USDA United States Department of Agriculture
Foreign Agricultural Service

GAIN Global Agricultural Information Network

Voluntary Report – Voluntary - Public Distribution **Date:** October 22,2020

Report Number: IN2020-0154

Report Name: India - Amendments Relating to Inclusion of Processing Aids Published in the Indian Gazette

Country: India

Post: New Delhi

Report Category: Agricultural Situation, Agriculture in the Economy, Agriculture in the News, Sanitary/Phytosanitary/Food Safety, Exporter Guide, Food Processing Ingredients, FAIRS Subject Report, SP1 - Expand International Marketing Opportunities

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Report Highlights:

The Government of India's Food Safety and Standards Authority of India (FSSAI) notified in the Official Gazette of India, the Food Safety and Standards (Food Products Standards and Food Additives) Ninth Amendment Regulations, 2020. The amendment regulations relate to the inclusion of processing aids as Appendix 'C' in Chapter 3 titled 'Substances Added to Food.' The implementation date for the amended regulation is July 1, 2021.

DISCLAIMER: The information contained in this report is from the Food Safety and Standards Authority of India's (FSSAI) website http://www.fssai.gov.in/. The FAS New Delhi Office of Agricultural Affairs, USDA and/or the U.S. Government make no claim of accuracy or authenticity.

GENERAL INFORMATION

On October 9, 2020, the Food Safety and Standards Authority of India (FSSAI) published on its website the Food Safety and Standards (Food Products Standards and Food Additives) Ninth Amendment Regulations, 2020. The regulations amendment relates to insertion of processing aids as 'Appendix C' in Chapter 3 of the Food Safety and Standards (Food Product Standards and Food Additives), Regulations, 2011. Appendix C in the amended regulation covers the various processing aids categories and their use in food products. The implementation date for the ninth amendment regulations is July 1, 2021.

Background: On July 17, 2018, the FSSAI notified its draft amendments on this subject, inviting the World Trade Organization (WTO) member countries to submit comments on the draft amendments (see GAIN-INDIA (IN8091), August 8, 2018 – India Invites WTO Member Comments on Inclusion of Processing Aids).

The full text of the current amendment notification is available on the FSSAI's website (see also Appendix I for the full text).

APPENDIX I – INDIA: Food Safety and Standards (Food Products Standards and Food Additives) Ninth Amendment Regulations, 2020.

FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA

NOTIFICATION

New Delhi, the 9th October, 2020

F. No. Stds/Processing aids/Notification/FSSAI/2018.—Whereas the draft of the Food Safety and Standards (Food Products Standards and Food Additives) Amendment Regulations, 2019, were published as required by section 92 of the Food Safety and Standards Act, 2006 (34 of 2006), vide notification of the Food Safety and Standards Authority of India number No. Stds/Processing aids/Notification/FSSAI/2018, dated 4th February, 2019, in the Gazette of India, Extraordinary, Part III, Section 4, dated 5th February, 2019, inviting objections and suggestions from the person likely to be affected thereby, before the expiry of the period of thirty days from the date on which the copies of the Official Gazette containing the said notification were made available to the public;

And whereas copies of the said Gazette were made available to the public on the 11th February, 2019;

And whereas objections and suggestions received from the public in respect of the said draft regulations have been considered by the Food Safety and Standards Authority of India;

Now, therefore, in exercise of the powers conferred by clause (v) of sub-section (2) of section 92 of the said Act and with the previous approval of the Central Government, the Food Safety and Standards Authority of India hereby makes the following regulations, further to amend the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011, namely:-

Regulations

1. **Short title and commencement.** - (1) These regulations may be called the Food Safety and Standards (Food Products Standards and Food Additives) Ninth Amendment Regulations, 2020.

(2) They shall come into force on the date of their publication in the Official Gazette and Food Business Operator shall comply with all the provisions of these regulations by 1st July, 2021.

2. In the Food Safety and Standards (Food Products Standards and Food Additives) regulations, 2011,-

(A) in Chapter 3 relating to SUBSTANCES ADDED TO FOOD, after regulation 3.3 relating to other substances for use in food products, the following shall be inserted, namely:-

'3.4 PROCESSING AIDS

3.4.1: DEFINITIONS AND CONDITIONS OF USE

(1) Processing aids included in these regulations

The processing aids listed herein are recognised as suitable for use in foods in conformance with the provisions of these regulations and have been assigned an Acceptable Daily Intake (ADI) or determined (wherever applicable), on the basis of other criteria, to be safe and the use of processing aids in conformance with these regulations has to be technologically justified.

