Notice Calling for suggestions, views, comments etc from stakeholders on the draft notification related to Food Safety and Standards (Food Products Standards and Food Additives) Amendment Regulations, 2018 related to insertion of Appendix 'C' w.r.t. Processing Aids.

F.No. Stds/Processing aids/Notification/FSSAI/2018.-

1. In the Food Safety and Standards (Food Products Standards and Food Additives) regulations, 2011, in Chapter 3 relating to SUBSTANCES ADDED TO FOOD,-

(A) 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:

(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 use of processing aids in conformance with these regulations is considered 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 may not be used
Unless expressly permitted in these regulations, processing aids must not be added to food.

(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 (as per FSS Act 2006).

(6)Acceptable Daily Intake (ADI) means the amount of a 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 (8) 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:
(1) directly measured by analysis or
(2) estimated by other means. Values are in mg/kg and values at the detection limit of available analytical procedures are reported as "less 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

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.

The safety of a substance used as a processing aid should be demonstrated by the supplier or the user of the substance. The demonstration of safety should 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.

The INS number of the processing aids wherever available or name of the processing aids wherever INS number is not available on the product should also be mentioned and declaration of vegetarian or non-vegetarian logo, irrespective of the residue level to be mentioned in 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 in 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/ Filtration Agents:** Substances that are used to remove suspended solids from liquids by inducing flocculation and those substances which aids in the process of filtration.

4. **Lubricants, Release & 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**
   5.1 Microbial Control Agents: Substances that can be used to inactivate spoilage organisms in the processing of foods.

   5.2 Microbial Nutrients and Microbial Nutrient adjuncts: Substances that can be used to enhance the growth of the microbial culture intended to be used in the 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 Agents:** Substances that can be used in making food products white or colorless and substances that aids in surface treatment (washing and peeling) of food specified in these regulations.

8. **Flocculating Agents and Enzyme Immobilization agents & supports:** Substances that promote flocculation by causing colloids and other suspended particles in liquids to aggregate, forming a floc. Flocculants are used to improve the sedimentation or filterability of small particles.

9. **Contact Freezing & Cooling Agents:** Substances that can cause rapidfreezing on contact with food.

10. **Desiccating Agent:** Substances that extract water and prevents 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. These shall be used as per the conditions specified in the corresponding table under these regulations.

13. **Processing aids for "beer and malt beverages", "aromatized alcoholic beverages" & "grape wines"**

Note: The processing aids listed in the Table 1 to 13 may be used in the course of manufacture of food specified in the corresponding table provided the final food contains no more than the corresponding residue level (wherever applicable) specified in the Table.

TABLE 1: ANTIFOAMING AGENTS

S. No.	Name of the processing aid	INS No.	Product Category	Residue level (if any)	Note

				mg/kg	
1	Polydimethylsiloxane	900a	Beer, fats & oils Vegetable protein Juice making	< 10	
2.	Polyethylene glycol	1521	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	GMP	
3.	Polypropylene glycol	1520	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	GMP	
4.	Sorbitanmonolaurate	493	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	1	
5.	Sorbitanmonooleate	494	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	1	

6.	Coconut oil		Juice- making		
7.	Hydrogenated coconut oil		Confectionary	5 – 15	
			Vegetable protein		
8.	Vegetable fatty acid esters		Juice-making		

TABLE 2: CATALYST

S. No.	**Name of the processing aid**	**INS No**	**Product Category**	**Residual Level (if any)** mg/kg	**Note**
1	Chromium (excluding chromium VI)		Hydrogenated food oils	< 0.1	
2.	Copper		Hydrogenated food oils	< 0.1	
3.	Molybdenum		Hydrogenated food oils	< 0.1	
4.	Nickel		Polyols	< 1	
			Hardened oil mfg.	< 0.8	
			Hydrogenated food oils	0.2 – 1	
5.	Potassium (metal)		Interesterified food oil	< 1	

6.	Sodium (metal)		Interesterified food oil	< 1	
7.	Potassium ethoxide		Interesterified food oil	< 1	
8.	Sodium ethoxide		Interesterified food oil	< 1	
9.	Sodium methoxide		Interesterified food oil	< 1	

TABLE 3: CLARIFYING AGENTS/FLITRATION AIDS

S. No.	**Name of the processing aid**	**INS No**	**Product Category***	**Residual level (if any)mg/kg**	**Note**
1	Acid clays of montmorillonite		Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	
2.	Chloromethylatedaminated styrene-divinylbenzene resin		Sugar processing	< 1	
3.	Co-extruded polystyrene and polyvinyl polypyrrolidone		Fruit or vegetable juices, Fruit nectars, syrups and wine	< 1	
4.	Polyvinyl polypyrrolidone	1201	Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	

