubingensis)	Phytate reduction in cereals and legumes	Bakery products and other cereal and legume based products (e.g. pasta,	GMP

					noodles, snacks), soy sauce	
14.	Phytase (EC No. 3.1.3.26)	Trichoderma reesei	Buttiauxella sp.	Hydrolysis of phytic acid	In potable alcohol production and in animal feed	GMP
15.	Phospholipase C (EC No. 3.1.4.3)	Pichia pastoris (now renamed as Komagataella affinis)	Soil	De-gumming of oils and fats	Oils and fats processing	GMP
		Bacillus licheniformis	Bacillus thuringiensis	De-gumming of oils and fats	Oils and fats processing	GMP.
16.	Phospholipase C (EC No. 3.1.4.11)	Pseudomonas fluorescens	Soil	De-gumming of oils and fats	Oils and fats processing	GMP
		Bacillus licheniformis	Pseudomonas sp-62186	De-gumming of oils and fats	Oils and Fats processing	GMP
17.	Alpha – amylase (EC No. 3.2.1.1)	Bacillus subtilis	Alicyclobacillus pohliae	Antistaling agent in combination with lipase	Bakery products	GMP
		Bacillus licheniformis	Bacillus licheniformis	Liquefaction and thinning of starch, fermentation, Starch processing into dextrins and of oligosaccharides. High DE-maltodextrin production	Brewing, Potable alcohol production, Grain or Carbohydrate, non-alcoholic Beverages, and bakery products, processing of starch for other purposes	GMP
		Bacillus licheniformis	Geobacillus stearothermophilus	Liquefaction and thinning of starch, fermentation, starch processing into dextrins and	Processing of starch for baking, brewing and fermentation	GMP

				oligosaccharides and high DE-maltodextrin.		
		Bacillus licheniformis	Cytophaga sp.	Liquefaction and thinning of starch, fermentation	Processing of starch for baking and brewing processes	GMP
		Pseudomonas fluorescens	Thermococcales	Starch processing into dextrins and oligosaccharides and high DE-maltodextrin	Processing of starch for baking, brewing and fermentation	GMP
		Aspergillus niger	Rhizomucor pusillus	Starch processing into dextrins and oligosaccharides and high DE-maltodextrin	Processing of starch for baking, brewing and fermentation and other processes	GMP
		Trichoderma reesei	Aspergillus clavatus	Starch processing into dextrins and of oligosaccharides. High DE-maltodextrin production	In Carbohydrate or starch processing, brewing and potable alcohol production	GMP
		Trichoderma reesei	Aspergillus kawachii	Starch processing into dextrins and of oligosaccharides. High DE-maltodextrin production	In Carbohydrate or starch processing, brewing and potable alcohol production	GMP
		Bacillus amyloliquefaciens	Bacillus amyloliquefaciens	As processing aid in food manufacturing to hydrolyze polysaccharides	Carbohydrate or grain processing, potable alcohol production, brewing, cereal processes, non-alcoholic	GMP

					beverages	
		Trichoderma reesei	Aspergillus terreus	Starch processing into dextrins and of oligosaccharides. High DE-maltodextrin production	Brewing, Potable alcohol production, grain or carbohydrate, non-alcoholic beverages, cereal processes	GMP
18.	Beta-amylase (EC No. 3.2.1.2)	Bacillus licheniformis	Bacillus flexus	Starch processing into maltose	Starch processing for maltose-based syrups	GMP
19.	Glucoamylase (Glucan 1,4-alpha-glucosidase or Acid maltase or Amyloglucosidase) (EC No. 3.2.1.3)	Trichoderma reesei	Trichoderma reesei	Processing of polysaccharides and oligosaccharides for improved fermentation and liquefaction	Brewing, fermentation and starch liquifaction and saccharification	GMP
		Aspergillus niger	Gloeophyllum trabeum	Processing of polysaccharides and oligosaccharides for improved brewing fermentation, clarification and starch liquefaction , starch liquefaction and Saccharification	Brewing, fermentation and starch liquifaction and saccharification	GMP
		Aspergillus niger	Aspergillus niger	Processing of polysaccharides and oligosaccharides for improved brewing	Brewing, fermentation and starch liquifaction and saccharification	GMP

				fermentation, clarification and starch liquefaction		
		Aspergillus niger	Talaromyces emersonii	Processing of polysaccharides and oligosaccharides for improved brewing fermentation, clarification and starch liquefaction	Brewing, fermentation and starch liquefaction and saccharification processes	GMP
		Aspergillus niger	Trametes cingulata	Processing of polysaccharides and oligosaccharides for improved brewing fermentation, clarification and starch liquefaction and Saccharification	Brewing, fermentation and starch liquefaction and saccharification processes	GMP
		Aspergillus niger	Penicillium oxalicum	Processing of polysaccharides and oligosaccharides for improved brewing fermentation, clarification and starch liquefaction and Saccharification	Brewing, fermentation and starch liquefaction and saccharification	GMP
		Trichoderma reesei	Aspergillus fumigatus	Processing of polysaccharides and oligosaccharides for improved fermentation	For carbohydrate or grain processing, brewing and potable alcohol	GMP

				and liquefaction	production	
		Trichoderma reesei	Fusarium verticillioides	Processing of polysaccharide s and oligosaccharid es for improved fermentation and liquefaction	For carbohydrate or grain processing, brewing and potable alcohol production	GMP
20.	Cellulase (EC No. 3.2.1.4)	Trichoderma reesei	Aspergillus fumigatus	Hydrolysis of amorphous cellulose	Brewing	GMP
		Trichoderma reesei	Penicillium emersonii	Hydrolysis of amorphous cellulose. Saccharificatio n	Brewing	GMP
		Trichoderma reesei	Trichoderma reesei	As processing aid in food manufacturing or breakdown of cellulose	For carbohydrate processing, potable alcohol production, maceration in fruit and vegetable processing, brewing and wine production and in food processing of other wide range of products like coffee	GMP
21.	Beta- glucanase (endo- beta glucanase or endo- 1,3-beta glucanase	Bacillus subtilis	Bacillus subtilis	Hydrolysis of beta-glucans, to improve the brewing properties of beer	Brewing processes	GMP

) (EC No. 3.2.1.6)					
22.	Xylanase (Endo-1,4-beta-xylanase) (EC No. 3.2.1.8)	Aspergillus niger	Aspergillus niger	Hydrolysis of plant carbohydrates to improve quality of bakery products (firmness, stiffness, consistency and others)	Bakery and other cereal based products	GMP
		Aspergillus oryzae	Humicola lanuginosus	Dough stabilizer, enhancing loaf volume, enhance crumb structure and bloom	Bakery products	GMP
		Bacillus subtilis	Bacillus subtilis	Dough stabilizer, enhancing loaf volume, enhance crumb structure bloom and loaf softening, hydrolysis of plant carbohydrates to improve quality of bakery products (firmness, stiffness, consistency and others)	Bakery products, carbohydrate or starch processing, Brewing, Potable alcohol production, non-alcoholic beverages processing	GMP
		Trichoderma reesei	Talaromyces leycettanus	To improve filtration in brewing, Starch liquefaction and enhance oil extraction from grain	Baking and Brewing and oil extraction -	GMP

		Aspergillus niger	Rasamsonia emersonii	Dough stabilizer, enhancing loaf volume, crumb structure, bloom and loaf softening, improving filtration in brewing, starch liquefaction	Bakery products production of beer and other cereal based beverages	GMP
		Trichoderma reesei	Aspergillus niger	Dough stabilizer, enhancing loaf volume, crumb structure, bloom and loaf softening, to improve filtration in brewing, starch liquefaction	Brewing and baking products, potable alcohol production, non-alcoholic beverages	GMP
		Aspergillus oryzae	Aspergillus aculeatus	Dough stabilizer, enhance loaf volume, crumb structure, bloom and loaf softening, to improve filtration in brewing, starch liquefaction	Baking brewing and other cereal-based beverages and starch processing	GMP
		Bacillus licheniformis	Bacillus licheniformis	Dough stabilizer, enhancer of loaf volume, enhance crumb structure, bloom and loaf softening. starch liquefaction	Baking and brewing processes grain treatment	GMP
		Trichoderma reesei	Fusarium verticillioides	Hydrolysis of plant carbohydrates	As processing aid in	GMP

				to improve quality of bakery products (firmness, stiffness, consistency and others)	carbohydrate or starch processing and potable alcohol production	
23.	Endo-Polygalacturonase (Pectinase) (EC No 3.2.1.15)	Aspergillus niger	Aspergillus niger	Extraction and clarification of juice from fruits and vegetables, extraction of flavors	Fruit and vegetable processing, flavouring production	GMP
24.	Alpha-glucosidase (EC No 3.2.1.20)	Trichoderma reesei	Aspergillus niger	Aids in fermentation, hydrolysis of terminal, non-reducing (1~4)-linked alpha-D-glucose residues with release of alpha-D-glucose	Brewing and starch processing	GMP
25.	Lactase (Beta-galactosidase) (EC No 3.2.1.23)	Kluyveromyces lactis	Kluyveromyces lactis	Hydrolysis of lactose content of in whey or milk	Dairy products and processing	GMP
		Bacillus subtilis	Bifidobacterium bifidum	Hydrolysis of lactose content of whey or milk	Dairy products and , production of GOS (galactooligosaccharide)	GMP
		Aspergillus niger	Aspergillus oryzae	Hydrolysis of lactose content of whey or milk	Dairy products and processing	GMP
		Bacillus licheniformis	Bifidobacterium bifidum	Hydrolysis of lactose content of whey or milk	Dairy products and processing	GMP

		Bacillus subtilis	Lactobacillus delbrueckii subsp. bulgaricus	Hydrolysis of lactose content of in whey or milk	In dairy processing, GOS (galacto-oligosaccharide) production and production of low lactose products	GMP
		Aspergillus oryzae	Aspergillus oryzae	Hydrolysis of lactose content of in whey or milk	In dairy processing, GOS (galacto-oligosaccharide) production and production of low lactose products	GMP
26.	Trehalase (EC No 3.2.1.28)	Trichoderma reesei	Trichoderma reesei	Starch processing for fermentation	Brewing process	GMP
		Aspergillus niger	Myceliophthora pedonium	Starch processing for fermentation	Brewing process	GMP
27.	Pullulanase (EC No 3.2.1.41)	Bacillus licheniformis	Bacillus deramificans	Hydrolysis of pullulan in starch processing, as processing aid in efficient starch hydrolysis and saccharification	Brewing processes and production of sweeteners, manufacture of starch or carbohydrate processing	GMP
		Bacillus subtilis	Bacillus acidopullulyticus	Hydrolysis of pullulan in starch processing	Brewing processes and manufacture of sweeteners	GMP
		Bacillus subtilis	Bacillus deramificans	Hydrolysis of pullulan in grain processing	Brewing and starch processing	GMP
28.	Alpha arabinofuranosidase	Trichoderma reesei	Talaromyces pinophilus	Separation of soluble and starch or	Potable alcohol production	GMP

	e (EC No. 3.2.1.55)			gluten fractions		
29.	Maltotetraohydrolase or glucan 1,4-alpha-maltotetraohydrolase (EC No. 3.2.1.60)	Bacillus licheniformis	Pseudomonas stutzeri (saccharophila)	Dough stabilizer, anti-staling agent in baking, antiretrogradation agent to enhance the quality attributes of bakery products	Baking, carbohydrate or grain processing	GMP
30.	Mannan endo-1,4-beta-mannosidase (β-mannanase) (EC No. 3.2.1.78)	Aspergillus niger	Talaromyces leycettanus	Hydrolysis of mannan to inhibit gel formation during freeze-drying of the instant coffee	Coffee processing	GMP.
31.	Glucan 1,4-alpha-maltohydrolase (Maltogenic alpha-amylase) (EC No 3.2.1.133)	Bacillus subtilis	Geobacillus stearothermophilus	Anti-staling agent to prevent retrogradation of starch in baking, industry. Production of tailor-made sweetener syrups with low viscosity, high maltose contents	Bakery products and sweetener syrups	GMP
		Bacillus licheniformis	Geobacillus stearothermophilus	Anti-staling agent to prevent retrogradation of starch in baking, industry. Production of	As processing aid in bakery, starch processing, brewing and potable alcohol	GMP

				tailor-made sweetener syrups with low viscosity, high maltose contents		
32.	Carboxypeptidase (EC No. 3.4.16.5)	Aspergillus niger	Aspergillus niger	Used to accelerate the development of flavors and the de-bittering during the ripening process of cheese. debittering agent in cheese manufacture.	Cheese, enzyme modified cheese, cheese powders and fermented meat	GMP
33.	Chymotrypsin (EC No. 3.4.21.1)	Bacillus licheniformis	Nocardio psisprasina	Increased digestibility of protein and reduce allergenicity	Protein hydrolysis, yeast processing	GMP.
34.	Serine protease with trypsin specificity Or (Trypsin) (EC No. 3.4.21.4)	Fusarium venenatum	Fusarium oxysporum	Increased digestibility of protein and reduce allergenicity	Dairy processing protein hydrolysis	GMP
35.	Acid prolylendopeptidase (EC No. 3.4.21.26)	Aspergillus niger	Aspergillus niger	Degradation of cereal storage proteins to smaller peptides for optimal fermentation beer stability, prevention of chill haze without loss of foam properties	Beer and other cereal based beverages	GMP
36.	Serine protease (Subtilisin	Bacillus subtilis	Bacillus amyloliquefaciens	Facilitates protein hydrolysis	Protein processing	GMP

