

**SECRETARIAT OF THE TECHNICAL STANDARDISATION
COMMITTEE (FOOD STUFFS) (DIRECTORATE GENERAL
OF SUPPLIES AND TRANSPORT)**

**DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 333 : PROCESSED **CHEESE SPREAD****

Quality

1. Processed Cheese spread shall be made by comminuting and mixing into a homogeneous plastic mass, one or more types of hard cheeses conforming to Bureau of Indian Standards Specification No IS: 2785-1979 with the aid of heat with one or more of the permissible emulsifiers and/or harmless permitted stabilizers (other than gums) in such a quantity that the mass of solids of such emulsifying agents is not more than 4.0 percent of the mass of the processed cheese spread.
2. It may or may not contain butter, cream, butter oil, milk, skimmed milk, milk powder, cheese whey, sweet butter milk or one or more of these or any of these from which part of water has been removed.
3. It may contain permitted acidifying agents in such quantity that the pH of pasteurised cheese spread is not below 4.0.
4. No colouring matter other than annatto or carotene shall be added.
5. It shall be free from any adulterants and preservatives except sorbic acid or niacin or both to the maximum extent of 0.1 percent by mass.
6. The Salt used shall conform to BIS Specification No IS: 253 - 1970 and all other ingredients used shall be clean and in every respect fit for human consumption.
7. It may contain natural sweetening agent in a quantity necessary for seasoning.
8. It may contain spices, condiments, flavouring agents permitted under FSSAI act/rules.
9. The processed cheese spread shall be easily spreadable, of good texture and uniform consistency. It shall be clean, sound, free from dirt, insect and rodent contamination. It shall have a pleasant taste, flavour and characteristic odour free from any objectionable odour.

Packing

10. **Polypropylene Cups:** - The processed cheese spread shall be packed in trade polypropylene cups of food-grade quality. The mouth of each cup shall be sealed with aluminium foil of 40 micron and covered with lid. The nett weight of contents in each cup shall be **upto 200 gm with appropriate head**

space.

11. **Corrugated Fibreboard Cartons (CFCs).** The cups shall be packed in 5 ply CFCs of suitable size and tare weight of CFCs not less than 320 gm for gross contents upto 6 Kgs and 580 to 625 grams for gross contents upto 8.5 Kgs. The lap joint of CFC shall be closed with 4 to 6 pairs of rust proof metal staples of good quality. The top and bottom flap joints of CFCs shall be closed with PVC adhesive tape of good quality having width not less than 5.0 cm. The CFCs will have either vertical or horizontal partitions and two end plates.

Marking

12. **Polypropylene cups.** Each cup shall be externally lithographed or printed and shall be marked with the following particulars depicting the product in attractive multicoloured decorative design with serving suggestions if any:-

- (a) Description of contents i.e. Cheese Spread.
- (b) Name of manufacturer
- (c) Brand (if any)
- (d) Nett weight of contents (In gram)
- (e) Serving suggestions (if any)
- (f) List of ingredients used in descending order of wt or volume.
- (g) Nutritional information per 100 gm / 100 ml / per serving as indicated in the para for mandatory requirements of FSSAI/BIS.
- (f) Date of manufacture
- (g) Batch No/Lot No
- (h) AT No and date
- (j) For Defence Services only

Note - For Ser No (f) to (j) the particulars may be printed legibly on self adhesive heavy duty stickers and the same be pasted on the lithographed cups.

13. **Corrugated Fibreboard Cartons (CFCs).** The following particulars shall be printed on the sides of each CFC:-

- (a) Description of contents (size 4.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.
- (b) Name of manufacturer.
- (c) Date of manufacture.
- (d) Gross weight (in Kg).
- (e) No of cups x nett weight (in gram).
- (f) Batch No/Lot No.
- (g) AT No and date.
- (h) Keep under refrigeration.
- (j) This side up (with an arrow mark, showing the side).
- (k) FOR DEFENCE SERVICES ONLY.
- (l) Veg Logo

Hygiene

14. The Processed Cheese Spread shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director General of Medical Services (Army).

15. The basic hygienic requirements in a factory producing Processed Cheese Spread shall be in accordance with Appendix 'H'.