5.	Shellac, bleached	904	Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	
6.	Fish collagen, including isinglass		Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	
7.	Kaolin		Fruit or vegetable juices, Fruit nectars, syrups and wine		
8.	Magnesium oxide	530	Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	
9.	Copper sulphate	519	Fruit or vegetable juices, Fruit nectars, syrups and wine	GMP	

TABLE 4: LUBRICANTS, RELEASE & ANTISTICK AGENTS

S. No.	Name of the processing aid	INS No	Product Category	Residual level (mg/kg)	Note
1	Acetylated mono- and diglycerides	472a	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	100	
2.	Thermally oxidised soya-bean oil	479	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	320	

3.	Glycerol	422	All foods (as requested by industry association		
4.	Bees wax	901	All foods (as requested by industry association)		
5.	White mineral oil	905e	In the course of manufacture of any food provided the final food contains no more than the corresponding maximum permitted level specified	GMP	
6.	Hydrogenated palm kernel oil (HPKO)		Confectionery and Bakery wares		
7.	Palm oil/Palm olein		Confectionery and Bakery wares		
8	Soyabean oil		Confectionery and Bakery wares		
9	Sun flower oil		Confectionery and Bakery wares		
10	Medium chain Triglyceride (MCT) (C6- C12)		Confectionery and Bakery wares		
11	Lecithin	322i	Confectionery and Gums		
12	Carnauba wax	903	Confectionery and Gums		
13	Calcium stearate	470i	Confectionery and Gums		

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

S. No.	Name of the processing aid	INS No.	Product Category	Maximum permitted addition level mg/kg	Residual Level mg/kg	Note
1	Dimethyl dicarbonate **Microbial control agent**	242	Wine Fruits and vegetable juices and its products Water based flavoured drinks	200 250 250	None	
2.	Quaternary ammonium Compounds **Microbial control agent**					
3.	**Adonitol**		Microbial nutrients or Microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
4.	Inositol		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
5.	Arginine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture	NA	NA	

			of a food or drink			
6.	Adenine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
7.	Asparagine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
8.	Aspartic acid		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
9.	Benzoic acid		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
10.	Biotin		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

11.	Glycine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
12.	Guanine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
13.	Histidine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
14.	Calcium pantothenate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

15.	Cystine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
16.	Cysteine monohydrochloride		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
17.	Inosine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
18.	Niacin		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

19.	Pantothenic acid		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
20.	Uracil		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
21.	Xanthine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
22.	Thiamin		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

23.	Threonine		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
24.	Pyridoxine hydrochloride		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
25.	Riboflavin	101 (i)	Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
26.	Calcium propionate	282	Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
27.	Copper sulphate	519	Microbial nutrients or microbial	NA	NA	

			nutrient adjuncts in the course of manufacture of a food or drink			
28.	Ammonium sulphate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
29.	Ammonium sulphite		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
30.	Dextran		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
31.	Ferrous sulphate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or	NA	NA	

			drink			
32.	Glutamic acid		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
33.	Hydroxyethyl starch		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
34.	Manganese chloride		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
35..	Manganese sulphate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or	NA	NA	

			drink			
36.	Nitric acid		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
37.	Peptone		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
38.	Phytates		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
39.	Polyvinylpyrrolidone	1201	Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

40.	Sodium formate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
41.	Sodium molybdate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
42.	Sodium tetraborate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
43.	Zinc chloride		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or	NA	NA	

			drink			
44.	Zinc sulphate		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	
45.	Trisodiumorthophosphte		Microbial nutrients or microbial nutrient adjuncts in the course of manufacture of a food or drink	NA	NA	

NA- Not applicable

TABLE 6: SOLVENT FOR EXTRACTION AND PROCESSING

S. No.	Name of the processing aid	INS No.	Product Category	Residual Level (if any)mg/kg	Note
1	Benzyl alcohol		Flavourings, colours, fatty acids	GMP	

2.	Isopropyl alcohol		May be used as extraction solvents in the course of manufacture of any food provided the final food contains no more than the corresponding residual level specified	10	
3.	Butanol		Fatty acids, Flavourings, colours	10	
4.	Ethyl acetate		Flavourings	10	
5.	Glycerol diacetate		May be used as extraction solvents in the course of manufacture of any food provided the final food contains no more than the corresponding residual level specified	GMP	
6.	Glycerol monoacetate		May be used as extraction solvents in the course of manufacture of any food provided the final food contains no more than the corresponding residual level specified	GMP	
7.	Acetone		Flavourings	< 2	
			Colours	< 2	
			Food oils	< 0.1	
			Other foods	0.1	