) (EC No. 3.4.21.62)			during processing		
		Bacillus licheniformis	Pyrococcus furiosus	Hydrolysis of proteins	Protein hydrolysis and protein hydrolysates	GMP
		Bacillus subtilis	Bacillus lentus	To catalyze protein hydrolysis	As processing aid in plant protein processing, fish and seafood protein processing, yeast processing, animal protein processing, xanthan gum processing, and microalgae processing	GMP.
37.	Chymosin (EC No. 3.4.23.4)	Trichoderma reesei	Bos taurus (bovine)	Milk Coagulant, processing aid in cheese manufacturing. Chymosin helps in coagulating milk by hydrolyzing milk protein	Milk or dairy processing, production of cheese, whey and lactose	GMP
		Kluyveromyces lactis	Bovine pro-chymosin	Milk Coagulant	Milk processing	GMP
38.	Aspergillo pepsin I, aspartic protease) (EC No. 3.4.23.18)	Trichoderma reesei	Trichoderma reesei	Catalyses hydrolysis of proteins with broad specificity	Processing of proteins, clarification of fruit and vegetable juices and alcoholic drinks, modification of wheat	GMP

					gluten in bakery products	
39.	Mucorpepsin (Mucor rennin) (EC No. 3.4.23.23)	Aspergillus oryzae	Rhizomucor miehei	Milk coagulation in cheese making.	Dairy processing	GMP
40.	Bacillolysin (Bacillus metalloendopeptidase) (EC No. 3.4.24.28)	Bacillus amyloliquefaciens	Bacillus amyloliquefaciens	Protein processing into peptides and hydrolysate	Production of bakery products and other cereal based products (e.g. pasta, noodles, snacks), production of beer and other cereal based beverages, dairy processing, flavouring production, production of cereal based distilled alcoholic beverages, protein processing and yeast processing	GMP
		Bacillus subtilis	Bacillus amyloliquefaciens	Protein processing into peptides and hydrolysate	Production of bakery products and other cereal based products (e.g. pasta, noodles, snacks), production of beer and	GMP

					other cereal based beverages, dairy processing, flavouring production, production of cereal based distilled alcoholic beverages, protein processing and yeast processing	
41.	Asparaginase (EC No 3.5.1.1)	Aspergillus niger	Aspergillus niger	Reduce acrylamide levels	Production of bakery products and other cereal based products (e.g. pasta, noodles, snacks) potato processing and coffee processing	GMP
		Aspergillus oryzae	Aspergillus oryzae	Reduce acrylamide levels	Baking and other cereal-based processes (bread, pasta, noodles, snacks) coffee processing and potato processing	GMP
		Bacillus subtilis	Pyrococcus furiosus	Reduce acrylamide levels	Baking and other cereal-based processes (bread, pasta, noodles,	GMP

					snacks) coffee and cocoa processing fruit and vegetable processing	
42.	Glutaminase (EC No. 3.5.1.2)	Bacillus licheniformis	Bacillus licheniformis	In controlling the taste and flavor of fermented foods containing ingredients such as; casein, whey protein, soy and wheat protein	Dairy processing egg processing protein processing yeast processing	GMP
43.	Acetolactate decarboxylase (Alpha - acetolactate decarboxylase) (EC No. 4.1.1.5)	Bacillus licheniformis	Bacillus brevis	In brewing beverage processes and beverage alcohol (distilling) processes 1) Reduces formation of diacetyl during fermentation and thereby a reduction of the off-flavours 2) Enhances maturation process and thereby reduces production time.	Brewing and other production of cereal based alcoholic beverages	GMP
		Bacillus subtilis	Brevibacillus brevis	Butanoate metabolism and C-5 branched dibasic acid metabolism	In brewing and potable alcohol production	GMP

44.	Pectin lyase (EC No. 4.2.2.10)	Aspergillus niger	Aspergillus niger	Enhances juice extraction from vegetables and fruits and for juice clarification	Fruit and vegetable processing, production of wine, flavouring production and coffee processing	GMP
45.	Glucose isomerase (EC No. 5.3.1.5)	Streptomyces rubiginosus	Streptomyces rubiginosus	Reversible isomerization of glucose to fructose	Production of high fructose corn syrup	GMP]

⁷³[TABLE 12: GENERALLY PERMITTED PROCESSING AIDS

S No.	Name of the processing aid	Functional/ Technological Purpose	Product Category	Residue Level (mg/kg) (Not more than)
1.	Activated carbon	Adsorbent, decolourizing agent	Sugars, oils and fats, juices, ⁸¹ [alcoholic beverages]	GMP
2.	Ammonium carbonate (INS 503(i))	pH control agent	Cocoa mixes (powders) and cocoa mass/cake	GMP
3.	Ammonium hydroxide (INS 527)	Acidity regulator	All foods	GMP
4.	Ammonium sulphate	Decalcification agent	Edible casings	GMP
5.	Amino acids	Microbial nutrient	Alcoholic beverages	GMP
6.	Alum (Aluminiumsulphate or Potassium aluminiumsulphate)	Coagulant	including low alcoholic and alcohol free counterparts	GMP

7.	Argon (INS 938)	Propellant and packaging gas	All foods	GMP
8.	Beta-cyclodextrin (INS 459)	Encapsulating and thickening agent	Butter	GMP
9.	Biotin	Microbial nutrient	All foods	GMP
10.	Bone phosphate (INS 542)	Emulsifier, moisture retention agent	All foods except milk and milk products	GMP
		Sequestrant	All foods	GMP
11.	Calcium carbonate (INS 170 (i))	Polishing agent	All foods	GMP
12.	Calcium chloride	Buffering agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
13.	Calcium sulfate	Buffering agent		GMP
14.	Calcium and sodium salts of stearic acid	Polishing agent	Confectionery	GMP
15.	Carbon dioxide (INS 290)	Gassing/aerating agent	All foods	GMP
16.	Citric acid (INS 330)	Sequestrant	Oils & fats	GMP
17.	Chlorine dioxide	Water treatment	Alcoholic beverages including low alcoholic and alcohol free counterparts	1 (as available chlorine)
18.	Ethyl acetate	Cell disruption of yeast	Yeast	GMP
19.	Ethyl Alcohol	Carrier solvent ,flavouring agent	All foods	GMP

20.	Ethylene diamine tetra acetic acid	Metal sequestrant	Edible fats and oils and related products	GMP
21.	Furcellaran (INS 407)	Thickener, gelling agent, stabilizer, emulsifier	All foods	GMP
22.	Gibberellic acid	Malting, ⁸¹ [grain processing steps for fermentation (alcoholic beverages)]	Cereals	GMP
23.	Glucono delta lactone (GDL) (INS 575)	Raising agent, sequestrant	Unripened cheese – Paneer and Chhana	GMP
24.	Glycerin/ Glycerol (INS 422)	Polishing agent	All foods	GMP
25.	Hydrochloric acid (INS 507)	Protein hydrolysing agent	Protein products	GMP
26.	Hydrogenated glucose syrups (INS 965 (ii))	Sweetener, humectant, texturizer, stabilizer, bulking agent	All foods	GMP
27.	HVO (Hydrogenated vegetable oil)	Lubricant for conveyor belts for countline products	All foods	GMP
28.	Icing sugar	Polishing agent	Confectionery	GMP
29.	Indole acetic acid	Malting	Cereals	GMP
30.	Isopropyl alcohol	Glazing agent	All foods	GMP
31.	L-Cysteine (or HCl salt)	Dough conditioner	Flour products	75
32.	Lactic acid	Acidity regulator	Alcoholic beverages	GMP

			including low alcoholic and alcohol free counterparts	
33.	Liquified anhydrous ammonia	Bacterial nutrient	All foods	GMP
34.	Liquid paraffin (INS 905 e)	Polishing agent	Confectionery	GMP
35.	Magnesium hydroxide (INS 528)	pH control agent	All foods	GMP
36.	Magnesium stearate (INS 470(iii))	Polishing agent	Confectionery	GMP
37.	Mono and diglycerides of fatty acids (INS 471)	Emulsifier in extrusion	Extruded foods	GMP
38.	Nicotinamide	Microbial nutrient	All foods	GMP
39.	Nitrogen gas (INS 941)	Foaming agent	All foods	GMP
40.	Oak dust/chips	Ageing agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
41.	Oxygen (INS 948)	Propellant	All foods	GMP
		Aerating agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP

42.	Paraffin	Coating agent	Cheese and cheese products	GMP
43.	Phospholipids (INS 322 (i))	Emulsifier, antioxidant	All foods	GMP
44.	Phosphoric acid (INS 338)	Acidulant, sequestrant, synergist for antioxidants	All foods	GMP
		Buffering agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
45.	Polyethylene glycols (INS 1521)	Carrier solvent, excipient	All foods	GMP
46.	Polyglycerol esters of interesterified ricinoleic acid (INS 476)	Emulsifier	All foods	GMP
47.	Polyoxyethylene 40 stearate (INS 431)	Emulsifier	All foods	GMP
48.	Polyvinyl acetate	Preparation of waxes	Cheese and cheese products	GMP
49.	Potassium carbonate (INS 501(i))	pH control agent	Cocoa mixes (powders) and cocoa mass/cake	GMP
50.	Potassium dihydrogen phosphate (INS 340)	pH control agent	All foods	GMP
51.	Potassium hydroxide	pH control agent	All foods	GMP

	(INS 525)			
52.	Potassium metabisulphite (INS 224)	Antioxidant	Alcoholic beverages including low alcoholic and alcohol free counterparts	Maximum usage level shall not be more than 50 mg/kg
53.	Propylene glycol alginate (INS 405)	Stabilizer, thickener, emulsifier	All foods	GMP
		Foam stabilizer	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
54.	Rice starch	Polishing agent	Confectionery	GMP
55.	Salt (NaCl)	Ion exchange	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
56.	Silica (INS 551)	Anticaking agent	All foods	GMP
		Soap absorbing agent	Edible vegetable oils	GMP
		Free flowing agent	All foods	GMP
57.	Sodium acid pyrophosphate (SAPP)	Prevention of darkening of frozen uncooked French fries	Frozen vegetables	GMP
58.	Sodium bicarbonate (INS 500 (ii))	pH control agent	All foods	GMP
59.	Sodium calcium polyphosphate silicate	Stabilizer, leavening agent, emulsifier,	All foods	GMP

	(INS 452 (i))	nutrient		
60.	Sodium carbonate (INS 500(i))	pH control agent	All foods	GMP
61.	Sodium dihydrogen phosphate (INS 339)	pH control agent	All foods	GMP
62.	Sodium Hydroxide (INS 524)	pH control agent	All foods	GMP
63.	Sodium Hypochlorite	Water treatment	Alcoholic beverages including low alcoholic and alcohol free counterparts	1 (as available chlorine)
64.	Sodium metabisulphite (INS 223)	Dough conditioner	Flour products	60
		Softening agent	Corn kernel	60
		Reducing agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
65.	Sodium silicate (INS 550 (i))	Anticaking agent	All foods	GMP
66.	Sodium sulphite	Dough conditioner	Flour products	60
67.	Sulphuric Acid (INS 513)	pH control agent	All foods	GMP
68.	Sulphurous acid	Softening agent	Corn kernel	GMP
69.	Sulphur dioxide	Control of nitrosodimethylamine	Malting	750

	(INS 220)	in malting		
70.	Tannic Acid (INS 181)	Clarifying agent, flavouring agent, flavour adjunct	Juices	GMP
71.	Vitamin B12	Microbial nutrient	All foods	
72.	Vitamin C	Microbial nutrient	All foods	
73.	Yeast	Fermenting Agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP.]
74.	Zinc sulphate	Mineral Salt		
⁸¹ [75]	Calcium hypochlorite	Disinfectant	Water treatment	1 (as available chlorine)]

