

**Notice Calling for suggestions, views, comments etc from WTO- SPS Committee members within a period of 60 days 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**

| <b>S. No.</b> | <b>Name of the processing aid</b> | <b>INS No.</b> | <b>Product Category</b> | <b>Residue level (if any)</b> | <b>Note</b> |
|---------------|-----------------------------------|----------------|-------------------------|-------------------------------|-------------|
|---------------|-----------------------------------|----------------|-------------------------|-------------------------------|-------------|

|    |                      |      |  |       |  |
|----|----------------------|------|--|-------|--|
|    |                      |      |  | mg/kg |  |
| 1  | Polydimethylsiloxane | 900a | Beer, fats & oils<br><br>Vegetable protein<br><br>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,<br>Fruit nectars, syrups and wine | GMP |  |
| 6. | Fish collagen, including isinglass |     | Fruit or vegetable juices,<br>Fruit nectars, syrups and wine | GMP |  |
| 7. | Kaolin                             |     | Fruit or vegetable juices,<br>Fruit nectars, syrups and wine |     |  |
| 8. | Magnesium oxide                    | 530 | Fruit or vegetable juices,<br>Fruit nectars, syrups and wine | GMP |  |
| 9. | Copper sulphate                    | 519 | Fruit or vegetable juices,<br>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<br><br>(as requested by industry association)  |     |  |
| 4. | Bees wax                                  | 901  | All foods<br><br>(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**

| <b>S. No.</b> | <b>Name of the processing aid</b>                                   | <b>INS No.</b> | <b>Product Category</b>  | <b>Maximum permitted addition level mg/kg</b> | <b>Residual Level mg/kg</b> | <b>Note</b> |
|---------------|---|----------------|--|---|-----------------------------|-------------|
| 1             | Dimethyl dicarbonate<br><br><b>Microbial control agent</b>          | 242            | Wine<br><br>Fruits and vegetable juices and its products<br><br>Water based flavoured drinks       | 200<br><br>250<br><br>250                     | None                        |             |
| 2.            | Quaternary ammonium Compounds<br><br><b>Microbial control agent</b> |                |  |   |                             |             |
| 3.            | <b>Adonitol</b>   |                | 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. | Trisodium orthophosphate |  | 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**

| <b>S. No.</b> | <b>Name of the processing aid</b>  | <b>INS No.</b> | <b>Product Category</b>  | <b>Residual level (if any) mg/kg</b> | <b>Note</b>              |
|---------------|------------------------------------|----------------|--|--------------------------------------|--------------------------|
| 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<br>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**

| <b>S. No.</b> | <b>Name of the processing aid</b> | <b>INS No.</b> | <b>Product Category</b>       | <b>Residual level (if any)mg/kg</b> | <b>Note</b> |
|---------------|-----------------------------------|----------------|-------------------------------|-------------------------------------|-------------|
| 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**

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

**TABLE 10: DESICCATING AGENTS/ANTICAKING AGENTS**

| <b>S. No.</b> | <b>Name of the processing aid</b> | <b>Product Category</b> | <b>Residue level (if any)mg/kg</b> | <b>Note</b> |
|---------------|-----------------------------------|-------------------------|------------------------------------|-------------|
| 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                                     | <i>Aspergillus oryzae</i>         | 3.2.1.1  | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
|       |   | <i>Bacillus amyloliquifaciens</i> |          | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
|       |   | <i>Bacillus subtilis</i>          |          | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
| 2     | Alpha glucosidase (or maltase)                    | <i>Aspergillus niger</i>          | 3.2.1.3  | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
|       |   | <i>Rhizopus oryzae</i>            |          | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
| 3     | Alpha Arabinofuranosidase                         | <i>Aspergillus niger</i>          | 3.2.1.55 | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
| 4     | Aminopeptidase                                    | <i>Aspergillus oryzae</i>         | 3.4.11.1 | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
| 5     | Beta-fructofuranosidase (invertase or saccharase) | <i>Saccharomyces cerevisiae</i>   | 3.2.1.26 | For treatment or processing of raw materials, foods, or ingredients. |                        |      |
| 6     | Beta-Galactosidase (Or                            | <i>Kluyveromyces fragilis</i>     | 3.2.1.23 | For treatment or processing of raw materials,                        |                        |      |

|    |  |                                   |          |  |  |  |
|----|--|-----------------------------------|----------|--|--|--|
|    | lactase)   |                                   |          | foods, or ingredients.   |  |  |
|    |  | <i>Aspergillus Oryzae</i>         |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 7  | Beta-glucanase (endo-beta glucanase or endo-1,3-beta-glucanase ) | <i>Aspergillus niger</i>          | 3.2.1.6  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |  | <i>Bacillus amyloliquifaciens</i> |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |  | <i>Rasamsonia emersonii</i>       |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |  | <i>Trichoderma reesei</i>         |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |  | <i>Aspergillus aculeatus</i>      |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |  | <i>Humicola insolens</i>          |          | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 8  | Beta-glucosidase   | <i>Aspergillus niger</i>          | 3.2.1.21 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 9  | Catalase   | <i>Aspergillus niger</i>          | 1.11.1.6 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 10 | Cellulase  | <i>Penicillium funiculosum</i>    | 3.2.1.4  | For treatment or processing of raw materials,                        |  |  |