8.	Methyl ethyl ketone (butanone)		Fatty acids, flavourings, colourings, Decaffeination of coffee, tea	< 2	
9.	Dibutyl ether		Flavourings	< 2	
10.	Diethyl ether		Flavourings, colors	< 2	
11.	Dimethyl ether			2	
12.	Hexane		Flavourings, food oils	< 0.1	
			Chocolate and chocolate products	< 1	
13.	Cyclohexane		Flavourings, food oils	< 1	
14.	Isobutane		Flavouring substances	< 1	
			Other foods	0.1	
15.	Methylene chloride (Dichloromethane)		Decaffeinated tea	2	
			Decaffeinated coffee	<10	
			Flavouring substances	<2	
			Food oils	<0.02	
16.	Propane		Flavourings	< 1	

			Food oils	< 0.1	
17.	Toluene		Flavourings	< 1	
18.	Heptane		Flavourings	< 1	
			Food oils		
19.	Carbon dioxide*	290		Not specified	

*Carbon dioxide as a processing aid for flavouring

TABLE 7: BLEACHING, WASHING, PEELING AGENTS

S. No.	Name of the processing aid	INS No.	Product Category	Residual level (if any) mg/kg	Note
1	Benzoyl peroxide	928	Bleaching and washing of fruits and vegetables	40	Measured as benzoic acid
2	Sodium peroxide		Washing and bleaching of Root and tuber vegetables	5	
3	Hydrogen peroxide		Bleaching and washing of fruits and vegetables Flours and starches	5	
4.	Calcium hypochlorite		Bleaching and washing of fruits and vegetables & Flours and starches	1	available chlorine
5	Sodium hypochlorite		Bleaching and washing of fruits and vegetables & Flours and starches	1	available chlorine
6.	Chlorine	925	Bleaching and washing of fruits and vegetables & Flours and starches	1	available chlorine
7.	Chlorine dioxide		Bleaching and washing of fruits and vegetables and Flours and starches	1	available chlorine
8.	Diammonium hydrogen orthophosphate		Canned Fruits and Vegetables	GMP	
9.	Peracetic acid		Peeling agent for fruits and vegetables	GMP	

10	Sodium laurate		Washing of fruits and vegetables	GMP	
11.	Sodium Bisulphite	222	Washing and bleaching of Root and tuber vegetables		
12	Sodium metabisulphite		Washing and bleaching of Root and tuber vegetables	25	

TABLE 8: FLOCCULATING AGENTS AND ENZYME IMMOBILIZATION AGENTS AND SUPPORTS

S. No.	Name of the processing aid	INS No.	Product Category	Residual level (if any)mg/kg	Note
1	Microbial Rennet		Cheese and analogues – Cheese		
2.	Citric acid	330	Unripened cheese - Paneer		
3.	Lactic acid	270	Unripened cheese - Paneer		

TABLE 9: CONTACT FREEZING AND COOLING AGENTS

S. No.	Name of the processing aid	INS No.	Product Category	Residual level (if any)mg/kg	Note
1	Liquid Nitrogen	941	Dairy-based desserts - Ice cream		

TABLE 10: DESICCATING AGENTS/ANTICAKING AGENTS

S. No.	Name of the processing aid	Product Category	Residue level (if any)mg/kg	Note
1	Corn starch			

TABLE 11: ENZYMES

S.No.	Name of the Enzyme	Source	EC No.	Product Category	Residue level (if any)	Note
1	Alpha-amylase	*Aspergillusoryzae*	3.2.1.1	For treatment or processing of raw materials, foods, or ingredients.		
		Bacillus amyloliquefaciens		For treatment or processing of raw materials, foods, or ingredients.		
		Bacillus subtilis		For treatment or processing of raw materials, foods, or ingredients.		
2	Alpha glucosidase (or maltase)	*Aspergillus niger*	3.2.1.3	For treatment or processing of raw materials, foods, or ingredients.		
		Rhizopus oryzae		For treatment or processing of raw materials, foods, or ingredients.		
3	Alpha Arabinofuronosidase	*Aspergillusniger*	3.2.1.55	For treatment or processing of raw materials, foods, or ingredients.		
4	Aminopeptidase	*Aspergillusoryzae*	3.4.11.1	For treatment or processing of raw materials, foods, or ingredients.		
5	Beta-fructofuranosidase (invertase or saccharase)	*Saccharomyces cerevisiae*	3.2.1.26	For treatment or processing of raw materials, foods, or ingredients.		
6	Beta-Galactosidase (Or	*Kluyveromyceslactis*	3.2.1.23	For treatment or processing of raw materials,		