International Numbering System (INS) for Food Additives-

The following list is only for identifying the food additive and their synonyms as published by the Codex on 23.11.2005 Codex. For the latest updates, JECFA/Codex website may be referred to (www.codexalimentarius.net, www.codexalimentarius.net/web/jecfa.jsp)

A. List sorted by INS number

Sl. No.	INS Number	Food Additive Name	Technical functions
1	2	3	4
1.	100	Curcumins	Colour
2.	100(i)	Curcumin	Colour
3.	100(ii)	Turmeric	Colour
4.	101	Riboflavins	Colour
5.	101(i)	Riboflavin	Colour
6.	101(ii)	Riboflavin 5'-phosphate, sodium	Colour
7.	102	Tartrazine	Colour

8.	103	Alkanet	Colour
9.	104	Quinoline yellow	Colour
10.	107	Yellow 2G	Colour
11.	110	Sunset yellow FCF	Colour
12.	120	Carmines	Colour
13.	121	Citrus red 2	Colour
14.	122	Azorubine / Carmoisine	Colour
15.	123	Amaranth	Colour
16.	124	Ponceau 4R	Colour
17.	125	Ponceau SX	Colour
18.	127	Erythrosine	Colour
19.	128	Red 2G	Colour
20.	129	Allurared AC/Fast Red E	Colour
21.	130	Manascorubin	Colour
22.	131	Patent blue V	Colour
23.	132	Indigotine	Colour
24.	133	Brilliant blue FCF	Colour
25.	140	Chlorophyll	Colour
26.	141	Copper chlorophylls	Colour
27.	141(i)	Chlorophyll copper complex,	Colour
28.	141(ii)	Chlorophyll copper complex, sodium and potassium Salts	Colour
29.	142	Green S	Colour
30.	143	Fast green FCF	Colour
31.	150a	Caramel I-plain	Colour
32.	150b	Caramel II – caustic sulphite	Colour

		process	
33.	150c	Caramel III – ammonia process	Colour
34.	150d	Caramel IV-ammonia sulphite Process	Colour
35.	151	Brilliant black PN	Colour
36.	152	Carbon black (hydrocarbon)	Colour
37.	153	Vegetable carbon	Colour
38.	154	Brown FK	Colour
39.	155	Brown HT	Colour
40.	160a	Carotenes	Colour
41.	160a(i)	Beta-carotene (synthetic)	Colour
42.	160a(ii)	Natural extracts	Colour
43.	160b	Annatto extracts	Colour
44.	160c	Paprika Oleoresins	Colour
45.	160d	Lycopene	Colour
46.	160e	Beta-apo-carotental	Colour
47.	160f	Beta-apo-8'-carotenic acid, methyl or ethyl ester	Colour
48.	161a	Flavoxanthin	Colour
49.	161b	Lutein	Colour
50.	161c	Krytoxanthin	Colour
51.	161d	Rubixanthin	Colour
52.	161e	Violoxanthin	Colour
53.	161f	Rhodoxanthin	Colour
54.	161g	Canthaxanthin	Colour
55.	162	Beet red	Colour

56.	163	Anthocyanins	Colour
57.	163(i)	Anthocyanins	Colour
58.	163(ii)	Grape skin extract	Colour
59.	163(iii)	Blackcurrant extract	Colour
60.	164	Gardenia yellow	Colour
61.	166	Sandalwood	Colour
62.	170	Calcium carbonates	Surface colourant, anticaking agent, stabilizer
63.	170(i)	Calcium carbonate	anticaking agent
64.	170(ii)	Calcium hydrogen carbonate	anticaking agent
65.	171	Titanium dioxide	Colour
66.	172	Iron oxides	Colour
67.	172(i)	Iron oxide, black	Colour
68.	172(ii)	Iron oxide, red	Colour
69.	172(iii)	Iron oxide, yellow	Colour
70.	173	Aluminium	Colour
71.	174	Silver	Colour
72.	175	Gold	Colour
73.	180	Lithol rubine BK	Colour
74.	181	Tannins, food grade	Colour, emulsifier, stabilizer, thickener
75.	182	Orchil	Colour
76.	200	Sorbic acid	Preservative
77.	201	Sodium sorbate	Preservative
78.	202	Potassium sorbate	Preservative
79.	203	Calcium sorbate	Preservative
80.	209	Heptyl p-hydroxybenzoate	Preservative

81.	210	Benzoic acid	Preservative
82.	211	Sodium benzoate	Preservative
83.	212	Potassium benzoate	Preservative
84.	213	Calcium benzoate	Preservative
85.	214	Ethyl p-hydroxybenzoate	Preservative
86.	215	Sodium ethyl p-hydroxybenzoate	Preservative
87.	216	Propyl p-hydroxybenzoate	Preservative
88.	217	Sodium propyl p-hydroxybenzoate	Preservative
89.	218	Methyl p-hydroxybenzoate	Preservative
90.	219	Sodium methyl p-hydroxybenzoate	Preservative
91.	220	Sulphur dioxide	Preservative, antioxidant
92.	221	Sodium sulphite	Preservative, antioxidant
93.	222	Sodium hydrogen sulphite	Preservative, antioxidant
94.	223	Sodium metabisulphite	Preservative, bleaching agent, antioxidant
95.	224	Potassium metabisulphite	Preservative, antioxidant
96.	225	Potassium sulphite	Preservative, antioxidant
97.	226	Calcium sulphite	Preservative, antioxidant
98.	227	Calcium hydrogen sulphite	Preservative, antioxidant
99.	228	Potassium bisulphate	Preservative, antioxidant
100.	230	Diphenyl	Preservative
101.	231	Ortho-phenylphenol	Preservative
102.	232	Sodium o-phenylphenol	Preservative
103.	233	Thiabendazole	Preservative
104.	234	Nisin	Preservative
105.	235	Pimaricin (natamycin)	Preservative

106.	236	Formic acid	Preservative
107.	237	Sodium formate	Preservative
108.	238	Calcium formate	Preservative
109.	239	Hexamethylene tetramine	Preservative
110.	240	Formaldehyde	Preservative
111.	241	Gum guaicum	Preservative
112.	242	Dimethyl dicarbonate	Preservative
113.	249	Potassium nitrite	Preservative, colour fixative
114.	250	Sodium nitrite	Preservative, colour fixative
115.	251	Sodium nitrate	Preservative, colour fixative
116.	252	Potassium nitrate	Preservative, colour fixative
117.	260	Acetic acid, glacial	Preservative, acidity regulator
118.	261	Potassium acetates	Preservative, acidity regulator
119.	261(i)	Potassium acetate	Preservative, acidity regulator
120.	261(ii)	Potassium diacetate	Preservative, acidity regulator
121.	262	Sodium acetates	Preservative, acidity regulator, Sequestrant
122.	262(i)	Sodium acetate	Preservative, acidity regulator, Sequestrant
123.	262(ii)	Sodium diacetate	Preservative, acidity regulator, Sequestrant
124.	263	Calcium acetate	Preservative, stabilizer, acidity Regulator
125.	264	Ammonium acetate	Acidity regulator
126.	265	Dehydroacetic acid	Preservative
127.	266	Sodium dehydroacetate	Preservative
128.	270	Lactic acid (L-, D—and DL-)	Acidity regulator

129.	280	Propionic acid	Preservative
130.	281	Sodium propionate	Preservative
131.	282	Calcium propionate	Preservative
132.	283	Potassium propionate	Preservative
133.	290	Carbon dioxide	Carbonating agent, Packing agent
134.	296	Malic acid (DL-L-)	Acidity regulator, flavouring agent.
135.	297	Fumaric acid	acidity regulator
136.	300	Ascorbic acid (L)	Antioxidant
137.	301	Sodium ascorbate	Antioxidant
138.	302	Calcium ascorbate	Antioxidant
139.	303	Potassium ascorbate	Antioxidant
140.	304	Ascorbyl palmitate	Antioxidant
141.	305	Ascorbyl stearate	Antioxidant
142.	306	Mixed tocopherols	Antioxidant
143.	307	Alpha-tocopherol	Antioxidant
144.	308	Synthetic gamma-tocopherol	Antioxidant
145.	309	Synthetic delta-tocopherol	Antioxidant
146.	310	Propyl gallate	Antioxidant
147.	311	Octyl gallate	Antioxidant
148.	312	Dodecyl gallate	Antioxidant
149.	313	Ethyl gallate	Antioxidant
150.	314	Guaiac resin	Antioxidant
151.	315	Isoascorbic acid	Antioxidant
152.	316	Sodium isoascorbate	Antioxidant
153.	317	Potassium isoascorbate	Antioxidant

154.	318	Calcium isoascrobate	Antioxidant
155.	319	Tertiary butylhydroquinone	Antioxidant
156.	320	Butylated hydroxyanisole	Antioxidant
157.	321	Butylated hydroxytoluene	Antioxidant
158.	322	Lecithins	Antioxidant, emulsifier
159.	323	Anoxomer	Antioxidant
160.	324	Ethoxyquin	Antioxidant
161.	325	Sodium lactate	antioxidant, synergist, humectant, bulking agent
162.	326	Potassium lactate	antioxidant, synergist, acidity Regulator
163.	327	Calcium lactate	acidity regulator, flour treatment agent
164.	328	Ammonium lactate	acidity regulator, flour treatment agent
165.	329	Magnesium lactate (D-,L-)	acidity regulator, flour treatment agent
166.	330	Citric acid	acidity regulator, synergist for Sequestrant
167.	331	Sodium citrates	acidity regulator, sequestrant emulsifier stabilizer
168.	331(i)	Sodium dihydrogen citrate	acidity regulator, sequestrant emulsifer, stabilizer
169.	331(ii)	Disodium monohydrogen citrate	acidity regulator, stabilizer, sequestrant, emulsifier
170.	331(iii)	Trisodium citrate	acidity regulator, sequestrant, emulsifier, Stabilizer
171.	332	Potassium citrates	acidity regulator, sequestrant, Stabilizer
172.	332(i)	Potassium dihydrogen citrate	acidity regulator, sequestrant, Stabilizer
173.	332(ii)	Tripotassium citrate	acidity regulator, sequestrant, Stabilizer
174.	333	calcium citrates	acidity regulator, firming agent, Sequestrant

175.	334	Tartaric acid [L(+)-]	acidity regulator, sequestrant, antioxidant synergist
176.	335	Sodium tartrates	Stabilizer, sequestrant,
177.	335(i)	Monosodium tartrate	Stabilizer, sequestrant
178.	335(ii)	Disodium tartrate	Stabilizer, sequestrant
179.	336	Potassium tartrate	Stabilizer, sequestrant
180.	336(i)	Monopotassium tartrate	Stabilizer, sequestrant
181.	336(ii)	Dipotassium tartrate	Stabilizer, sequestrant
182.	337	Potassium sodium tartrate	Stabilizer, sequestrant
183.	338	Orthophosphoric acid	acidity regulator, antioxidant Synergist
184.	339	Sodium phosphates	acidity regulator, texturizer, sequestrant, stabilizer Emulsifier, water retention agent
185.	339(i)	Monosodium orthophosphate	Acidity regulator, texturizer, Sequestrant, stabilizer, Emulsifier, water retention agent
186.	339(ii)	Disodium orthophosphate	acidity regulator, texturizer, sequestrant, stabilizer Emulsifier, water retention agent
187.	339(iii)	Trisodium orthophosphate	sequestrant, stabilizer, Emulsifier, water retention agent, acidity regulator, Texturizer
188.	340	Potassium Phosphates	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
189.	340(i)	Monopotassium orthophosphate	acidity regulator, texturizer, sequestrant, stabilizer Emulsifier, water retention Agent
190.	340(ii)	Dipotassium orthophosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent

191.	340(iii)	Tripotassium orthophosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
192.	341	Calcium phosphates	acidity regulator, texturizer, water retention agent, flour treatment agent, raising agent, firming agent, anticaking agent
193.	341(i)	Monocalcium orthophosphate	acidity regulator, texturizer, water retention agent, flour treatment agent, firming agent, anticaking agent
194.	341(ii)	Dicalcium orthophosphate	acidity regulator, texturizer, flour treatment agent, raising agent, firming agent, anticaking Agent
195.	341(iii)	Tricalcium orthophosphate	acidity regulator, texturizer, water retention agent, flour treatment agent, firming agent, anticaking agent
196.	342	Ammonium phosphates	acidity regulator, flour treatment agent
197.	342(i)	Monoammonium orthophosphate	acidity regulator, flour treatment agent
198.	342(ii)	Diammonium orthophosphate	acidity regulator, flour treatment agent
199.	343	Magnesium phosphates	acidity regulator, anticaking Agent
200.	343(i)	Monomagnesium orthophosphate	acidity regulator, anticaking Agent
201.	343(ii)	Dimagnesium orthophosphate	acidity regluator, anticaking Agent