Inspection

16. An inspection shall be carried out by the Director General of Supplies and Transport or an officer acting on his behalf on all supplies tendered for acceptance. The decision of this officer shall be final.

17. The Processed Cheese Spread shall conform to the following analysis in a cut out examination:-

- (a) Moisture content - Not more than 60.0%
- (b) Milk fat (on dry basis) - Not less than 40.0%
- (c) Salt (added sodium chloride) - Not more than 3.0%

Microbiological Examination m (limit) M (limit)

- (d) Total Plate Count - 50,000/gm 75,000/gm
- (e) Coliform Count - -- Less than 10/g
- (f) E.coli - -- Absent per gm
- (g) Salmonella - -- Absent per 25gm
- (h) Shigella - -- Absent per 25gm
- (j) Staphylococcus aureus - -- Less than 10/gm
- (k) Yeast and Mould count - -- Less than 10/gm
- (l) Anaerobic Spore count - -- 100/g
- (m) Listeria monocytogenes - -- Absent in 1 gm

Note.

1. Eight samples will be used for Microbiological test.
2. Max two samples can exceed limit of m, but will be less than limit of M.
3. No sample can exceed limit of M.
4. Lots will be rejected if either of note 2 and 3 are exceeded.
5. Refer Appx 'B', table 01 to 04 and Sampling Guidelines of Food Safety and Standards Regulations, 2011".

18. The methods of analysis shall be those as laid down in Bureau of Indian Standards Specification No IS: 2785-1979.

Mandatory Requirements Of FSSAI/BIS

19. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

20. The list of ingredients, nutritional information per 100 gm / 100 ml / per serving etc, as given in the Govt of India, Office of the ADG (PFA) GSR No 664(E) dt 19 Sep 2008 published in Part II, Section 3, Sub sec (i) of Gazette of India, Extra Ordinary, amended vide corrigendum GSR 135 (E) dt 27 Feb 2009, issued on 06 Mar 2009, to be complied with.

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.
- (g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.
- (h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. **Workers.**

- (a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.
- (b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.
- (c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 505 : CORN FLAKES

Quality

1. Corn flakes shall be prepared from cleaned sound corn (Zea mays). The corn shall be scoured, degermed, dehulled and polished, and then cooked after mixing with malt, sugar and salt followed by flaking, partial drying and finally toasting.
2. The corn flakes shall be tender and crisp, reasonably uniform in size, of good flavour and golden brown in colour. Not more than 8 percent by weight of the material shall pass through 2.00 mm IS Sieve (see IS: 460 – 1978), when sifted for 2 minutes.
3. The corn flakes shall possess good characteristic taste and odour and shall be free from rancid, musty, sour and other undesirable taste and odours. The flakes shall be free from living insects and moulds and shall be free from dead insects, insect fragments and rodent contamination visible to the eye (corrected, if necessary for abnormal vision) with the aid of a suitable magnification (not exceeding x 10).

Packing

4.
 - (a) **Poly pouches.** Corn flakes shall be packed in food grade quality 300 gauge poly pouches of appropriate size. Nett contents in each poly pouch shall not be less than 400 gms. After filling the Poly pouch shall be adequately exhausted to remove practically all the air and the entire length of the open side of the Poly pouch shall be band sealing. The sealed seam shall be at least 0.5 mm thick. The band seal shall be free from any leakage or discontinuity. Such poly pouch shall be repacked in cardboard cartons.
 - (b) **Corrugated Fibreboard Cartons (CFCs).** The cardboard cartons shall be further packed in corrugated fibreboard cartons conforming to Specification No 311 and appendix 'K' thereto. Each CFC shall contain 24 cardboard cartons i.e (4 x1)6.

Marking

5.
 - (a) **Poly pouch.** Each Poly pouch shall be printed legibly on one side with the following particulars:-
 - (i) Description of contents
 - (ii) Name of the manufacturer
 - (iii) Date of manufacture
 - (iv) Batch No / Lot No
 - (v) Green/Veg Logo
 - (b) **Cardboard Cartons.** Each cardboard carton shall be printed on one side with the following particulars:-
 - (i) Description of contents
 - (ii) Name of manufacturer
 - (iii) Date of manufacture
 - (iv) Net weight (in gms)
 - (v) Batch No / Lot No
 - (vi) AT No and date
 - (vii) Warranty expiry date.
 - (viii) Best Before
 - (ix) Green veg symbol (At the end of description of contents)
 - (x) FOR DEFENCE SERVICES ONLY
 - (xi) Printed labels shall not be used on the Cartons.