|    |                                 |   |           |  |  |  |
|----|---------------------------------|---|-----------|--|--|--|
|    |                                 | <i>Trichoderma reesei</i>   |           | foods, or ingredients.   |  |  |
| 11 | Endo-1,4-beta-xylanase          | <i>Aspergillus niger</i><br><i>Hemicella insolens</i>                                 | 3.2.1.8   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 12 | Glucosylase or amyloglycosidase | <i>Aspergillus niger</i><br><i>Trichoderma reesei</i><br><i>Rhizopus oryzae</i>       | 3.2.1.3   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 13 | Glucose oxidase                 | <i>Aspergillus niger</i><br><i>Aspergillus oryzae</i>                                 | 1.1.3.4   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 14 | Lipase triacylglycerol          | <i>Rhizopus oryzae</i><br><i>Fusarium oxysporum</i><br><i>Thermomyces lanuginosus</i> | 3.1.1.3   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 15 | Pectin esterase                 | <i>Aspergillus niger</i>  | 3.1.1.11  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 16 | Pectin lyase                    | <i>Aspergillus niger</i>  | 4.2.2.10  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 17 | Polygalacturonase (pectinase)   | <i>Aspergillus niger</i><br><i>Aspergillus aculeatus</i>                              | 3.2.1.15  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 18 | Serine protease (subtilisin)    | <i>Bacillus licheniformis</i>   | 3.4.21.62 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 19 | Protease (Bacteria)             | <i>Bacillus amyloliquefaciens</i>   | 3.4       | For treatment or processing of raw materials,                        |  |  |

|    |                                |   |           |  |  |  |
|----|--------------------------------|---|-----------|--|--|--|
|    |                                | <i>Bacillus licheniformis</i>                     |           | foods, or ingredients.   |  |  |
|    |                                | <i>Bacillus subtilis</i>                          |           |  |  |  |
|    |                                | <i>Geobacillus</i><br><i>uscaldoproteolyticus</i> |           |  |  |  |
| 20 | Protease (Fungi)               | <i>Aspergillus niger</i>                          | 3.4       | For treatment or processing of raw materials, foods, or ingredients. |  |  |
|    |                                | <i>Aspergillus oryzae</i>                         |           | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 21 | Metalloprotease (Bacillolysin) | <i>Bacillus amyloliquefaciens</i>                 | 3.4.24.28 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 22 | Chymosin                       | <i>Kluyveromyces lactis</i>                       | 3.4.23.4  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 23 | Dextranase                     | <i>Chaetomium merraticum</i>                      | 3.2.1.11  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 24 | Glucan1, 3-betaglucosidase     | <i>Trichoderma reesei</i>                         | 3.2.1.58  | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 25 | Glucose isomerase              | <i>Streptomyces rubiginosus</i>                   | 5.3.1.5   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 26 | Inulinase                      | <i>Aspergillus niger</i>                          | 3.2.1.7   | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 27 | Transgluc                      | <i>Aspergillus</i>                                | 3.2.1.20  | For treatment or   |  |  |

|    |  |   |          |  |  |  |
|----|--|---|----------|--|--|--|
|    | osidase  | <i>usniger</i><br><i>Trichoder mareesei</i> |          | processing of raw materials, foods, or ingredients.                  |  |  |
| 28 | Trehalase  | <i>Trichoder mareesei</i>                   | 3.2.1.28 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 29 | Glycero-phospholipid cholesterol acyltransferase | <i>Bacillus licheniformis</i>               | 2.3.1.43 | Catalyses fatty acid transfer between phospholipids and cholesterol  |  |  |
| 30 | Mannan endo-1,4-beta-mannosidase                 | <i>Trichoder mareesei</i>                   | 3.2.1.78 | For treatment or processing of raw materials, foods, or ingredients. |  |  |
| 31 | Phospholipase A1                                 | <i>Aspergillus usniger</i>                  | 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<br>Oils<br>Juice making | GMP                        |      |
| 2     | Ammonium hydroxide         | 527     | Acidity regulator                 | All foods                      |                            |      |
| 3     | Argon                      | 938     | Propellant & Packaging gas        | All foods                      |                            |      |

|    |                             |          |  |  |     |  |
|----|-----------------------------|----------|--|--|-----|--|
| 4  | Beta-cyclodextrin           | 459      | As encapsulating agent for food additives, flavours and vitamins, thickening agent | Flavour adjunct 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 hydrolysis                      |     |  |
| 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<br><br>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 <i>Aspergillusniger</i> |     | 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 diaminetetraacetic 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 (Diatomaceous earth)  |         | Filter powder                     |  |                              |                             |      |
| 8.    | Chlorine dioxide                 |         | Water treatment                   |  |                              |                             |      |
| 9.    | Sodium Hypochlorite              |         | Water treatment                   |  |                              |                             |      |
| 10.   | Sodium metabisulphite            |         | Reducing agent                    |  |                              |                             |      |

|     |                               |  |   |  |                         |     |  |
|-----|-------------------------------|--|---|--|-------------------------|-----|--|
| 11. | Alum                          |  | Coagulant   |  |                         |     |  |
| 12. | Caramel III - ammonia caramel |  | Natural color sugar based for maintaining required color in final product                                     | Beer and malt beverages & Aromatized alcoholic beverages | 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 |  |