	lactase)			foods, or ingredients.		
		Aspergillusoryzae		For treatment or processing of raw materials, foods, or ingredients.		
7	Beta-glucanase (endo-beta glucanase or endo-1,3-beta-glucanase)	*Aspergillusniger*	3.2.1.6	For treatment or processing of raw materials, foods, or ingredients.		
		Bacillusamyloliquefaciens		For treatment or processing of raw materials, foods, or ingredients.		
		Rasamsoniaemersonii		For treatment or processing of raw materials, foods, or ingredients.		
		Trichodermareesei		For treatment or processing of raw materials, foods, or ingredients.		
		Aspergillusaculeatus		For treatment or processing of raw materials, foods, or ingredients.		
		Humicolainsolens		For treatment or processing of raw materials, foods, or ingredients.		
8	Beta-glucosidase	*Aspergillusniger*	3.2.1.21	For treatment or processing of raw materials, foods, or ingredients.		
9	Catalase	*Aspergillusniger*	1.11.1.6	For treatment or processing of raw materials, foods, or ingredients.		
10	Cellulase	*Penicilliumfuniculosum*	3.2.1.4	For treatment or processing of raw materials,		

		Trichoderma reesei		foods, or ingredients.		
11	Endo-1,4-beta-xylanase	*Aspergillus niger*	3.2.1.8	For treatment or processing of raw materials, foods, or ingredients.		
		Humicola insolens				
12	Glucoamylase or amyloglucosidase	*Aspergillus niger*	3.2.1.3	For treatment or processing of raw materials, foods, or ingredients.		
		Trichoderma*reesei*				
		Rhizopus oryzae				
13	Glucose oxidase	*Aspergillus niger*	1.1.3.4	For treatment or processing of raw materials, foods, or ingredients.		
		Aspergillusoryzae				
14	Lipase triacylglycerol	*Rhizopus oryzae*	3.1.1.3	For treatment or processing of raw materials, foods, or ingredients.		
		Fusarium oxysporum				
		Thermomyceslanuginosus				
15	Pectin esterase	*Aspergillus niger*	3.1.1.11	For treatment or processing of raw materials, foods, or ingredients.		
16	Pectin lyase	*Aspergillus niger*	4.2.2.10	For treatment or processing of raw materials, foods, or ingredients.		
17	Polygalacturonase (pectinase)	*Aspergillus niger*	3.2.1.15	For treatment or processing of raw materials, foods, or ingredients.		
		Aspergillusaculeatus				
18	Serine protease (subtilisin)	*Bacillus licheniformis*	3.4.21.62	For treatment or processing of raw materials, foods, or ingredients.		
19	Protease (Bacteria)	*Bacillus amyloliquefaciens*	3.4	For treatment or processing of raw materials,		

		Bacillus licheniformis		foods, or ingredients.		
		Bacillus subtilis				
		Geobacillus caldoproteolyticus				
20	Protease (Fungi)	*Aspergillus niger*	3.4	For treatment or processing of raw materials, foods, or ingredients.		
		Aspergillus oryzae		For treatment or processing of raw materials, foods, or ingredients.		
21	Metalloproteinase (Bacillolysin)	*Bacillus amyloliquefaciens*	3.4.24.28	For treatment or processing of raw materials, foods, or ingredients.		
22	Chymosin	*Kluyveromyceslactis*	3.4.23.4	For treatment or processing of raw materials, foods, or ingredients.		
23	Dextranase	*Chaetomiumerraticum*	3.2.1.11	For treatment or processing of raw materials, foods, or ingredients.		
24	Glucan1, 3-betaglucosidase	*Trichodermaharzianum*	3.2.1.58	For treatment or processing of raw materials, foods, or ingredients.		
25	Glucose isomerase	*Streptomyces rubiginosus*	5.3.1.5	For treatment or processing of raw materials, foods, or ingredients.		
26	Inulinase	*Aspergillus niger*	3.2.1.7	For treatment or processing of raw materials, foods, or ingredients.		
27	Transgluc	*Aspergill*	3.2.1.20	For treatment or		