(2) Product category

The foods or food processing procedures, in which the processing aid is utilised, are defined by these regulations.

(3) Food in which processing aids may be used

The conditions, under which processing aids may be used in foods, are defined by these regulations.

(4) Foods in which processing aids shall not be used

Unless expressly permitted in these regulations, processing aids shall not be used in food processing.

(5)"Processing aid" means any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods or its ingredients, to fulfil a certain technological purpose during treatment or processing and which may result in the non-intentional but unavoidable presence of residues or derivatives in the final product.

(6)"Acceptable Daily Intake (ADI)" means the amount of a processing aid in food expressed on a body weight basis that can be ingested daily over a lifetime without appreciable health risk and a processing aid, meeting this criterion shall be used within the bounds of Good Manufacturing Practice (GMP) as specified in clause (11) of this sub-regulation.

(7) Maximum permitted Level of a processing aid, is the highest concentration of the processing aid, determined to be functionally effective in a food or food category and agreed to be safe and it is generally expressed as mg/kg of food.

(8) "Residual level" means the level of processing aid remaining in food after processing. The levels should be designated with respect to those directly measured by analysis or estimated by other means. Values are in mg/kg and values at the detection limit of available analytical procedures are reported as "Not more than".

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

(10) Justification for the use of processing aids

The use of a substance as a processing aid is justified when such use performs one or more technological functions during treatment or processing of raw materials, foods, or ingredients. Any residues of processing aids remaining in the food after processing should not perform a technological function in the final product.

(11) Good Manufacturing Practice (GMP)

All the processing aids subject to the provisions of these regulations shall be used under conditions of good manufacturing practices (GMP) which includes the following, namely: -

(a) the quantity of the substance used shall be limited to the lowest achievable level necessary to accomplish its desired technological function;

(b) residues or derivatives of the substance remaining in food should be reduced to the extent reasonably achievable and should not pose any health risk; and

(c) the substance is prepared and handled in the same way as a food ingredient.

(12) Specifications for the identity and purity of processing aids

(a) Substances used as processing aids should be of food grade quality. This can be demonstrated by conforming to the applicable specifications of identity and purity recommended under these regulations, and in case such standards are not specified, the purity criteria accepted by international bodies such as Codex Alimentarius may be adhered to.

(b) The safety of a substance used as a processing aid shall be demonstrated by the supplier or the user of the substance. The demonstration of safety shall include appropriate assessment of any unintended or unavoidable residues resulting from its use as a processing aid under conditions of GMP.

(13) Conditions for labelling

The product covered by this Standard shall be labelled in accordance with the Food Safety and Standards (Packaging & Labelling) Regulation, 2011. Declaration of vegetarian or non-vegetarian irrespective of the residue level, has to be mentioned on the label.

(B) after APPENDIX B relating to Microbiological Requirements, the following shall be inserted, namely: -

"**APPENDIX C**

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	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

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

S. No.	Name of the processing aid	Product Category	Residual Level (mg/kg) Not more than
		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 and wine	GMP
2.	Chitosan sourced from *Aspergillus niger*	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 wine	1
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)	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

TABLE 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 stearate (INS 470(i))	Confectionery	GMP
4.	Carnauba wax (INS 903)	Confectionery	GMP

S. No.	Name of the processing aid	Product Category	Residual level (mg/kg) (Not more than)
5.	Glycerol (INS 422)	All foods	GMP
6.	Hydrogenated palm kernel oil (HPKO)	Confectionery and bakery wares	GMP
7.	Lecithin (INS 322 (i))	Confectionery	GMP
		Processed cheese (slices)	GMP
8.	Medium chain Triglyceride (MCT) (C6- C12)	Confectionery, bakery wares _and fruit Jelly	GMP
9.	Oleic Acid	All foods	GMP
10.	Palm oil/Palm olein	Confectionery and bakery wares	GMP
11.	Sunflower oil	Confectionery and bakery wares	GMP
12.	Soybean oil	Confectionery and bakery wares	GMP
13.	Thermally oxidised soya-bean oil (INS 479)	All foods	320
14.	White mineral oil (INS 905e)	All foods	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	Flavourings	30
		Spice oleoresins	30
		Colours	2
		Vegetable oils	0.1
		Other foods	0.1
2.	Benzyl alcohol	Fatty acids, flavourings, colours	GMP
3.	Butanol	Fatty acids, flavourings, colours	10
		Spice oleoresins	2
4.	Butan-2-ol	Spice oleoresins	2
5.	Carbon dioxide (INS 290)	Flavourings	GMP
		Spice oleoresins	GMP
6.	Cyclohexane	Flavourings, vegetable oils	1
7.	Dibutyl ether	Flavourings	2
8.	Diethyl ether	Flavourings, colors	2
		Spice oleoresins	2
9.	Dimethyl ether	Flavourings	2
10.	Ethyl acetate	Flavourings	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	Flavourings	1
		Vegetable oils	
16.	Hexane	Flavourings, vegetable oils	5
		Spice oleoresins	25
		Chocolate and chocolate products	1
17.	Isobutane	Flavourings	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
		Flavourings	2