(c) **Corrugated Fibreboard Cartons (CFCs).** The following particulars shall be printed or stenciled on one side of each CFC:- Description of contents size 5.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.

- (i) Name of manufacturer
- (ii) Date of manufacture
- (iii) Gross weight (in Kgs)
- (iv) Nett weight (in Kgs)
- (v) Number of cartons (i.e. 24x400 gram)
- (vi) AT No and date
- (vii) Lot / Batch No
- (viii) Warranty expiry
- (ix) Best Before
- (x) Green veg symbol (At the end of the description of the contents)
- (xi) FOR DEFENCE SERVICES ONLY

Warranty

6. In accordance with the standard warranty clause appendix 'J' the warranty period shall be six months.

Hygiene

7. The corn flakes shall be manufactured in premises maintained in a hygienic condition which shall be opened for inspection at any time by a competent authority approved by the Quartermaster General and the Director General of Medical Services (Army).

8. The basic hygiene requirements in a factory producing corn flakes shall be in accordance with appendix 'H'.

Inspection

10. An inspection shall be carried out by the Director General of Supplies and Transport or an officer acting on his behalf on all supplies tendered for acceptance. The decision of this officer shall be final.

11. The corn flakes shall conform to the following analysis:-

- (a) Moisture - Not more than 7.5%
- (b) Total ash, excluding sodium chloride - Not more than 1.0% (on dry weight basis)
- (c) Acid insoluble ash (on dry wt basis) - Not more than 0.05%
- (d) Crude fibre (on dry wt basis) - Not more than 0.75%
- (e) Alcoholic acidity (as H₂SO₄) - Not more than 0.10%
- (f) Added colouring matter - Nil

12. **Method of analysis.** The methods of analysis shall be those laid down in BIS Specification No IS: 1154 – 1973 for corn flakes.

Mandatory Requirements Of FSSAI/BIS

13. All mandatory requirements of **FSSAI/BIS**, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.
- (g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.
- (h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

- (a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.
- (b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.
- (c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

**APPENDIX 'J'
STANDARD WARRANTY CLAUSE**

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.
2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.
3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 504: CORN FLOUR

Quality

1. The corn flour shall be the starch obtained from maize (Zea Mays) during the wet Milling process.
2. The material shall be in the form of a free flowing fine powder, white in colour and not gritty. The corn flour shall be free from foreign starch and impurity.
3. It shall be free from rancidity, insect infestation and fermented, musty or any other objectionable odour.
4. It shall not contain any added sweetening, flavouring or colouring material Sulpherdioxide may be used as a preservative to the extent of 100 ppm only.

Packaging

5. (a) **Containers.** The corn flour shall be packed in hermetically sealed polythene bags made out of 300 gauge low density polythene films conforming to specification No IS : 2508-1963. Each polythene bag shall be repacked either in a composite tin container with an under diaphragm and press-in-lid or in 350 gms stiff duplex (or grey) board cartons. Each container shall contain 500 gm nett of cornflour.
- (b) **Cases.** The containers shall be packed in strong wooden trade cases, iron hooped or steel strapped or wired to withstand rough handling by rail, road and sea transportation without damage to their contents. Each case shall contain either 36 composite tin containers or 48 card board cartons, each containing 500 gms of corn flour.

Marking

6. (a) **Containers.** The following particulars shall be stencilled or printed on the containers. Printed labels shall not be used :-
 - (i) Description of contents, i.e CORN FLOUR.
 - (ii) Brand, if any.
 - (iii) Month of Manufacture.
 - (iv) Name of Manufacturer.
 - (v) Nett weight.
 - (vi) Warranty expiry date.
 - (vii) Green/Veg Logo
- (b) **Cases.** The following particulars shall be stencilled on one side of the packing case :-
 - (i) Description of contents, i.e CORN FLOUR (in 5.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.
 - (ii) Number of containers and nett weight.
 - (iii) Gross weight.
 - (iv) Month of Manufacture.
 - (v) Name of Manufacturer.
 - (vi) Warranty expiry date.
 - (vii) A/T No and date.
 - (viii) Green/Veg Logo

Warranty

7. The warranty shall be in accordance with the standard warranty clause (Appendix 'J'), the warranty period being 12 months.