202.	343(iii)	Trimagnesium orthophosphate	acidity regulator, anticaking Agent
203.	344	Lecithin citrate	Preservative
204.	345	Magnesium citrate	acidity regulator
205.	349	Ammonium malate	acidity regulator
206.	350	Sodium malates	acidity regulator, humectant
207.	350(i)	Sodium hydrogen malate	acidity regulator, humectant
208.	350(ii)	Sodium malate	acidity regulator, humectant
209.	351	Potassium malates.	acidity regulator
210.	351(i)	Potassium hydrogen malate	acidity regulator
211.	351(ii)	Potassium malate	acidity regulator
212.	352	Calcium malates	acidity regulator
213.	352(i)	Calcium hydrogen malate	acidity regulator
214.	352(ii)	Calcium malate	acidity regulator
215.	353	Metatartaric acid	acidity regulator
216.	354	Calcium tartrate	acidity regulator
217.	355	Adipic acid	acidity regulator
218.	356	Sodium adipates	acidity regulator
219.	357	Potassium adipates	acidity regulator
220.	359	Ammonium adipates	acidity regulator
221.	363	Succinic acid	acidity regulator
222.	364(i)	Monosodium succinate	acidity regulator, flavour Enhancer
223.	364(ii)	Disodium succinate	acidity regulator, flavour Enhancer

224.	365	Sodium fumarates	acidity regulator
225.	366	Potassium fumarates	acidity regulator
226.	367	Calcium fumarates	acidity regulator
227.	368	Ammonium fumarates	acidity regulator
228.	370	1, 4-Heptonolactone	acidity regulator, sequestrant
229.	375	Nicotinic acid	Colour retention agent
230.	380	Ammonium citrates	acidity regulator
231.	381	Ferric ammonium citrate	anticaking agent
232.	383	Calcium glycerophosphate	Thickener, gelling agent, Stabilizer
233.	384	Isopropyl citrates	Antioxidant, Preservative, Sequestrant
234.	385	Calcium disodium ethylene-diamine-tetra-acetate	Antioxidant, Preservative, Sequestrant
235.	386	Disodium ethylene-diamine-tetra-acetate	Antioxidant, Preservative, Sequestrant
236.	387	Oxy stearin	Antioxidant, sequestrant
237.	388	Thiodipropionic acid	Antioxidant
238.	389	Dilauryl thiodipropionate	Antioxidant
239.	390	Distearyl thiodipropionate	Antioxidant
240.	391	Phytic acid	Antioxidant
241.	399	Calcium lactobionate	Stabilizer
242.	400	Alginic acid	Thickener, stabilizer
243.	401	Sodium alginate	Thickener, stabilizer, gelling Agent

244.	402	Potassium alginate	Thickener, stabilizer
245.	403	Ammonium alginate	Thickener, stabilizer
246.	404	Calcium alginate	Thickener, stabilizer, gelling Agent, antifoaming agent
247.	405	Propylene glycol alginate	Thickener, emulsifier
248.	406	Agar	Thickener, gelling agent, Stabilizer
249.	407	Carrageenan and its Na, K, NH ₄ salts (includes furcellaran)	Thickener, gelling agent, Stabilizer
250.	407a	Processed Euchema Seaweed (PES)	Thickener, stabilizer
251.	408	Bakers yeast glycan	Thickener, gelling agent, Stabilizer
252.	409	Arabinogalactan	Thickener, gelling agent, Stabilizer
253.	410	Carob bean gum	Thickener, Stabilizer
254.	411	Oat gum	Thickener, Stabilizer
255.	412	Guar gum	Thickener, Stabilizer, Emulsifier
256.	413	Tragacanth gum	Thickener, Stabilizer, Emulsifier
257.	414	Gum arabic (acacia gum)	Thickener, Stabilizer
258.	415	Xanthan gum	Thickener, Stabilizer, emulsifier, foaming agent
259.	416	Karaya gum	Thickener, Stabilizer
260.	417	Tara gum	Thickener, Stabilizer
261.	418	Gellan gum	Thickener, Stabilizer, gelling

			Agent
262.	419	Gum ghatti	Thickener, Stabilizer, Emulsifier
263.	420	Sorbitol and sorbitol syrup	Sweetener, Humectant, sequestrant, Texturizer, Emulsifier
264.	421	Mannitol	Sweetener, anticaking agent
265.	422	Glycerol	Humectant, bodying agent
266.	424	Curd lan	Thickener, Stabilizer
267.	425	Konjac flour	Thickener
268.	429	Peptones	Emulsifier
269.	430	Polyoxyethylene (8) stearate	Emulsifier
270.	431	Polyoxyethylene (40) stearate	Emulsifier
271.	432	Polyoxyethylene (20) sorbitan Monolaurate	Emulsifier, dispersing agent
272.	433	Polyoxyethylene (20) sorbitan Monoleate	Emulsifier, dispersing agent
273.	434	Polyoxyethylene (20) sorbitan Monopalmitate	Emulsifier, dispersing agent
274.	435	Polyoxyethylene (20) sorbitan Monostearate	Emulsifier, dispersing agent
275.	436	Polyoxyethylene (20) sorbitan Tristearate	Emulsifier, dispersing agent
276.	440	Pectins	Thickener, emulsifier, Stabilizer, gelling agent
277.	441	Superglycerinated hydrogenated	Emulsifier

		rapeseed oil	
278.	442	Ammonium salts of phosphatidic Acid	Emulsifier
279.	443	Brominated vegetable oil	Emulsifier, stabilizer
280.	444	Sucrose acetate isobutyrate	Emulsifier, stabilizer
281.	445	Glycerol esters of wood resin	Emulsifier, stabilizer
282.	446	Succistearin	Emulsifier
283.	450	Diphosphates	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
284.	450(i)	Disodium diphosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
285.	450(ii)	Trisodium diphosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
286.	450(iii)	Tetrasodium diphosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
287.	450(iv)	Dipotassium diphosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention

			Agent
288.	450(v)	Tetrapotassium diphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent Sequestrant, water retention Agent
289.	450(vi)	Dicalcium diphosphate	acidity regulator, texturizer, sequestrant stabilizer, Emulsifier, water retention Agent
290.	450(vii)	Calcium dihydrogen diphosphate	Emulsifier, raising agent, stabilizer, sequestrant, acidity, regulator, water retention agent
291.	450 (viii)	Dimagnesium diphosphate	acidity regulator, texturizer, sequestrant, stabilizer, Emulsifier, water retention Agent
292.	451	Triphosphates	Sequestrant, acidity regulator Texturizer
293.	451(i)	Pentasodium	Sequestrant, acidity regulator, Texturizer
294.	451(ii)	Pentapotassium triphosphate	Sequestrant, acidity regulator, Texturizer
295.	452	Polyphosphates	acidity regulator, texturizer, sequestrant stabilizer, Emulsifier, water retention Agent

296.	452(i)	Sodium polyphosphate	acidity regulator, texturizer, sequestrant stabilizer, Emulsifier, water retention Agent
297.	452(ii)	Potassium Polyphosphate	acidity regulator, texturizer, sequestrant stabilizer, Emulsifier, water retention Agent
298.	452(iii)	Sodium calcium polyphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
299.	452(iv)	Calcium polyphosphates	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
300.	452(v)	Ammonium polyphosphates	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
301.	458	Gamma Cyclodextrin	Stabilizer, binder
302.	459	Beta-cyclodextrin	Stabilizer, binder
303.	460	Cellulose	Emulsifier, dispersing agent, anticaking agent, texturizer
304.	460(i)	Microcrystalline cellulose	Emulsifier, dispersing agent, anticaking agent

305.	460(ii)	Powdered cellulose	Emulsifier dispersing agent, anticaking agent
306.	461	Methyl cellulose	Thickener, Emulsifier, Stabilizer
307.	462	Ethyl cellulose	Binder, filler
308.	463	Hydroxypropyl cellulose	Thickener, Emulsifier, Stabilizer
309.	464	Hydroxypropyl methyl cellulose	Thickener, Emulsifier, Stabilizer
310.	465	Methyl ethyl cellulose	Thickener antifoaming agent, Emulsifier, stabilizer
311.	466	Sodium carboxymethyl cellulose	Thickener, Emulsifier, Stabilizer
312.	467	Ethyl hydroxyethyl cellulose	Thickener, Emulsifier, Stabilizer
313.	468	Croscarmellose	Stabilizer, binder
314.	469	Sodium carboxymethyl cellulose, enzymatically hydrolysed	Thickener, stabilizer
315.	470	Salts of fatty acids (with base Al, Ca, Na, Mg, K, and NH ₄)	Emulsifier, Stabilizer, anticaking agent
316.	471	Mono-and di-glycerides of fatty acids	Emulsifier, Stabilizer
317.	472a	Acetic and fatty acid esters of glycerol	Emulsifier, Stabilizer Sequestrant
318.	472b	Lactic and fatty acid esters of glycerol	Emulsifier, Stabilizer, Sequestrant

319.	472c	Citric and fatty acid esters of glycerol	Emulsifier, Stabilizer, Sequestrant
320.	472d	Tartaric acid esters of mono and diglycerides of fatty acids	Emulsifier, Stabilizer, Sequestrant
321.	472e	Diacetyltartric and fatty acid ester of glycerol	Emulsifier, Stabilizer, Sequestrant
322.	472f	Mixed tartaric, acetic and fatty acid esters of glycerol	Emulsifier, Stabilizers, Sequestrant
323.	472g	Succinylated monoglycerides	Emulsifier, Stabilizer, Sequestrant
324.	473	Sucrose esters of fatty acids	Emulsifier, Stabilizer, Sequestrant
325.	474	Sucroglycerides	Emulsifier, Stabilizer, Sequestrant
326.	475	Polyglycerol esters of fatty acid	Emulsifier, Stabilizer, Sequestrant
327.	476	Polyglycerol esters of interesterified ricinoleic acid	Emulsifier, Stabilizer, Sequestrant
328.	477	Propylene glycol esters of fatty Acids	Emulsifier, Stabilizer, Sequestrant
329.	478	Lactylated fatty acid esters of glycerol and propylene glycol	Emulsifier, Stabilizer, Sequestrant
330.	479.	Thermally oxidized soya bean oil with mono-and di-glycerides of fatty acids	Emulsifier, Stabilizer, Sequestrant
331.	480	Diocetyl sodium sulphosuccinate	Emulsifier, wetting agent

332.	481	Sodium lactylate	Emulsifier, Stabilizer
333.	481(i)	Sodium stearyl lactylates	Emulsifier, Stabilizer
334.	481(ii)	Sodium oleyl lactylate	Emulsifier, Stabilizer
335.	482	Calcium lactylates	Emulsifier, Stabilizer
336.	482(i)	Calcium stearyl lactylate	Emulsifier, Stabilizer
337.	482(ii)	Calcium oleyl lactylates	Emulsifier, Stabilizer
338.	483	Stearyl tartrate	Flour treatment agent
339.	484	Stearyl citrate	Emulsifier, sequestrant
340.	485	Sodium stearyl fumarate	Emulsifier
341.	486	Calcium stearyl fumarate	Emulsifier
342.	487	Sodium laurylsulphate	Emulsifier
343.	488	Ethoxylated mono-and di-glycerides	Emulsifier
344.	489	Methyl glucoside-coconut oil ester	Emulsifier
345.	491	Sorbitan monostearate	Emulsifier
346.	492	Sorbitan tristearate	Emulsifier
347.	493	Sorbitan monolaurate	Emulsifier
348.	494	Sorbitan monooleate	Emulsifier
349.	495	Sorbitan monopalmitate	Emulsifier
350.	496	Sorbitan trioleate	Stabilizer, Emulsifier
351.	500	Sodium carbonates	acidity regulator, raising agent, anticaking agent
352.	500(i)	Sodium carbonate	acidity regulator, raising agent, anticaking agent
353.	500(ii)	Sodium hydrogen carbonate	acidity regulator, raising agent, anticaking agent