S. No.	Name of the processing aid	Product Category	Residual Level (mg/kg) (Not more than)
		Spice oleoresins	30
		Vegetable oils	0.02
21.	Methyl ethyl ketone (butanone)	Fatty acids, flavourings, colourings, decaffeination of coffee, tea	2
22.	Methyl tert-butyl ether	Spice oleoresins	2
23.	Propane	Flavourings	1
		Edible oils	0.1
24.	Propan-1-ol	Spice oleoresins	1
25.	Toluene	Flavourings	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

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)		

S. No.	Name of the processing aid	Product Category	Residual level mg/kg (Not more than)
3.	Lactic acid (INS 270)		
4.	Malic acid (INS 296)		
5.	Sour whey		
6.	Vinegar		

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

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)	*Aspergillus niger*	GMP
		Aspergillus oryzae	
2.	Catalase (EC No. 1.11.1.6)	*Aspergillus niger*	GMP
3.	Glycero-phospholipid cholesterol acyltransferase (EC No. 2.3.1.43)	*Bacillus licheniformis*	GMP
4.	Transglutaminase (EC No. 2.3.2.13)	*Streptomyces mobaraensis*	GMP
5.	Lipase triacylglycerol (EC No. 3.1.1.3)	*Rhizopus oryzae*	GMP
		Fusarium oxysporum	
		Thermomyces lanuginosus	
		Rhizopus niveus	
		Rhizopus oryzae	
		Carica papaya	
		Rice bran	
6.	Pectin esterase (EC No. 3.1.1.11)	*Aspergillus niger*	GMP
7.	Acylglycerol lipase (EC No. 3.1.1.23)	*Penicillium camembertii*	GMP
8.	Phospholipase A1 (EC No. 3.1.1.32)	*Aspergillus niger*	GMP
9.	Phytase (EC No. 3.1.3.8)	*Aspergillus niger*	GMP

10.	Phospholipase D (EC No. 3.1.4.4)	*Streptomyces cinnamoneus*	GMP
11.	Hemicellulase (EC No. 3.2.1)	*Aspergillus niger*	GMP
		Trichoderma reesei/ longibrachiatum	
12.	Alpha amylase (EC No. 3.2.1.1)	*Aspergillus oryzae*	GMP
		Aspergillus niger	
		Bacillus licheniformis	
		Bacillus amyloliquefaciens	
		Bacillus subtilis	
		Cereal (barley) Malt	
13.	Beta amylase (EC No. 3.2.1.2)	Cereal (barley) Malt	GMP
14.	Glucan 1,4-α-glucosidase (or Glucoamylase or acid maltase) (EC No. 3.2.1.3)	*Aspergillus niger*	GMP
		Aspergillus oryzae	
		Trichoderma reesei	
		Rhizopus oryzae	
15.	Cellulase (EC No. 3.2.1.4)	*Penicillium funiculosum*	GMP
		Aspergillus niger	
		Humicola insolens	
		Trichoderma reesei	
16.	Beta-glucanase (endo-beta glucanase or endo-1,3-beta-glucanase) (EC No. 3.2.1.6)	*Aspergillus niger*	GMP
		Bacillus amyloliquefaciens	
		Rasamsonia emersonii	
		Trichoderma reesei	
		Aspergillus aculeatus	
		Humicola insolens	
17.	Inulinase (EC No. 3.2.1.7)	*Aspergillus niger*	GMP
18.	Endo-1,4-beta-xylanase (EC No. 3.2.1.8)	*Aspergillus niger*	GMP
		Trichoderma reesei/ longibrachiatum	
		Humicola insolens	
19.	Dextranase (EC No. 3.2.1.11)	*Chaetomium erraticum*	GMP
20.	Polygalacturonase (pectinase) (EC No. 3.2.1.15)	*Aspergillus niger*	GMP
		Aspergillus aculeatus	
21.	Alpha-glucosidase (EC No. 3.2.1.20)	*Aspergillus niger*	GMP
		Trichoderma reesei	
22.	Beta-glucosidase (EC No. 3.2.1.21)	*Aspergillus niger*	GMP
		Trichoderma reesei/ longibrachiatum CL 847	GMP
23.	Alpha-galactosidase (melibiase) (EC No. 3.2.1.22)	*Aspergillus oryzae*	GMP
		Aspergillus niger	GMP
		Morterella vinacea	GMP
		Saccharomyces carlsbergensis	GMP
24.	Beta-galactosidase (lactase) (EC No. 3.2.1.23)	*Kluyveromyces lactis*	GMP
		Bacillus circulans	