Hygiene

8. The corn flour shall be manufactured in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and Director of Medical Services (Army).

9. The basic hygiene requirements in a factory producing corn flour shall be in accordance with Appendix 'H'.

Inspection

10. An inspection shall be carried out by the Director of Supplies and Transport, or an officer acting on his behalf, on all supplies tendered for acceptance. The decision of this officer shall be final.

11. The corn flour shall conform to the following analysis:-

- (a) Moisture - Not more than 12.5%.
- (b) Total Ash (on dry weight basis) - Not more than 0.30%.
- (c) Ash insoluble in HCl (on dry - Not more than 0.10%. Weight basis)
- (d) Particle size :-
 - (i) Retention on 75 micron - Not more than 2.0%. IS Sieve
 - (ii) Retention on 150 micron - Not more than 0.5%. IS Sieve
- (e) pH of aqueous extract - 4.5 to 7.0

12. The methods of analysis shall be those laid down in IS Specification No IS: 1005-1976, Specification for Edible Maize Starch (Corn Flour).

Mandatory RequirementsOfFSSAI/BIS

13. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above Specification such as marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD

FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta. (g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.
- (h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

- (a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.
- (b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.
- (c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.
2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.
3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 506 : CUSTARD POWDER

Quality

1. The custard powder shall be prepared from corn flour of Specification No 38 for quality or edible tapioca starch conforming to IS : 1319-1969 or a blend of both with or without the addition of edible common salt conforming to IS : 253-1970, milk and albuminous matter.
2. The custard powder shall be flavoured with vanilla and shall contain permitted harmless colouring matter. Custard Powder may or may not contain egg and/or milk solids.
3. The Custard powder shall be in the form of a fine powder, free from rancidity, adulterants, insect or fungus infestation and from fermented, musty or other objectionable odour.
4. The Custard Powder when examined under a microscope shall not reveal starch granules other than those of corn flour starch or tapioca starch or both.

Packing

5. **Container.** The custard powder shall be packed in hermetically sealed polythene bags made out of 300 gauge low density polythene films conforming to specification No IS : 2508-1963. Each polythene bag shall be repacked either in a composite tin container with an under diaphragm and press-in-lid, or in 350 GMS stiff duplex (or grey) board cartons. Each container shall contain 500 gms nett of custard powder.
6. **Cases.** The containers shall be packed in strong wooden trade cases, iron-strapped or wired. The cases shall be sufficiently strong to withstand rough handling by rail, road and sea transport without damage to their contents. Each case shall contain either 48 card board cartons or 36 composite tin containers each containing 500 gms custard powder.

Marking

7. **Containers.** The following particulars shall be printed, lithographed or stencilled on the containers :-
 - (a) Description of contents.
 - (b) Date of the manufacturer.
 - (c) Name of manufacture.
 - (d) Nett weight of custard powder (in grams).
 - (e) Warranty period.
 - (f) Green/veg logo
8. **Cases.** The following particulars shall be stencilled on one side of the cases :-
 - (a) Description of contents i.e custard powder (in 5.0 cm characters or suitable size or as per
 - (b) Number of containers and nett weight of custard powder.
 - (c) Gross weight (in kg).
 - (d) Name of supplier.
 - (e) Date of manufacture.
 - (f) Green/Veg Logo

Warranty

9. In accordance with the standard warranty clause Appendix 'J', the custard powder shall be warranted to keep sound and wholesome in any climate for a period of one year.

Hygiene

10. Custard Powder shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services.

Inspection

11. An inspection shall be carried out by the Director of Supplies and Transport, or an officer acting on his behalf, on all supplies tendered for acceptance. The decision of this officer shall be final.

12. Custard powder shall conform to the following analysis:-

- (a) Moisture - Not more than 12.5%.
- (b) Edible Starch - Not less than 80%.
- (c) Total Ash - Not more than 0.5%.
- (d) Sulphur dioxide - Not more than 10 parts per million.
- (e) Gelling Power - To satisfy the requirements of the test.