354.	500(iii)	Sodium sesquicarbonate	acidity regulator, raising agent, anticaking agent
355.	501	Potassium carbonates	acidity regulator, stabilizer
356.	501(i)	Potassium carbonate	acidity regulator, stabilizer
357.	501(ii)	Potassium hydrogen carbonate	acidity regulator, stabilizer
358.	503	Ammonium carbonates	acidity regulator, raising agent
359.	503(i)	Ammonium carbonate	acidity regulator, raising agent
360.	503(ii)	Ammonium hydrogen carbonate	acidity regulator, raising agent
361.	504	Magnesium carbonates	acidity regulator, anticaking agent, colour retention agent
362.	504(i)	Magnesium carbonate	acidity regulator, anticaking agent, colour retention agent
363.	504(ii)	Magnesium hydrogen carbonate	acidity regulator, anticaking agent, colour retention agent
364.	505	Ferrous carbonate	acidity regulator
365.	507	Hydrochloric acid	acidity regulator acid
366.	508	Potassium chloride	gelling agent
367.	509	Calcium chloride	firming agent
368.	510	Ammonium chloride	flour treatment agent
369.	511	Magnesium chloride	firming agent
370.	512	Stannous chloride	Antioxidant, colour retention Agent
371.	513	Sulphuric acid	acidity regulator
372.	514	Sodium sulphates	acidity regulator
373.	515	Potassium sulphates	Acidity regulator

374.	516	Calcium Sulphate	Dough conditioner, Sequestrant, firming agent
375.	517	Ammonium sulphate	Flour treatment agent, stabilizer
376.	518	Magnesium sulphate	firming agent
377.	519	Cupric sulphate	colour fixative, preservative
378.	520	Aluminium sulphate	firming agent
379.	521	Aluminium sodium Sulphate	firming agent
380.	522	Aluminium potassium Sulphate	Acidity regulator, stabilizer
381.	523	Aluminium ammonium Sulphate	Stabilizer, firming agent
382.	524	Sodium hydroxide	acidity regulator
383.	525	Potassium hydroxide	acidity regulator
384.	526	Calcium hydroxide	acidity regulator, firming agent
385.	527	Ammonium hydroxide	acidity regulator
386.	528	Magnesium hydroxide	acidity regulator, colour retention agent
387.	529	Calcium oxide	acidity regulator, colour retention agent
388.	530	Magnesium oxide	anticaking agent
389.	535	Sodium ferrocyanide	anticaking agent
390.	536	Potassium ferrocyanide	anticaking agent
391.	537	Ferrous hexacyanomanganate	anticaking agent
392.	538	Calcium ferrocyanide	anticaking agent
393.	539	Sodium thiosulphate	antioxidant, sequestrant
394.	541	Sodium aluminium phosphate	acidity regulator, emulsifier
395.	541(i)	Sodium aluminium phosphate- acidic	acidity regulator, emulsifier

396.	541(ii)	Sodium aluminium phosphate-basic	acidity regulator, emulsifier
397.	542	Bone phosphate (essentially calcium phosphate, tribasic)	Emulsifier, anticaking agent, water retention agent
398.	550	Sodium silicates	anticaking agent
399.	550(i)	Sodium silicate	anticaking agent
400.	550(ii)	Sodium metasilicate	anticaking agent
401.	551	Silicon dioxide, amorphous	anticaking agent
402.	552	Calcium silicate	anticaking agent
403.	553	Magnesium silicates	anticaking agent, dusting Powder
404.	553(i)	Magnesium silicate	anticaking agent, dusting Powder
405.	553(ii)	Magnesium trisilicate	anticaking agent, dusting Powder
406.	553(iii)	Talc	anticaking agent, dusting Powder
407.	554	Sodium aluminosilicate	anticaking agent
408.	555	Potassium aluminium silicate	anticaking agent
409.	556	Calcium aluminium silicate	anticaking agent
410.	557	Zinc silicate	anticaking agent
411.	558	Bentonite	anticaking agent
412.	559	Aluminium silicate	anticaking agent
413.	560	Potassium silicate	anticaking agent
414.	570	Fatty acids	foam stabilizer, glazing agent,

			antifoaming agent
415.	574	Gluconic acid (D-)	acidity regulator, raising agent
416.	575	Glucono delta-lactone	acidity regulator, raising agent
417.	576	Sodium gluconate	Sequestrant
418.	577	Potassium gluconate	Sequestrant
419.	578	Calcium gluconate	acidity regulator, firming agent
420.	579	Ferrous gluconate	Colour retention agent
421.	580	Magnesium gluconate	acidity regulator, firming agent
422.	585	Ferrous lactate	colour retention agent
423.	586	4-Hexylresorcinol	colour retention agent, Antioxidant
424.	620	Glutamic acid (L (+)-)	flavour enhancer
425.	621	Monosodium glutamate	flavour enhancer
426.	622	Monopotassium glutamate	flavour enhancer
427.	623	Calcium glutamate	flavour enhancer
428.	624	Monoammonium glutamate	flavour enhancer
429.	625	Magnesium glutamate	flavour enhancer
430.	626	Guanylic acid	flavour enhancer
431.	627	Disodium 5'-guanylate	flavour enhancer
432.	628	Dipotassium 5'-guanylate	flavour enhancer
433.	629	Calcium 5'-guanylate	flavour enhancer
434.	630	Inosinic acid	flavour enhancer
435.	631	Disodium 5'-inosinate	flavour enhancer
436.	632	Potassium Inosate	flavour enhancer
437.	633	Calcium 5'-inosinate	flavour enhancer

438.	634	Calcium 5'-ribonucleotides	flavour enhancer
439.	635	Disodium 5'-ribonucleotides	flavour enhancer
440.	636	Maltol	flavour enhancer
441.	637	Ethyl maltol	flavour enhancer
442.	638	Sodium L-Aspartate	flavour enhancer
443.	639	DL-Alanine	flavour enhancer
444.	640	Glycine	flavour enhancer
445.	641	L-Leucine	flavour enhancer
446.	642	Lysin hydrochloride	flavour enhancer
447.	900a	Polydimethylsiloxane	antifoaming agent, anticaking agent, emulsifier
448.	900b	Methylphenylpolysiloxane	antifoaming agent
449.	901	Beeswax, white and yellow	glazing agent, release agent
450.	902	Candeilla Wax	glazing agent
451.	903	Carnaubawax	glazing agent
452.	904	Shellac	glazing agent
453.	905a	Mineral oil, food grade	glazing agent, release agent sealing agent
454.	905b	Petrolatum Petroleumielly	glazing agent, release agent, sealing agent
455.	905c	Petroleum wax	glazing agent, release agent, sealing agent
456.	905c(i)	Microcrystallinewax	glazing agent
457.	905c(ii)	Paraffin wax	glazing agent
458.	906	Benzoin gum	glazing agent

459.	907	Hydrogenated poly-1 decene	glazing agent
460.	908	Rice bran wax	glazing agent
461.	909	Spermaceti wax	glazing agent
462.	910	Wax esters	glazing agent
463.	911	Methyl esters of fatty acids	glazing agent
464.	913	Lanolin	glazing agent
465.	915	Glycerol-, methyl-, or penta-erithrytol esters of colophane	glazing agent
466.	916	Calcium iodate	flour treatment agent
467.	917	Potassium iodate	flour treatment agent
468.	918	Nitrogen oxide	flour treatment agent
469.	919	Nitrosyl chloride	flour treatment agent
470.	920	L-Cysteine and its hydrochlorides-sodium and potassium salts	flour treatment agent
471.	921	L-Cysteine and its hydrochlorides-sodium and potassium salts	flour treatment agent
472.	922	Potassium persulphate	flour treatment agent
473.	923	Ammonium persulphate	flour treatment agent
474.	924a	Potassium bromate	flour treatment agent
475.	924b	Calcium bromate	flour treatment agent
476.	925	Chlorine	flour treatment agent
477.	926	Chlorine dioxide	flour treatment agent
478.	927a	Azodicarbonamide	flour treatment agent
479.	927b	Carbamide (urea)	flour treatment agent
480.	928	Benzoyl peroxide	flour treatment agent,

			Preservative
481.	929	Acetone peroxide	flour treatment agent
482.	930	Calcium peroxide	flour treatment agent
483.	938	Argon	packing gas
484.	939	Helium	packing gas
485.	940	Dichlorodifluoromethane	Propellant, liquid freezant
486.	941	Nitrogen	Packing gas, freezant
487.	942	Nitrous oxide	Propellant
488.	943a	Butane	Propellant
489.	943b	Isobutane	Propellant
490.	944	Propane	Propellant
491.	945	Chloropentafluoroethane	Propellant
492.	946	Octafluorocyclobutane	Propellant
493.	948	Oxygen	packing gas
494.	950	Acesulfame potassium	Sweetener, flavour enhancer
495.	951	Aspartame	Sweetener, flavour enhancer
496.	952	Cyclamic acid (and Na, K, Ca Salts)	Sweetener
497.	953	Isomalt (isomaltitol)	Sweetener, anticaking agent, bulking agent, glazing agent
498.	954	Saccharin (and Na, K, Ca salts)	Sweetener
499.	955	Sucralose (trichlorogalactosucrose)	Sweetener
500.	⁷⁵ [956	-----]	
501.	957	Thaumatococcus	Sweetener, flavour enhancer
502.	958	Glycyrrhizin	Sweetener, flavour enhancer

503.	959	Neohesperidine dihydrochalcone	Sweetener
504.	960	Stevioside	Sweetener
505.	964	Polyglycitol syrup	Sweetener
506.	965	Maltitol and matitol Syrup	Sweetener, stabilizer, emulsifier
507.	966	Lactitol	Sweetener, texturizer
508.	967	Xylitol	Sweetener, humectant, stabilizer, Emulsifier, thickener
509.	968	Erythritol	Sweetener, flavour enhancer, Humectant
510.	999	Qullillaia extracts	foaming agent
511.	1000	Cholic acid	Emulsifier
512.	1001	Choline salts and esters	Emulsifier
513.	1001(i)	Choline acentate	Emulsifier
514.	1001(ii)	Choline carbonate	Emulsifier
515.	1001(iii)	Choline chloride	Emulsifier
516.	1001(iv)	Choline citrate	Emulsifier
517.	1001(v)	Choline tartrate	Emulsifier
518.	1001(vi)	Choline lactate	Emulsifier
519.	1100	Amylases	flour treatment agent
520.	1101	Proteases	flour treatment agent, stabilizer, tenderizer, flavour enhancer
521.	1101(i)	Protease	flour treatment agent, stabilizer, tenderizer, flavour enhancer
522.	1101(ii)	Papain	flour treatment agent, stabilizer, tenderizer, flavour enhancer

523	1101(iii)	Bromelain	flour treatment agent, stabilizer, tenderizer, flavour enhancer
524	1101(iv)	Ficin	flour treatment agent, stabilizer, tenderizer, flavour enhancer
525	1102	Glucose oxidase	Antioxidant
526	1103	Invertases	Stabilizer
527	1104	Lipases	flavour enhancer
528	1105	Lysozyme	Preservative
529	1200	Polydextroses A and N	bulking agent, stabilizer, thickener, Humectant texturizer
530	1201	Polyvinylpyrrolidone	bodying agent, stabilizer, clarifying agent, dispersing Agent
531	1202	Polyvinylpolypyrrolidone	colour stabilizer, colloidal, Stabilizer
532	1503	Castor oil	release agent
533	1505	Triethyl citrate	foam stabilizer
534	1518	Triacetin	Humectant
535	1520	Propylene glycol	Humectant, Wetting agent, dispersing agent
536	1521	Polyethylene glycol	antifoaming agent
<i>Supplementary List-Modified Starches</i>			
537	1400	Dextrins, roasted starch white and yellow	Stabilizer, thickener, binder
538	1401	Acid-treated starch	Stabilizer, thickener, binder

539	1402	Alkaline treated starch	Stabilizer, thickener, binder
540	1403	Bleached starch	Stabilizer, thickener, binder
541	1404	Oxidised starch	Stabilizer, thickener, binder
542	1405	Starches, enzyme-treated	Thickener
543	1410	Monostarch phosphate	Stabilizer, thickener, binder
544	1411	Distarch glycerol	Stabilizer, thickener, binder
545	1412	Distarch phosphate esterified with sodium trimetaphosphate;	Stabilizer, thickener, binder
546	1413	Phosphated distarch phosphate	Stabilizer, thickener, binder
547	1414	Acetylated distarch phosphate	Emulsifier, thickener, binder
548	1420	Starch acetate esterified with Acetic anhydride	Stabilizer, thickener
549	1421	Starch acetate esterified with vinyl acetate	Stabilizer, thickener
550	1422	Acetylated distarch adipate	Stabilizer, thickener, binder, Emulsifier
551	1423	Acetylated distarch glycord	Stabilizer, thickener
552	1440	Hydroxypropyl starch	Stabilizer, thickener, binder, Emulsifier
553	1442	Hydroxypropyl distarch phosphate	Stabilizer, thickener
554	1443	Hydroxypropyl distarch	Stabilizer, thickener
555	1450	Starch sodium octenyl succinate	Stabilizer, thickener, binder