	osidase	*usniger*		processing of raw materials, foods, or ingredients.		
		Trichoder mareesei				
28	Trehalase	*Trichoder mareesei*	3.2.1.28	For treatment or processing of raw materials, foods, or ingredients.		
29	Glycero-phospholipid cholesterol acyltransferase	*Bacillus lichenifor mis*	2.3.1.43	Catalyses fatty acid transfer between phospholipids and cholesterol		
30	Mannan endo-1,4-beta-mannosidase	*Trichoder mareesei*	3.2.1.78	For treatment or processing of raw materials, foods, or ingredients.		
31	Phospholipase A1	*Aspergill usniger*	3.1.1.32	For treatment or processing of raw materials, foods, or ingredients.		

TABLE 12: GENERALLY PERMITTED PROCESSING AIDS

S No.	**Name of the processing aid**	**INS No.**	**Functional/ Technological Purpose**	**Product Category**	**Residue Level(if any)mg/kg**	**Note**
1	Activated carbon		Adsorbent, decolourizing agent	Sugars Oils Juice making	GMP	
2	Ammonium hydroxide	527	Acidity regulator	All foods		
3	Argon	938	Propellent& Packaging gas	All foods		

4	Beta-cyclodextrin	459	As encapsulating agent for food additives, flavours and vitamins, thickening agent	Flavour adjunctor and cholesterol extraction in butter	GMP	
5	Bone phosphate	542	Emulsifier, moisture retaining agent, Sequestrant	All foods		
6	Diatomaceous earth		Filtering aid	Fruit juices, Starch hydrolyis		
7	Ethyl Alcohol		Extraction solvent, carrier solvent, flavouring agent	All foods		
8	Furcellaran	407	Thickener, gelling agent, stabilizer, emulsifier	All foods		
9	Hydrogenated Glucose Syrups	965 (ii)	Sweetener, humectant, texturizer, stabilizer, bulking agent	All foods		
10	Isopropyl Alcohol		Glazing agent	All foods		
11	Magnesium Hydroxide	528	Alkali, colour adjunct	All foods		
12	Oleic Acid			All foods		
13	Oxygen	948		All foods		
14	Phospholipids	322 (i)	Emulsifier, antioxidant	All foods		
15	Phosphoric Acid	338	Acidulant, sequestrant, synergist for antioxidants	All foods		

16	Polyethylene Glycols	1521	Carrier solvent, excipient	All foods		
17	Polyglycerol Esters Of Interesterified Ricin oleic Acid	476	Emulsifier	All foods		
18	Poly oxyethylene 40 Stearate	431	Emulsifier	All foods		
19	Potassium Hydroxide	525	Alkali	All foods		
20	Propylene Glycol Alginate	405	Stabilizer, thickener, emulsifier	All foods		
21	Silica Or Silicates			All foods		
	(a) sodium calcium polyphosphate silicate	452 (i)	Stabilizer, leavening agent, emulsifier, nutrient	All foods		
	(b) sodium metasilicate	550 (ii)	Microbial control agent	Meat and poultry carcasses, half carcasses and cuts		
	(c) sodium silicate	550 (ii)		All foods		
	(d) silica	551	Anticaking agent	All foods		
	(e) modified silica			All foods		
22	Sodium Hydroxide	524	Alkali	Fruits and vegetables, sugar beets Fats & oils		
23	Sulphuric Acid	513	Acid	All foods		

24	Tannic Acid	181	Clarifying agent, flavouring agent, flavour adjunct	Juice making	GMP	
25	Ammonium persulphate	923	Yeast washing agent	Yeast	GMP	
26	Ammonium sulphate		Decalcification agent for edible casings	Casings	GMP	
27	Bees wax	901	Lubricant for baking oven	Bakery wares		
28	Carbonic acid		Bleached tripe washing agent	All foods	GMP	
29	Chitosan sourced from Aspergillusniger		Manufacture of wine, beer, cider, spirits and food grade ethanol	wine, beer, cider, spirits and food grade ethanol)	GMP	
30	L-Cysteine (or HCl salt)		Dough conditioner	Flour products	75	
31	Ethyl acetate		Cell disruption of yeast	Yeast	GMP	
32	Ethylene diaminetetraaceti c acid		Metal sequestrant for edible fats and oils and related products	edible fats and oils and related products	GMP	
33	Gibberellic acid		Barley germination	Barley	GMP	
34	HVO (Hydrogenated vegetable oil)		Lubricant for conveyor belts for Count line products	Conveyor belts		
35	Indole acetic acid		Barley germination	Barley	GMP	
36	Oak		For use in the manufacture of wine	Wine	GMP	