13. The methods of analysis shall be those laid down in the Indian Standard Specification NoIS : 1007-1971 for Custard powder.

Mandatory Requirements of FSSAI/BIS

14. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.
2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.
3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 514 : JELLY CRYSTALS

Quality

1. The jelly crystal shall consist of a powder obtained by through mixing of sugar tartaric acid or citric acid either natural or synthetic fruit flavour and with either natural or added artificial colouring matter both permitted under the FSSAI rules and with gelatine produced and preserved under thoroughly hygienic conditions. Artificial colour and flavouring material, when used, shall be clearly declared. The jelly crystals when mixed with water, in the proportion of one packet per pint (560 ml) shall set satisfactory at 4 °C without any sign of syneresis. The set material will have the proper colour and flavour characteristic of the fruit, typical of the mixture. The following fruit flavours are permitted:-

- (a) Strawberry.
- (b) Orange.
- (c) Raspberry.
- (d) Pineapple.
- (e) Lemon.
- (f) Cherry.

Packing

2. (a) **Polythene Bags.** Jelly crystal shall be packed in heat sealed, thick polythene bags each containing 115 grams. Seventy two of these bags shall be packed in 18 litre square tins with top tagger plate with lid. Each tin shall contain all flavours in equal quantity i.e 12 packets of each flavour. The tins shall be lacquered or painted externally as a protection against rust.

3. **Cases.** Two tins shall be packed in a lighter packing case of suitable dimensions.

Marking

4. **Bags.** Each polythene bag shall be printed on one side with the following particulars:-

- (a) Name of commodity i.e, Jelly Crystals.
- (b) Net weight.
- (c) Name of manufacture.
- (d) Permitted flavour used.
- (e) Green/Veg Logo

5. **Tins.** Each tin shall be printed, lithographed or stenciled on one side with the following particulars. Printed labels shall not be used on the tins.

- (a) Description of contents i.e Jelly Crystals (in 5.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.
- (b) Name of manufacturer.
- (c) Date of manufacture.
- (d) Number of bags of jelly crystals.
- (e) Number of bags of the variety of flavour of the fruit.
- (f) Net weight (in Kg).
- (g) Gross weight.
- (h) No and date of acceptance of tender.

6. **Cases.** The following particulars shall be stenciled on one side of each packing case :-

- (a) Description of contents i.e Jelly Crystals (in 7.5 cms characters).
- (b) Name of manufacturer.
- (c) Date of manufacture.
- (d) Number of tins of jelly crystals.
- (e) Net weight (in Kg).
- (f) Gross weight.
- (g) Warranty expiry date.
- (h) No and date of acceptance of tender.

Warranty

7. In accordance with the standard warranty clause, Appendix 'J' the warranty period shall be one year.

Hygiene

8. The Jelly crystals shall be manufactured in premises maintained in a hygienic condition which shall be open to inspection at any time by the competent authority approved by the Quartermaster General and the Director of Medical Services.

9. The basic hygiene requirements in a factory processing Jelly crystals shall be in accordance with the Appendix 'H'.

Inspection

10. An inspection shall be carried out by the Director of Supplies and Transport (or an officer acting on his behalf) on all tendered for acceptance. The decision of this officer shall be final.

11. The jelly crystals shall conform to the following analysis:-

- (a) Moisture - Not more than 2.0%
- (b) Sugar - Not less than 80.0%
- (c) Gelatine (N x 5.55) - Not less than 12.0% on moisture free basis.
- (d) Total ash - Not more than 0.15%
- (e) Ash insoluble (in HCL) - Not more than 0.02%
- (f) Acidity (as citric acid) - Not less than 2.0%

12. **Microbiological Requirements.** Maximum permissible viable count of 50,000 per gram. The jelly crystals should be free from pathogenic soil and sewage organisms.

Mandatory Requirements Of FSSAI/BIS

13. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy** . A proper conservancy system adequately serviced with approved methods of disposal of human excreta.
- (g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.
- (h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

- (a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.
- (b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.
- (c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.
2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.
3. The declaration by the Chief Director of Purchase or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 496 : BISCUITS "THIN ARROWROOT"

Quality

1. The biscuits thin arrowroot shall be fresh, pleasant to taste and free from rancidity. They shall be well packed and crisp in texture. No charred biscuits shall be present. The biscuits shall be circular in shape with the following particular embossed on the top surface:

- (a) Thin arrowroot biscuits.
- (b) Name of manufacturer.