		Saccharomyces sp.	
		Aspergillus oryzae	
25.	Beta- fructofuranosidase (invertase or saccharase) (EC No. 3.2.1.26)	*Saccharomyces cerevisiae*	GMP
		Kluyveromyces fragilis	
		Saccharomyces carlsbergensis	
		Saccharomyces cerevisiae	
26.	Trehalase (EC No. 3.2.1.28)	*Trichoderma reesei*	GMP
27.	Pullunase (EC 3.2.1.41)	*Bacillus acidopullulyticus*	GMP
		Bacillus brevis	
		Bacillus circulans	
		Bacillus naganoensis	
		Klebsiella aerogenes	
28.	Alpha arabinofuronosidase (EC No. 3.2.1.55)	*Aspergillus niger*	GMP
29.	Glucan1,3- betaglucosidase (EC No. 3.2.1.58)	*Trichoderma harzianum*	GMP
30.	Mannan endo-1,4-beta-mannosidase (EC No. 3.2.1.78)	*Trichoderma reesei*	GMP
		Aspergillus niger	GMP
31.	Protease (Bacteria) (EC No. 3.4)	*Bacillus amyloliquefaciens*	GMP
		Bacillus licheniformis	
		Bacillus subtilis	
		Geobacillus caldoproteolyticus	
32.	Protease (Fungi) (EC No. 3.4)	*Aspergillus niger*	GMP
		Aspergillus oryzae	
33.	Aminopeptidase (EC No. 3.4.11.1)	*Aspergillus oryzae*	GMP
34.	Serine protease (subtilisin) (EC No. 3.4.21.62)	*Bacillus licheniformis*	GMP
35.	PIII-type proteinase (Lactocepin) (EC No. 3.4.21.96)	*Lactococcus lactis subsp. Cremoris (strain SK11)*	GMP
36.	Papain (EC No 3.4.22.2)	*Cariya papaya*	GMP
37.	Ficin (EC No. 3.4.22.3)	Figs	GMP
38.	Bromelain (EC No 3.4.22.33)	*Ananas comosus/bracteatus*	GMP
39.	Chymosin (EC No. 3.4.23.4)	*Kluyveromyces lactis*	GMP
40.	Metalloproteinase (Bacillolysin) (EC No. 3.4.24.28)	*Bacillus amyloliquefaciens*	GMP
41.	Pectin lyase (EC No. 4.2.2.10)	*Aspergillus niger*	GMP
42.	Glucose isomerase (or xylose isomerase) (EC No. 5.3.1.5)	*Streptomyces rubiginosus*	GMP
		Streptomyces murinus	
		Streptomyces olivaceus	
		Streptomyces olivochromogenes	
		Microbacterium arborescens	
		Actinoplanes missouriensis	