B.List sorted in alphabetical Order-

Sl. No.	INS Number	Food Additive Name	Technical functions
1.	370	1,4-Heptonolactone	acidity regulator, sequestrant

2.	586	4-Hexylresorcinol	colour retention agent, Antioxidant
3.	950	Acesulfame potassium	Sweetener, flavour enhancer
4.	260	Acetic acid, glacial	Preservative, acidity regulator
5.	472a	Acetic and fatty acid esters of Glycerol	Emulsifier, Stabilizer, Sequestrant
6.	929	Acetone peroxide	flour treatment agent
7.	355	Adipic acid	Acidity regulator
8.	406	Agar	Thickener, gelling agent, Stabilizer
9.	400	Alginic acid	Thickener, stabilizer
10.	⁷⁵ [-----]	-----]	
11.	103	Alkanet	Colour
12.	129	Allurared AC	Colour
13.	307	Alpha-tocopherol	Antioxidant
14.	173	Aluminium	Colour
15.	523	Aluminium ammonium sulphate	Stabilizer, firming agent
16.	522	Aluminium potassium sulphate	acidity regulator, stabilizer
17.	559	Aluminium sodium silicate	anticaking agent
18.	521	Aluminium sodium sulphate	firming agent
19.	520	Aluminium sulphate	firming agent
20.	123	Amaranth	Colour
21.	264	Ammonium acetate	Acidity regulator
22.	359	Ammonium adipates	Acidity regulator
23.	403	Ammonium alginate	Thickener, stabilizer

24.	503(i)	Ammonium carbonate	acidity regulator, raising agent
25.	503	Ammonium carbonates	acidity regulator, raising agent
26.	510	Ammonium chloride	flour treatment agent
27.	380	Ammonium citrates	Acidity regulator
28.	368	Ammonium fumarate	Acidity regulator
29.	503(ii)	Ammonium hydrogen carbonate	acidity regulator, raising agent
30.	527	Ammonium hydroxide	Acidity regulator
31.	328	Ammonium lactate	acidity regulator, flour treatment agent
32.	349	Ammonium malate	Acidity regulator
33.	923	Ammonium persulphate	flour treatment agent
34.	342	Ammonium phosphates	acidity regulator, flour treatment agent
35.	452(v)	Ammonium polyphosphates	emulsifier raising agent, stabilizer sequestrant, Acidity regulator, water retention agent
36.	442	Ammonium salts of phosphatidic Acid	Emulsifier
37.	517	Ammonium sulphate	flour treatment agent, stabilizer
38.	1100	Amylases	flour treatment agent
39.	160b	Annatto extracts	Colour
40.	323	Anoxomer	Antioxidant
41.	163(i)	Anthocyanins	Colour
42.	163	Anothocyanins	Colour

43.	409	Arabinogalactan	Thickener, gelling agent, Stabilizer
44.	938	Argon	packing gas
45.	300	Ascorbic acid(L-)	Antioxidant
46.	304	Ascorbyl palmitate	Antioxidant
47.	305	Ascorbyl stearate	Antioxidant
48.	951	Aspartame	Sweetener, flavour enhancer
49.	927a	Azodicarbonamide	flour treatment agent
50.	122	Azorubine	Colour
51.	408	Bakers yeast glycan	Thickener, gelling agent, Stabilizer
52.	901	Beeswax, white and yellow	glazing agent, release agent
53.	162	Beet red	Colour
54.	558	Bentonite	anticaking agent
55.	210	Benzole acid	Preservative
56.	906	Benzoin gum	glazing agent
57.	928	Benzoyl peroxide	flour treatment agent, Preservative
58.	160 f	Beta-apo-8'carotenic acid, methyl or enthyl ester	Colour
59.	160e	Beta-apo-Carotenal	Colour
60.	160a(i)	Beta-Carotene (Synthetic)	Colour
61.	459	Beta-cyclodextrin	Stabilizer, binder
62.	163(iii)	Blackcurrant extract	Colour
63.	542	Bone phosphate (essentially calcium	Emulsifier, anticaking agent,

		phosphate, tribasic)	water retention agent
64.	151	Brilliant black PN	Colour
65.	133	Brilliant blue FCF	Colour
66.	1101(iii)	Bromelain	flour treatment agent, stabilizer, tenderizer, flavour enhancer
67.	443	Brominated vegetable oil	Emulsifier, stabilizer
68.	154	Brown FK	Colour
69.	155	Brown HT	Colour
70.	943a	Butane	Propellant
71.	320	Butylated hydroxyanisole	Antioxidant
72.	321	Butylated hydroxytoluene	Antioxidant
73.	629	Calcium 5'-guanylate	flavour enhancer
74.	633	Calcium 5' -inosinate	flavour enhancer
75.	634	Calcium 5' -ribonucleotides	flavour enhancer
76.	263	Calcium acetate	Preservative, stabilizer, acidity Regulator
77.	404	Calcium alginate	Thickener, Stabilizer, gelling agent, antifoaming agent
78.	556	Calcium aluminium silicate	anticaking agent
79.	302	Calcium ascorbate	Antioxidant
80.	213	Calcium benzoate	Preservative
81.	924 b	Calcium bromate	flour treatment agent
82.	170(i)	Calcium carbonate	anticaking agent
83.	170	Calcium carbonate	Surface colourant, anticaking agent, stabilizer

84.	509	Calcium chloride	firming agent
85.	333	Calcium citrates	acidity regulator, firming agent, Sequestrant
86.	450 (vii)	Calcium dihydrogen diphosphate	emulsifier, raising agent, stabilizer sequestrant, acidity regulator water retention agent
87.	385	Calcium disodium ethylene- diamine-tetra-acetate	Antioxidant, Preservative, Sequestrant
88.	538	Calcium ferrocyanide	anticaking agent
89.	238	Calcium formate	Preservative
90.	367	Calcium fumarates	Acidity regulator
91.	578	Calcium gluconate	acidity regulator, firming agent
92.	623	Calcium glutamate	flavour enhancer
93.	383	Calcium	Thickener, gelling agent, Stabilizer
94.	170 (ii)	Calcium hydrogen carbonate	anticaking agent
95.	352 (i)	Calcium hydrogen malate	Acidity regulator
96.	227	Calcium hydrogen	Preservative, antioxidant
97.	526	Calcium hydroxide	acidity regulator, firming agent
98.	916	Calcium iodate	flour treatment agent
99.	318	Calcium isoascorbate	Antioxidant
100.	327	Calcium lactate	acidity regulator, flour treatment agent
101.	399	Calcium lactobionate	Stabilizer

102.	482	Calcium lactylates	Emulsifier, stabilizer
103.	352 (ii)	Calcium malate	Acidity regulator
104.	352	Calcium malates	Acidity regulator
105.	482 (ii)	Calcium oleyl lactylate	Emulsifier, stabilizer
106.	529	Calcium oxide	acidity regulator, colour retention agent
107.	930	Calcium peroxide	flour treatment agent
108.	341	Calcium phosphates	acidity regulator, flour treatment agent, firming agent, Texturizer, raising agent, anticaking agent, water retention agent
109.	452 (iv)	Calcium polyphosphates	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
110.	282	Calcium propionate	Preservative
111.	552	Calcium silicate	anticaking agent
112.	203	Calcium sorbate	Preservative
113.	486	Calcium stearoyl fumarate	Emulsifier
114.	482 (i)	Calcium stearoyl lactylate	Emulsifier, stabilizer
115.	516	Calcium sulphate	flour treatment agent, Sequestrant, firming agent
116.	226	Calcium sulphite	preservative, antioxidant
117.	354	Calcium tartrate	Acidity regulator
118.	902	Candelilla wax	glazing agent

119.	161 g	Canthaxanthin	Colour
120.	150a	Caramel I-plain	Colour
121.	150 b	Caramel II-caustic sulphite process	Colour
122.	150 c	Caramel III-ammonia process	Colour
123.	150 d	Caramel IV-ammonia sulphite process	Colour
124.	927 b	Carbamide (urea)	flour treatment agent
125.	152	Carbon black (hydrocarbon)	Colour
126.	290	Carbon dioxide	carbonating agent, packing gas
127.	120	Carmines	Colour
128.	903	Carnaubawax	glazing agent
129.	410	Carob bean gum	Thickener, stabilizer
130.	160a	Carotenes	Colour
131.	407	Carrageenan and its Na, K, NH ₄ salts (includes furcellaran)	Thickener, gelling agent, Stabilizer
132.	1503	Castor oil	release agent
133.	460	Cellulose	Emulsifier, anticaking agent, texturizer, dispersing agent
134.	925	Chlorine	flour treatment agent
135.	926	Chlorine dioxide	flour treatment agent
136.	945	Chloropentafluoroethane	Propellant
137.	140	Chlorophyll Copper	Colour
138.	141(i)	Chlorophyll copper complex	Colour
139.	141(ii)	Chlorophyll copper complex sodium and potassium Salts	Colour

140.	1000	Cholic acid	Emulsifier
141.	1001(i)	Choline acetate	Emulsifier
142.	1001(ii)	Choline carbonate	Emulsifier
143.	1001(iii)	Choline chloride	Emulsifier
144.	1001(iv)	Choline citrate	Emulsifier
145.	1001(vi)	Choline lactate	Emulsifier
146.	1001	Choline salt and esters	Emulsifier
147.	1001(v)	Choline tartrate	Emulsifier
148.	330	Citric acid	acidity regulator, Antioxidant, Sequestrant
149.	472 c	Citric and fatty acid esters of glycerol	Emlsifier, Stabilizer, Sequestrant
150.	121	Citrus red 2	Colour
151.	141	Copper chlorophylls	Colour
152.	468	Croscarmellose	Stabilizer, binder
153.	519	Cupric sulphate	colour fixture, preservative
154.	100(i)	Curcumin	Colour
155.	100	Curcumins	Colour
156.	424	Curdlan	Thickener, stabilizer
157.	952	Cyclamic acid (and Na, K, Ca Salts)	Sweetener
158.	265	Dehydroacetic acid	Preservative
159.	472e	Diacetyltartaric and fatty acid esters of glycerol	Emulsifier, Stabilizer, Sequestrant
160.	342(ii)	Diammonium orthophosphate	acidity regulator, flour treatment agent

161.	450 (vi)	Dicalcium diphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
162.	341(ii)	Dicalcium orthophosphate	acidity regulator, flour treatment agent, firming agent, Texturizer
163.	940	Dichlorodifluoromethane	Propellant, liquid freezant
164.	389	Dilauryl thiodipropionate	Antioxidant
165.	450 (viii)	Dimagnesium diphosphate	emulsifier raising agent, stabilizer sequestrant, acidity regulator, water retention agent
166.	343(ii)	Dimagnesium	acidity regulator, anticaking Agent
167.	242	Dimethyl dicarbonate	Preservative
168.	480	Diocetyl sodium sulphosuccinate	Emulsifier, wetting agent
169.	230	Diphenyl	Preservative
170.	450	Diphosphates	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
171.	628	Dipotassium 5'-guanylate	flavour enhancer
172.	450(iv)	Dipotassium diphosphate	Emulsifier, Stabilizer, acidity, regulator, raising agent, Sequestrant, water retention

			Agent
173.	340(ii)	Dipotassium orthophosphate	acidity regulator texturizer, sequestrant, stabilizer, emulsifier water retention agent
174.	336(ii)	Dipotassium tartrate	Stabilizer, sequestrant
175.	627	Disodium 5'-guanylate	flavour enhancer
176.	631	Disodium 5'-inosinate	flavour enhancer
177.	635	Disodium 5'-ribonucleotides	flavour enhancer
178.	450(i)	Disodium diphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
179.	386	Disodium ethylene-diamine-tetra -acetate	Antioxidant, Preservative, Sequestrant
180.	331(ii)	Disodium monohydrogen citrate	acidity regulator, stabilizer, Sequestrant, emulsifier
181.	339(ii)	Disodium orthophosphate	acidity regulator, Sequestrant, emulsifier, Texturizer, Stabilizer, water retention agent
182.	335(ii)	Disodium tartrate	Stabilizer, sequestrant
183.	364(ii)	Disodium succinate	acidity regulator, flavour Enhancer
184.	390	Distearyl thiodipropionate	Antioxidant
185.	639	DL-Alanine	flavour enhancer