2. 20 biscuits shall be packed in each packet. Nett weight of the biscuits in each packet shall be 4 ozs (113.5 gms) with a tolerance of + 1/8 oz (3.54 gms).

3. The biscuits shall be free from moulds, fungi, insect infestation and grit or any other injurious substances.

4. The proportion of ingredients shall be such as to make the biscuits palatable and reasonably sweet. However, the percentage of Arrowroot powder in the basic mixing shall not be less than 1.25%. The arrowroot powder shall be of ISI quality conforming to IS Specification No IS : 1006-1967. Essence of vanilla may be used to flavor the biscuits. A harmless antioxidant may be used. In such a case the name of the antioxidant and its quality shall be intimated to the DST(ST-7). Harmless shortening material in small quantities is also permitted to be added. In the case of such addition as ell the DST ST-&) will be intimated.

Packing

5. **Packets.** The biscuits "Thin Arrowroot" shall be neatly packed in packets having an inner wrapping of vegetable parchment paper which shall be printed with the following particulars and an outer wrapping of cellophane paper. Either end shall be properly closed to make the packet airtight.

- (a) Biscuits " Thin Arrowroot".
- (b) Name of manufacturer.
- (c) Nett weight of contents.
- (d) Date of manufacture.

6. **Tins.** This packets shall be packed in hermetically sealed wide-mouthed 18 litre square tins conforming to ISI specification NO IS: 916-1966. Each tin shall contain 48 packets, the nett weight of biscuits being 12 lbs (5.4431 Kg). The lid shall be made secure by a metal tagger plate beneath it and by placing a metal strip across the lid and soldering the ends on the body of the can.

7. **Cases.** The following particulars When cased supplies are ordered, the tins shall be packed in strong wooden cases conforming to specification No IND/GS/FD/4. Each case shall contain 2 tins.

Marking

8. **Tins.** Each tin shall be printed, lithographed or stenciled with indelible ink with the following particulars on one side. No paper label shall be used :-

- [a] Biscuits "Thin Arrowroot".
- [b] Name of manufacturer.
- [c] Number of packets.
- [d] Date of manufacture.
- [e] Date of warranty expiry.
- [F] Green/Veg Logo

9. **Cases.** The following particulars shall be stenciled on one side of each packing case :-

- [a] Biscuits "Thin Arrowroot".
- [b] Name of manufacturer.
- [c] Date of manufacture.
- [d] Gross weight.
- [f] Date of warranty expiry.
- [h] No and date of "Acceptance of Tender".
- [j] Green/Veg Logo

Warranty

10. The biscuits "Thin Arrowroot" shall be warranted to remain in sound wholesome condition and fit for consumption as biscuits for a period of 9 months, from the date of acceptance (i.e the date on which Inspection note has been issued).

Hygiene

11. The biscuits shall be manufactured in premises maintained in proper hygiene conditions. These premises shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services.

12. The hygiene requirements in a factory producing the biscuits "Thin Arrowroot" shall be in accordance with Appendix 'H'.

Inspection

13. An inspection shall be carried out by the Director of Supplies and Transport (or an officer acting on his behalf) on all supplies tendered for acceptance. The decision of this officer shall be final.

14. The biscuit 'Thin Arrowroot' shall conform to the following analysis :-

- (a) Moisture - Not more than 4.0%
- (b) Proteins (Nx5.7) - Not less than 8.0%
- (c) Fat - Not less than 12.0% and not more than 14.0%
- (d) Total ash - Not more than 1.5%
- (e) Ash insoluble in HCL - Not more than 0.05%
- (f) Total sugars - Not less than 15.0%
- (g) Salt - Not less than 0.5% and not more than 1.5%
- (h) Acidity of extracted fat - Not more than 0.5% (as oleic acid)

15. The methods of analysis used shall be those laid down by the method specified by the ISI for this class of biscuits. A.O.A.C. methods will be followed where ISI methods have not been laid down.