**All enzymes are from non-genetically modified sources*

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	GMP
2.	Ammonium hydroxide (INS 527)	Acidity regulator	All foods	GMP
3.	Ammonium sulphate	Decalcification agent	Edible casings	GMP
4.	Amino acids	Microbial nutrient	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
5.	Alum (Aluminium sulphate or Potassium aluminium sulphate)	Coagulant		
6.	Argon (INS 938)	Propellent and packaging gas	All foods	GMP
7.	Beta-cyclodextrin (INS 459)	Encapsulating and thickening agent	Butter	GMP
8.	Bone phosphate (INS 542)	Emulsifier, moisture retention agent	All foods except milk and milk products	GMP
		Sequestrant	All foods	GMP
9.	Calcium chloride	Buffering agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
10.	Calcium sulfate	Buffering agent		GMP
11.	Carbon dioxide (INS 290)	Packaging and propelling Gas / aerating agent	Confectionery and Bakery wares	GMP
12.	Citric acid (INS 330)	Sequestrant	Oils & fats	GMP
13.	Chlorine dioxide	Water treatment	Alcoholic beverages including low alcoholic and alcohol free counterparts	1 (as available chlorine)
14.	Ethyl acetate	Cell disruption of yeast	Yeast	GMP
15.	Ethyl alcohol	Carrier solvent ,flavouring agent	All foods	GMP
16.	Ethylene diamine tetra acetic acid	Metal sequestrant	Edible fats and oils and related products	GMP
17.	Furcellaran (INS 407)	Thickener, gelling agent, stabilizer, emulsifier	All foods	GMP
18.	Gibberellic acid	Malting	Cereals	GMP
19.	Glucono delta lactone (GDL) (INS 575)	Raising agent, sequestrant	Unripened cheese – Paneer and channa	GMP
20.	Hydrogenated glucose syrups INS 965 (ii))	Sweetener, humectant, texturizer, stabilizer, bulking agent	All foods	GMP
21.	HVO (Hydrogenated vegetable oil)	Lubricant for conveyor belts for countline products	All foods	GMP
22.	Indole acetic acid	Malting	Cereals	GMP
23.	Isopropyl alcohol	Glazing agent	All foods	GMP
24.	L-Cysteine (or HCl salt)	Dough conditioner	Flour products	75
25.	Lactic acid	Acidity regulator	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
26.	Magnesium	pH control agent	All foods	GMP

	hydroxide (INS 528)			
27.	Oak dust/ chips	Ageing agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
28.	Oxygen (INS 948)	Propellant	All foods	GMP
		Aerating agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
29.	Paraffin	Coating agent	Cheese and cheese products	GMP
30.	Phospholipids (INS 322 (i))	Emulsifier, antioxidant	All foods	GMP
31.	Phosphoric acid (INS 338)	Acidulant, sequestrant, synergist for antioxidants	All foods	GMP
		Buffering agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
32.	Polyethylene glycols (INS 1521)	Carrier solvent, excipient	All foods	GMP
33.	Polyglycerol esters of interesterified ricinoleic acid (INS 476)	Emulsifier	All foods	GMP
34.	Polyoxyethylene 40 stearate (INS 431)	Emulsifier	All foods	GMP
35.	Polyvinyl acetate	Preparation of waxes	Cheese and cheese products	GMP
36.	Potassium hydroxide (INS 525)	pH control agent	All foods	GMP
37.	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
38.	Propylene glycol alginate (INS 405)	Stabilizer, thickener, emulsifier	All foods	GMP
		Foam stabilizer	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
39.	Salt (NaCl)	Ion exchange	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP
40.	Silica (INS 551)	Anticaking agent	All foods	GMP
		Soap absorbing agent	Edible vegetable oils	GMP
41.	Sodium acid pyrophosphate (SAPP)	Prevention of darkening of frozen uncooked French fries	Frozen vegetables	GMP
42.	Sodium calcium polyphosphate silicate (INS 452 (i))	Stabilizer, leavening agent, emulsifier, nutrient	All foods	GMP
43.	Sodium hydroxide (INS 524)	pH control agent	Fruits and vegetables, sugar beet, fats & oils	GMP
44.	Sodium hypochlorite	Water treatment	Alcoholic beverages	1 (as available chlorine)

			including low alcoholic and alcohol free counterparts	
45.	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
46.	Sodium silicate (INS 550 (i))	Anticaking agent	All foods	GMP
47.	Sodium sulphite	Dough conditioner	Flour products	60
48.	Sulphuric Acid (INS 513)	pH control agent	All foods	GMP
49.	Sulphurous acid	Softening agent	Corn kernel	GMP
50.	Sulphur dioxide (INS 220)	Control of nitrosodimethylamine in malting	Malting	750
51.	Tannic Acid (INS 181)	Clarifying agent, flavouring agent, flavour adjunct	Juices	GMP
52.	Yeast	Fermenting Agent	Alcoholic beverages including low alcoholic and alcohol free counterparts	GMP".
53.	Zinc sulphate	Mineral Salt		

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[ADVT.-III/4/Exty./290/2020-21]

Source: The Gazette of India: Extraordinary, Part III – Section 4, pages 21-34, October 9, 2020. (https://www.fssai.gov.in/upload/notifications/2020/10/5f8d5a959fdedGazette_Notification_Processing_Aids_15_10_2020.pdf).

Attachments:

No Attachments.