186.	312	Dodecyl gallate	Antioxidant
187.	968	Erythritol	Sweetener, flavour enhancer, Humectant
188.	127	Erythrosine	Colour
189.	488	Ethoxylated mono-and di-glycerides	Emulsifier
190.	324	Ethoxyquin	Antioxidant
191.	462	Ethyl cellulose	Binder, filler
192.	313	Ethyl gallate	Antioxidant
193.	467	Ethyl hydroxyethyl cellulose	Thickener, emulsifier, stabilizer
194.	637	Ethyl maltol	flavour enhancer
195.	214	Ethyl-p-hydroxybenzoate	Preservative
196.	143	Fast green FCF	Colour
197.	570	Fatty acids	foam stabilizer, glazing agent, antifoaming agent
198.	381	Ferric ammonium citrate	anticaking agent
199.	505	Ferrous carbonate	Acidity regulator
200.	579	Ferrous gluconate	Colour retention agent
201.	537	Ferrous hexacyanomanganate	anticaking agent
202.	585	Ferrous lactate	Colour retention agent
203.	1101(iv)	Ficin	flour treatment agent, stabilizer, tenderizer, flavour enhancer
204.	161a	Flavoxanthin	Colour
205.	240	Formaldehyde	Preservative
206.	236	Formic acid	Preservative

207.	297	Fumaric acid	Acidity regulator
208.	458	Gamma Cyclodextrin	Stabilizer, binder
209.	164	Gardenia yellow	Colour
210.	418	Gellan gum	Thickener, stabilizer, gelling Agent
211.	574	Gluconic acid (D-)	acidity regulator, raising agent
212.	575	Glucono delta-lactone	acidity regulator, raising agent
213.	1102	Glucose oxidase	Antioxidant
214.	620	Glutamic acid (L(+)-)	flavour enhancer
215.	422	Glycerol	Humectant, bodying agent
216.	445	Glycerol esters of wood resin	Emulsifier, stabilizer
217.	915	Glycerol-, methyl-, or penta-erithrytol esters of colophane	Glazing agent
218.	640	Glycine	Flavour modifier
219.	958	Glycyrrhizin	Sweetener, flavour enhancer
220.	175	Gold	Colour
221.	163 (ii)	Grape skin extract	Colour
222.	142	Green S	Colour
223.	314	Guaiac resin	Antioxidant
224.	626	Guanlic acid	flavour enhancer
225.	412	Guar gum	Thickener, stabilizer
226.	414	Gum arabic (acacia gum)	Thickener, stabilizer
227.	419	Gum ghatti	Thickener, stabilizer, emulsifier
228.	241	Gum guaicum	Preservative
229.	939	Helium	packing gas

230.	209	Heptyl-p-hydroxybenzoate	Preservative
231.	239	Hexamethylene tetramine	Preservative
232.	507	Hydrochloric acid	Acidity regulator
233.	907	Hydrogenated poly-1-decene	glazing agent
234.	463	Hydroxypropyl cellulose	Thickener, Emulsifier, Stabilizer
235.	464	Hydroxypropyl methyl cellulose	Thickener, Emulsifier, Stabilizer
236.	132	Indigotine	Colour
237.	630	Inosinic acid	flavour enhancer
238.	1103	Invertases	Stabilizer
239.	172 (i)	Iron oxide, black	Colour
240.	172(ii)	Iron oxide, red	Colour
241.	172(iii)	Iron oxide, yellow	Colour
242.	172	Iron oxides	Colour
243.	315	Isoascorbic acid	Antioxidant
244.	943b	Isobutane	Propellant
245.	953	Isomalt (isomaltitol)	Sweetener, anticaking agent, bulking agent, glazing agent
246.	384	Isopropyl citrates	Antioxidant, Preservative, Sequestrant
247.	416.	Karaya gum	Thickener, stabilizer
248.	425	Lonjac flour	Thickener
249.	161c	Kryptoxanthin	Colour
250.	920	L-Cysteine and its hydrochlorides-	flour treatment agent

		sodium and potassium salts	
251.	921	L-Cysteine and its hydrochlorides- sodium and potassium salts	flour treatment agent
252.	641	L-Leucine	flavour modifier.
253.	270	Lactic acid (L-, D- and DL-)	Acidity regulator
254.	472b	Lactic and fatty acid esters of glycerol	Emulsifier, stabilizer,
255.	966	Lactitol	Sweetener, texturizer
256.	478	Lactylated fatty acid esters of glycerol and propylene glycol	Emulsifier
257.	913	Lanolin	glazing agent
258.	344	Lecithin citrate	Preservative
259.	322	Lecithins	Antioxidant, emulsifier
260.	1104	Upases	flavour enhancer
261.	180	Lithol rubine BK	Colour
262.	161b	Lutein	Colour
263.	160d	Lucopene	Colour
264.	642	Lysin hydrochloride	flavour enhancer
265.	1105	Lysozyme	Preservative
266.	504(i)	Magnesium carbonate	acidity regulator, anticaking agent, colour retention agent
267.	504	Magnesium carbonates	acidity regulator, anticaking agent, colour retention agent
268.	511	Magnesium chloride	firming agent
269.	345	Magnesium citrate	Acidity regulator

270.	580	Magnesium gluconate	acidity regulator, firming agent
271.	625	Magnesium glutamate	flavour enhancer
272.	504(ii)	Magnesium hydrogen carbonate	acidity regulator, anticaking agent, colour retention agent
273.	528	Magnesium hydroxide	acidity regulator, colour retention agent
274.	329	Magnesium lactate (D-, L-)	acidity regulator, flour treatment agent
275.	530	Magnesium oxide	anticaking agent
276.	343	Magnesium phosphates	acidity regulator, anticaking Agent
277.	553(i)	Magnesium silicate	anticaking agent, dusting Powder
278.	553	Magnesium Silicates	anticaking agent, dusting Powder
279.	518	Magnesium sulphate	firming agent
280.	553(ii)	Magnesium trisilicate	anticaking agent, dusting Powder
281.	296	Malic acid (D-,L-)	acidity regulator, flavouring Agent
282.	965	Maltitol and maltitol Syrup	Sweetener, Stabilizer, Emulsifier
283.	636	Maltol	flavour enhancer
284.	130	Manascorubin	Colour
285.	421	Mannitol	Sweetener, anticaking agent

286.	353	Metatartaric acid	Acidity regulator
287.	461	Methyl cellulose	Thickener, Emulsifier, Stabilizer
288.	911	Methyl esters of fatty acids	glazing agent
289.	465	Methyl ethyl cellulose	Thickener, Emulsifier, stabilizer, antifoaming agent
290.	489	Methyl glucoside-coconut oil ester	Emulsifier
291.	218	Methyl p-hydroxybenzoate	Preservative
292.	900 b	Methylphenylpolysiloxane	antifoaming agent
293.	460(i)	Microcrystalline cellulose	Emulsifier, anticaking agent, texturizer, dispersing agent
294.	905 c (i)	Microcrystalline wax	glazing agent
295.	905a	Mineral oil, food grade	glazing agent, release agent, sealing agent
296.	472 f	Mixed tartaric, acetic and fatty acid esters of glycerol	Emulsifier, Stabilizer, Sequestrant
297.	306	Mixed tocopherols concentrate	Antioxidant
298.	471	Mono-and di-glycerides of fatty acids	Emulsifier, stabilizer
299.	624	Monoammonium glutamate	flavour enhancer
300.	342 (i)	Monoammonium orthophosphate	acidity regulator, flour treatment agent
301.	341 (i)	Monocalcium orthophosphate	acidity regulator, texturizer, flour treatment agent, raising Agent
302.	343 (i)	Monomagnesium orthophosphate	acidity regulator, anticaking

			Agent
303.	622	Monopotassium glutamate	flavour enhancer
304.	340 (i)	Monopotassium orthophosphate	acidity regulator texturizer, sequestrant stabilizer, emulsifier, water retention Agent
305.	336 (i)	Monopotassium tartrate	Stabilizer, sequestrant
306.	621	Monosodium glutamate	flavour enhancer
307.	339 (i)	Monosodium orthophosphate	acidity regulator texturizer, sequestrant stabilizer, emulsifier, water retention Agent
308.	364 (i)	Monosodium succinate	acidity regulator, flavour Enhancer
309.	335 (i)	Monosodium tartrate	Stabilizer, sequestrant
310.	160a (ii)	Natural extracts	Colour
311.	959	Neohesperidine dihydrochalcone	Sweetener
312.	375	Nicotinic acid	Colour retention agent
313.	234	Nisin	Preservative
314.	941	Nitrogen	packing gas, freezant
315.	918	Nitrogen oxides	flour treatment agent
316.	919	Nitrosyl chloride	flour treatment agent
317.	942	Nitrous oxide	Propellant
318.	411	Oat gum	Thickener, stabilizer
319.	946	Octafluorocyclobutane	Propellant
320.	311	Octyl gallate	Antioxidant

321.	182	Orchil	Colour
322.	231	Ortho-phenylphenol	Preservative
323.	338	Orthophosphoric acid	acidity regulator, antioxidant, Synergist
324.	948	Oxygen	packing gas
325.	387	Oxy stearin	Antioxidant, sequestrant
326.	1101(ii)	Papain	flour treatment agent, Stabilizer, tenderizer, flavour
327.	160c	Paprika oleoresins	Colour
328.	905 c (ii)	Paraffin wax	glazing agent
329.	131	Patent blue V	Colour
330.	440	Pectins	Thickener, Stabilizer, gelling Agent
331.	451 (ii)	Pentapotassium triphosphate	Sequestrant, acidity regulator, Texturizer
332.	451 (i)	Pentasodium triphosphate	Sequestrant, acidity regulator, Texturizer
333.	429	Peptones	Emulsifier
334.	905 b	Petrolatum (petroleum jelly)	glazing agent, release agent, sealing agent
335.	905 c	Petroleum wax	glazing agent, release agent, sealing agent
336.	391	Phytic acid	Antioxidant
337.	235	Pimaricin (natamycin)	Preservative
338.	1200	Polydextroses A and N	bulking agent, Stabilizer, thickener, Humectant,

			texturizer
339.	990a	Polydimethylsiloxane	antifoaming agent, anticaking agent, emulsifier
340.	1521	Polyethylene glycol	antifoaming agent
341.	475	Polyglycerol esters of fatty acids	Emulsifier
342.	476	Polyglycerol esters of interesterified Ricinoleic acid	Emulsifier
343.	964	Polyglycitol syrup	Sweetener
344.	432	Polyoxyethylene (20) sorbitan monolaurate	Emulsifier, dispersing agent
345.	433	Polyoxyethylene (20) sorbitan Mono-oleate	Emulsifier, dispersing agent
346.	434	Polyoxyethylene (20) sorbitan monopalmitate	Emulsifier, dispersing agent
347.	435	Polyoxyethylene (20) sorbitan monostearate	Emulsifier, dispersing agent
348.	436	Polyoxyethylene (20) sorbitan tristearate	Emulsifier, dispersing agent
349.	431	Polyoxyethylene (40) stearate	Emulsifier
350.	430	Polyoxyethylene (8) stearate	Emulsifier
351.	452	Polyphosphates	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
352.	1202	Polyvinylpyrrolidone	colour stabilizer, Colloidal, Stabilizer

353.	1201	Polyvinylpyrrolidone	bodying agent, Stabilizer, clarifying agent, dispersing Agent
354.	124	Ponceau 4R	Colour
355.	125	Ponceau SX	Colour
356.	261 (i)	Potassium acetate	Preservative, acidity regulator
357.	261	Potassium acetates	Preservative, acidity regulator
358.	357	Potassium adipates	Acidity regulator
359.	402	Potassium alginate	Thickener, stabilizer
360.	555	Potassium aluminium silicate	anticaking agent
361.	303	Potassium ascorbate	Antioxidant
362.	212	Potassium benzoate	Preservative
363.	228	Potassium bisulphite	Preservative, antioxidant
364.	924 a	Potassium bromate	flour treatment agent
365.	501 (i)	Potassium carbonate	acidity regulator, stabilizer
366.	501	Potassium carbonates	acidity regulator, stabilizer
367.	508	Potassium chloride	Gelling agent
368.	332	Potassium citrates	acidity regulator, Sequestrant, Stabilizer
369.	261 (ii)	Potassium diacetate	Preservative, acidity regulator
370.	332 (i)	Potassium dihydrogen citrate	acidity regulator, Sequestrant, Stabilizer
371.	536	Potassium ferrocyanide	anticaking agent
372.	366	Potassium fumarates	Acidity regulator
373.	577	Potassium gluconate	Sequestrant