Mandatory Requirements Of FSSAI/BIS

16. All mandatory requirements of **FSSAI/BIS**, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

APPENDIX 'H'**STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES**

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.
- (g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.
- (h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

- (a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.
- (b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.
- (c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 522 : PICKLE IN OIL (MANGO)

Quality

1. The pickle shall be of best quality/freshly prepared, of pleasant taste and smell and free from injurious ingredients. The material used shall be free from insect damage or fungal attack.
2. All ingredients used in the preparation of the pickle shall be thoroughly cleaned and fit in all respects for human consumption and shall conform to the respective BIS/FSSAI Standards.
3. The mangoes used shall be fresh unripe and of the proper stage of maturity peeled and stone, skin and inedible portion removed.
4. The material shall be free from extraneous colouring matter and synthetic sweetening agents. No preservative other than benzoic acid shall be used. The benzoic acid contents shall not exceed 250 parts per million. The covering media of the pickle shall be refined mustard oil and should not be in excess than fruit portion.

Packing

5. 25 gms of the material shall be packed in 8cmx8cm double heat sealed pouch of TQ polypropylene 75 μ conforming to BIS specification No IS10910-1984. One such pouch will be further packed in a 10cm x 10cm pouch made of 60gsm paper/aluminium foil 0.02mm/LDPE-37.5 conforming to BIS specification No IS :10146-1982.
6. All these pouches will be properly sealed without any leaks and discontinuity.
7. 400 such filled laminated pouches will be packed in corrugated fibre board box conforming to requirements attached at Appendix 'A'.
8. **Internal Dimensions.** The CFC will have following internal dimensions:-
 - (a) Length - 42 cms
 - (b) Breadth - 42 cms
 - (c) Height - 21 cms
9. **Number of Partitions.** The CFC will be partitioned in a manner to make 8 compartments ie; 4 lower compartments over this will be placed a centre plate, then another 4 compartments will be made at the top of the centre plate. Each compartment should be able to accommodate 50 filled laminate paper packs placed in standing positions. The board used for making partitions and the centre plate will be made of 100gms (semi Kraft). The height of the partitions will be such that the centre plate and the top end plate do not bend the laminate paper packs in the individual compartments.
10. End plate - 2(Two)
11. Weight of empty carton - Not less than 800 gms. (including partitions and centre plates).
12. The flaps of the CFC after filling will be folded and closed with cloth based gum tape of width not less than 6.5 cms at all the open joints. The pack then be overwrapped with polythene and finally strapped with nylon strip of width not less than 1.25 cm. There shall be 4 rounds of strappings (2 in longitudinal direction and 2 remaining at right angles).

Marking

13 (a) **Laminated paper pouches.** The quality of ink used for marking of laminated paper pouches shall be one prescribed as suitable for food materials. Each pack shall be printed/stencilled with the following particulars: -

- (i) Description of contents.
- (ii) AT No and date.
- (iii) Name of manufacturer.
- (iv) Date of manufacture/packing.
- (v) Nett weight of contents.
- (vi) Batch No/Lot No.
- (vii) Date of warranty expiry.
- (viii) Green/Veg Logo

(b) **Corrugated Fibre Board Boxes**

- (i) Description of contents.
- (ii) AT No and date.
- (iii) Name of manufacture.
- (iv) Date of manufacture/packing.
- (v) No of packs x weight (nett) of each pack.
- (vi) Batch / Lot No.
- (vii) Date of warranty expiry.

Hygiene

14. Pickle shall be prepared in premises maintained in hygienic conditions in accordance with the provisions of ISI specification No. IS:2491-1972 (code for Hygienic conditions of food processing units first revisions) which shall be open to inspections at any time by a competent authority approved by the Director General of Supplies and Transport.

Inspection

15. An inspection shall be carried out by the Director General of Supplies and Transport or an officer acting on his behalf.

16. Analytical Requirements.

- (a) Fluid portion, percent by weight - Max 33.3% of the nett weight
- (b) Salt content - Not less than 12% and more than 18%
- (c) Arsenic PPM - Max 1.1
- (d) Lead PPM - Max 25
- (e) Copper PPM - Max 30
- (f) Zinc PPM - Max 15
- (g) Tin PPM - Max 250
- (h) The pickle shall be free from pathogenic and food spoilage organism. Food spoilage organism include organism which discolour the pickle or which affect their taste or smell adversely. The methods of analysis and sampling used shall be those laid down by the ISI specification for processed fruit and vegetable (IS: 2860-1964).