37	Octanoic acid		Anti-microbial agent for meat, fruit and vegetables	meat, fruit and vegetables	GMP	
38	Paraffin		Coatings for cheese and cheese products	cheese and cheese products	GMP	
39	Polyvinyl acetate		Preparation of waxes for use in cheese and cheese products	cheese and cheese products	GMP	
40	Salmonella phage preparation (S16 and FO1a)		Reduce population of Salmonella species on the surface of raw meat and raw poultry meat during processing.	raw meat and raw poultry meat during processing	GMP	
41	Sodium chlorite		Anti-microbial agent for meat, fish, fruit and vegetables	meat, fish, fruit and vegetables		Limit of determination of chlorite, chlorate, chlorous acid and chlorine dioxide
42	Sodium gluconate	576	Denuding, bleaching & neutralising tripe		GMP	
43	Sodium metabisulphite		Dough conditioner	Flour products	60 mg/kg	
			Removal of excess chlorine	Removal of excess chlorine	60 mg/kg	
			Softening of corn kernels for starch manufacture	Corn kernel	60	In the starch

			Treatment of hides for use in gelatine and collagen manufacture	hides for use in gelatine and collagen manufacture	GMP	
44	Sodium sulphide		Treatment of hides for use in gelatine and collagen manufacture	hides for use in gelatine and collagen manufacture	GMP	
45	Sodium sulphite		Dough conditioner	Flour products	60	
46	Sulphur dioxide		Control of nitrosodimethylamine in malting	Malting	750	
			Treatment of hides for use in gelatine and collagen manufacture	hides for use in gelatine and collagen manufacture	750	
47	Sulphurous acid		Softening of corn kernels	Corn kernel	GMP	
			Treatment of hides for use in gelatine and collagen manufacture	hides for use in gelatine and collagen manufacture	GMP	
			Microbial nutrient and microbial nutrient adjunct for the manufacture of all foods, except alcoholic beverages	all foods, except alcoholic beverages	GMP	

48	Carbon dioxide	290	Gassing agent /Aeration In cream manufacturing it helps in modifying the filling cream texture	Confectionery and Bakery wares		
49	GDL - Glucono delta lactone		Acidifier, raising agent, sequestrants	Unripened cheese - Paneer		
50	Sodium acid pyrophosphate (SAPP)		Helps in prevention of darkening of uncooked French fries	Frozen vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds - French Fries		
51	Citric acid	330		Oils & Fats		

TABLE 13: PROCESSING AIDS FOR "BEER AND MALT BEVERAGES", "AROMATIZED ALCOHOLIC BEVERAGES" & "GRAPE WINES"

S.No.	Name of the Processing Aid	INS No.	Functional/ Technological Purpose	Product Category	Maximum permitted levelmg/kg	Residue Level (if any)mg/kg	Note
1.	Lysozyme	1105	Anti-microbial Enzyme	Beer and malt beverages & Aromatized alcoholic beverages	GMP		
2.	Propylene glycol alginate	405	Foam stabilizer		GMP		
3.	Zinc sulphate		Mineral Salt		GMP		
4.	Yeast food/Essential Amino acids		Source of Nitrogen		GMP		
5.	Oxygen		Gas		GMP		
6.	Isinglass/ collagen		Clarifying agent		GMP		
7.	Kieselguhr (Diatomatious earth)		Filter powder				
8.	Chlorine dioxide		Water treatment				
9.	Sodium Hypochlorite		Water treatment				
10.	Sodium metabisulphite		Reducing agent				

11.	Alum		Coagulant	Beer and malt beverages & Aromatized alcoholic beverages			
12.	Caramel III - ammonia caramel		Natural color sugar based for maintaining required color in final product		50,000		
13.	Potassium Metabisulfite		Anti oxidant to control Oxygen in final product		50		
14.	Calcium Chloride		As a buffering agent used in the mashing process		GMP		
15.	Calcium Sulfate		As a dihydrate used for buffering activity in mashing process		GMP		
16.	Phosphoric acid		As a buffering agent used in the mashing process		GMP		
17.	Lactic acid		Acidity regulator		GMP		
18.	Salt (NaCl)		Ion exchange	Beer and malt beverages	GMP		
19.	Oak Dust/ Chips		Oak-derived compounds give flavor and texture to product. Use of oak chips ageing, chips inserted into tanks.	Beer and malt beverages & Grape wines	GMP	GMP	