374.	501 (ii)	Potassium hydrogen carbonate	acidity regulator, stabilizer
375.	351 (i)	Potassium hydrogen malate	Acidity regulator
376.	525	Potassium hydroxide	Acidity regulator
377.	632	Potassium Inosate	flavour enhancer
378.	917	Potassium iodate	flour treatment agent
379.	317	Potassium isoascorbate	Antioxidant
380.	326	Potassium lactate	Antioxidant, synergist, acidity Regulator
381.	351 (ii)	Potassium malate	Acidity regulator
382.	351	Potassium malates	Acidity regulator
383.	224	Potassium metabisulphite	Preservative, antioxidant
384.	252	Potassium nitrate	Preservative, colour fixative
385.	249	Potassium nitrite	Preservative, colour fixative
386.	922	Potassium persulphate	flour treatment agent
387.	340	Potassium phosphates	acidity regulator, Sequestrant, emulsifier, Texturizer, Stabilizer, water retention agent
388.	452 (ii)	Potassium polyphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
389.	283	Potassium propionate	Preservative
390.	560	Potassium silicate	anticaking agent
391.	337	Potassium sodium tartrate	Stabilizer, sequestrant
392.	202	Potassium sorbate	Preservative

393.	515	Potassium sulphates	Acidity regulator
394.	225	Potassium sulphite	Preservative, antioxidant
395.	336	Potassium tartrates	Stabilizer, sequestrant
396.	460 (ii)	Powdered cellulose	Emulsifier, anticaking agent, texturizer, dispersing agent
397.	407 a	Processed Euchema seaweed	Thickener, stabilizer
398.	944	Propane	Propellant
399.	280	Propionic acid	Preservative
400.	310	Propyl gallate	Antioxidant
401.	216	Propyl p-hydroxybenzoate	Preservative
402.	1520	Propylene glycol	Humectant, wetting agent, dispersing agent
403.	405	Propylene glycol alginate	Thickener, emulsifier
404.	477	Propylene glycol esters of fatty acids	Emulsifier
405.	1101 (i)	Protease	flour treatment agent, Stabilizer, tenderizer, flavour Enhancer
406.	1101	Proteases	flour treatment agent, Stabilizer, tenderizer, flavour Enhancer
407.	999	Quillaia extracts	foaming agent
408.	104	Quinoline yellow	Colour
409.	128	Red 2G	Colour
410.	161 f	Rhodoxanthin	Colour

411.	101 (i)	Riboflavin	Colour
412.	101 (ii)	Riboflavin 5' -phosphate, sodium	Colour
413.	101	Riboflavins	Colour
414.	908	Rice bran wax	glazing agent
415.	161 d	Rubixanthin	Colour
416.	954	Saccharin (and Na, K, Ca salts)	Sweetener
417.	470	Salts of fatty acids (with base Al, Ca, Na, Mg, K and NH ₄)	Emulsifier, Stabilizer, anti caking agent
418.	166	Sandalwood	Colour
419.	904	Shellac	glazing agent
420.	551	Silicon dioxide, amorphous	anticaking agent
421.	174	Silver	Colour
422.	262 (i)	Sodium acetate	Preservative, acidity regulator, Sequestrant
423.	262	Sodium acetates	Preservative, acidity regulator, Sequestrant
424.	356	Sodium adipates	Acidity regulator
425.	401	Sodium alginate	Thickener, Stabilizer, gelling Agent
426.	541	Sodium aluminium phosphate	acidity regulator, emulsifier
427.	541 (i)	Sodium aluminium phosphate-acidic	acidity regulator, emulsifier
428.	541 (ii)	Sodium aluminium phosphate-basic	acidity regulator, emulsifier
429.	554	Sodium alumino-silicate	anticaking agent
430.	301	Sodium ascorbate	Antioxidant

431.	211	Sodium benzoate	Preservative
432.	452 (iii)	Sodium calcium polyphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
433.	500(i)	Sodium carbonate	acidity regulator, raising agent, anticaking agent
434.	500	Sodium carbonates	acidity regulator, raising agent, anticaking agent
435.	466	Sodium carboxymethyl cellulose	Thickener, Emulsifier, Stabilizer
436.	469	Sodium carboxymethyl, cellulose, enzymatically, hydrolysed	Thickener, stabilizer
437.	331	Sodium citrates	acidity regulator, Sequestrant, emulsifier, stabilizer
438.	266	Sodium dehydroacetate	Preservative
439.	262 (ii)	Sodium diacetate	Preservative, acidity regulator, Sequestrant
440.	331 (i)	Sodium dihydrogen citrate	acidity regulator, Sequestrant, emulsifier, stabilizer
441.	215	Sodium ethyl p-hydroxybenzoate	Preservative
442.	535	Sodium ferrocyanide	anticaking agent
443.	237	Sodium formate	Preservative
444.	365	Sodium fumarates	Acidity regulator

445.	576	Sodium gluconate	Sequestrant
446.	500 (ii)	Sodium hydrogen carbonate	acidity regulator, raising agent, anticaking agent
447.	350 (i)	Sodium hydrogen malate	acidity regulator, humectant
448.	222	Sodium hydrogen sulphite	Preservative, antioxidant
449.	524	Sodium hydroxide	Acidity regulator
450.	316	Sodium isoascorbate	Antioxidant
451.	638	Sodium L-Aspartate	flavour enhancer
452.	325	Sodium lactate	antioxidant synergist, Humectant, bulking agent
453.	481	Sodium lactylates	Emulsifier, stabilizer
454.	487	Sodium laurylsulphate	Emulsifier
455.	350 (ii)	Sodium malate	acidity regulator, humectant
456.	350	Sodium malates	acidity regulator, humectant
457.	223	Sodium metabisulphite	Preservative, bleaching agent, Antioxidant
458.	550 (ii)	Sodium metasilicate	anticaking agent
459.	219	Sodium methyl p-hydroxybenzoate	Preservative
460.	251	Sodium nitrate	Preservative, colour fixative
461.	250	Sodium nitrite	Preservative, colour fixative
462.	232	Sodium o-phenylphenol	Preservative
463.	481 (ii)	Sodium oleyl lactylate	Emulsifier, stabilizer
464.	339	Sodium phosphates	acidity regulator, Sequestrant, emulsifier, Texturizer, Stabilizer, water retention

			agent
465.	452 (i)	Sodium polyphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
466.	281	Sodium propionate	Preservative
467.	217	Sodium propyl p-hydroxybenzoate	Preservative
468.	500 (iii)	Sodium sesquicarbonate	acidity regulator, raising agent, anticaking agent
469.	550 (i)	Sodium silicate	anticaking agent
470.	550	Sodium silicates	anticaking agent
471.	201	Sodium sorbate	Preservative
472.	485	Sodium stearoyl fumarate	Emulsifier
473.	481 (i)	Sodium stearoyl lactylate	Emulsifier, stabilizer
474.	514	Sodium sulphates	Acidity regulator
475.	221	Sodium sulphite	Preservative, antioxidant
476.	335	Sodium tartrates	Stabilizer, sequestrant
477.	539	Sodium thiosulphate	Antioxidant, sequestrant
478.	200	Sorbic acid	Preservative
479.	493	Sorbitan monolaurate	Emulsifier
480.	494	Sorbitan mono-oleate	Emulsifier
481.	495	Sorbitan monopalmitate	Emulsifier
482.	491	Sorbitan monostearate	Emulsifier
483.	496	Sorbitan trioleate	Stabilizer, emulsifier
484.	492	Sorbitan tristearate	Emulsifier

485.	420	Sorbitol and sorbitol syrup	Sweetener, Humectant, sequestrant, Texturizer, Emulsifier
486.	909	Spermacetic wax	glazing agent
487.	512	Stannous chloride	Antioxidant, colour retention agent
488.	484	Stearyl citrate	Emulsifier, sequestrant
489.	483	Stearyl tartrate	flour treatment agent
490.	960	Stevioside	Sweetener
491.	363	Succinic acid	Acidity regulator
492.	472g	Succinylated monoglycerides	Emulsifier, Stabilizer, Sequestrant
493.	446	Succi stearin	Emulsifier
494.	955	Sucralose	Sweetener
495.	474	Sucroglycerides	Emulsifier
496.	444	Sucrose acetate isobutyrate	Emulsifier, stabilizer
497.	473	Sucrose esters of fatty acids	Emulsifier
498.	220	Sulphur dioxide	Preservative, antioxidant
499.	513	Sulphuric acid	acidity regulator
500.	110	Sunset yellow FCF	colour
501.	441	Superglycerinated hydrogenated rapeseed oil	Emulsifier
502.	309	Synthetic delta-tocopherol	Antioxidant
503.	308	Synthetic gamma-tocopherol	Antioxidant
504.	553 (iii)	Talc	anticaking agent, dusting powder

505.	181	Tannins, food grade	Colour, Emulsifier, Stabilizer, thickener
506.	417	Tara gum	Thickener, stabilizer
507.	334	Tartaric acid (L(+)-)	acidity regulator, Sequestrant, antioxidant synergist
508.	472 d	Tartaric acid esters of mono and di-glycerides of fatty acids	Emulsifier, Stabilizer, sequestrant
509.	102	Tartrazine	Colour
510.	319	Tertiary butylhydroquinone	antioxidant
511.	450(v)	Tetrapotassium diphosphate	emulsifier, raising agent, stabilizer sequestrant, acidity regulator, water retention agent
512	450 (iii)	Tetrasodium diphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Seque-strant, water retention agent
513.	957	Thaumatococcus	Sweetener, flavour enhancer emulsifier
514.	479	Thermally oxidized soya bean oil with mono-and di-glycerides of fatty acids	Emulsifier
515.	233	Thiabendazole	Preservative
516.	388	Thiodipropionic acid	antioxidant
517.	171	Titanium dioxide	Colour
518.	413	Tragacanth gum	Thickener, Stabilizer, emulsifier
519.	1518	Triacetin	Humectant
520.	341 (iii)	Tricalcium orthophosphate	acidity regulator, texturizer, flour treatment agent, raising agent, firming agent,

			anticaking agent, water retention agent
521.	1505	Triethyl citrate	foam stabilizer
522.	343 (iii)	Trimagnesium orthophosphate	acidity regulator, anticaking Agent
523.	451	Tri phosphates	Sequestrant, acidity regulator, Texturizer
524.	332 (ii)	Tripotassium citrate	acidity regulator, Sequestrant, Stabilizer
525.	340 (iii)	Tripotassium orthophosphate	acidity regulator, texturizer, sequestrant stabilizer, Emulsifier, water retention Agent
526.	331 (ii)	Trisodium citrate	acidity regulator, Sequestrant, emulsifier, Stabilizer
527.	450 (ii)	Trisodium diphosphate	Emulsifier, Stabilizer, acidity regulator, raising agent, Sequestrant, water retention Agent
528.	339 (iii)	Trisodium orthophosphate	acidity regulator, Sequestrant, emulsifier, Texturizer, Stabilizer, water retention agent
529.	100 (ii)	Turmeric	Colour
530.	153	Vegetable carbon	Colour
531.	161 e	Violoxanthin	Colour

532.	910	Wax esters	glazing agent
533.	415	Xanthan gum	Thickener, stabilizer
534.	967	Xylitol	Sweetener, Humectant, stabilizer, Emulsifier, thickener
535.	107	Yellow 2G	Colour
536.	557	Zinc silicate	anticaking agent
Supplementary List-Modified Starches			
537.	1422	Acetylated di-starch adipate	Stabilizer, thickener, binder
538.	1423	Acetylated distarch glycerol	Stabilizer, thickener
539.	1414	Acetylated distarch phosphate	Emulsifier, thickener
540.	1401	Acid-treated starch	Stabilizer, thickener, binder
541.	1402	Alkaline treated starch	Stabilizer, thickener, binder
542.	1403	Bleached starch	Stabilizer, thickener, binder
543.	1400	Dextrins roasted starch white and yellow	Stabilizer, thickener, binder
544.	1411	Di-starch glycerol	Stabilizer, thickener, binder
545.	1412	Di-starch phosphate esterified with sodium trimetaphosphate; esterified with phosphorus oxychloride	Stabilizer, thickener, binder
546.	1443	Hydroxypropyl di-starch glycerol	Stabilizer, thickener
547.	1442	Hydroxypropyl di-starch phosphate	Stabilizer, thickener
548.	1440	Hydroxypropyl starch	Emulsifier, thickener, binder
549.	1410	Monostarch phosphate	Stabilizer, thickener, binder
550.	1404	Oxidized starch	Emulsifier, thickener, binder
551.	1413	Phosphated di-starch phosphate	Stabilizer, thickener, binder

552.	1420	Starch acetate esterified with acetic anhydride	Stabilizer, thickener
553.	1421	Starch acetate esterified with vinyl acetate	Stabilizer, thickener
554.	1450	Starch sodium octenyl succinate	Stabilizer, thickener, binder,
555.	1405	Starches, enzyme-treated	thickener