17. Warranty.

In accordance with the standard warranty clause (Appendix 'J'), the warranty period being twelve months.

REQUIREMENTS FOR CORRUGATED FIBRE BOARD BOXES/CARTONS (CFCS) FOR PACKING OF PROCESSED FOOD STUFFS FOR 3 MEN/5 MEN COMPO PACK RATIONS AND SURVIVAL RATIONS FOR TROOPS

General

1. All requirements stipulated here in shall be complied with in every respect irrespective of the source of supply of the materials and/or components.
2. Any deviation or relaxation to these requirements will not be made without prior permission of the Director General of supplies and Transport, Army Headquarters (ST 8).
3. These requirements are applicable to exterior containers for packing items as stipulated in Annexure – I to Appendix 'A'
4. The boards/cartons shall have good blending qualities, good resistance to water penetration and other surface should have good printability. The type of board used shall be 5 ply, triple wall corrugated fibre board having narrow 'B' flutes made from 130 x 140 gsm virgin kraft.
5. The outer surface of the assembled box shall be reasonably free from stains and spots of Bitumen composition.
6. The CFC shall have the general workmanship and finish of a high standard. If an examination of any sample from any portion of the consignment, the material is found not to be fully in accordance with the requirements the whole consignment may be rejected.

Manufacture

7. The corrugated fibreboard cartons shall be manufactured in the shape of cubical/rectangular shapes as required. The blanks shall be properly creased or slotted, so that after assembly no holes shall be left at the corners. The flaps on the boxes shall be capable of being folded at an angle of 180° along the line of creasing without fracture of board or facing.

Technical

8. Lap Joints. The manufacturer's joint shall be made by a lap. The width of lap shall not be less than 30 mm. The joint should have adequate number of staples 50% of which should be doubles. The staples shall be centrally located along with the flap and may be either straight or at an angle of 45°. The staples should be so placed that they are not more than 50 mm apart from each other in each row and first and last not more than 25 mm from beginning and end of joint respectively. The staples used shall be made of mild steel or galvanised 24 BG x 13mm crown, 13 mm width and shall be of good quality.
9. Flutes. The type of flutes shall be Narrow (B) with a height of minimum 2.1 mm and maximum 2.9 mm. The number of flutes per 30 cm shall be minimum 52 and maximum 56.
10. Adhesive. Adhesive used should be starch based or desetrine capable of firmly adhering the various plies together. Silicates or highly alkaline adhesives will not be used. The adhesive used shall be adequately resistant to moisture and capable of withstanding all climatic conditions in the country. The minimum quantity of Glue shall be 20 gms on dry weight basis.

Tolerance Limits in Dimension of Cartons and Grammage of Kraft Paper

11. A tolerance of + 3mm and -1mm in case of dimension and + 7% in grammage of paper is permissible.

12. Water Resistance. All the outer surfaces shall be water proof. The liners shall be laminated with bitumen or water resistant glue as barrier material. The rest shall be 130 x 140 gms Kraft paper.

13. Partitions. As indicated in the respective Annexure the size of the partitions shall be 10 mm less than the internal dimensions of the cartons. These partitions will be of 3/5 ply and 100 gms (Semi Kraft). The horizontal partitions will also include the "End Plates" at the top and bottom of the contents for protection of contents and additional strength.

14. Centre Plates and Gap Fillers. These shall have the dimensions 10 mm less than the internal dimension of the carton. These shall be of 3/5 ply and 100 gms (Semi Kraft).

Test

15. Bursting Strength. When tested in accordance with the method given in ISI method No IS: 1060 (Part-I) – 1966 the bursting strength shall not be less than 12 Kg/cm² and in case of double walled 5 ply CFC. The average shall be based on at least five determinations on each face.

16. Compression Strength. When tested by standard ASM method but conditioned at 27° - 20 ³/₄ and +5 (2% RH). The average compression strength shall not be less than 200 Kg in double walled 5 ply box at a deflection of not more than 15 mm.

17. Water Absorption. The increase in mass of the board after water absorption test when tested in accordance with standard ISI method (IS: 4006 Part-I – 1966) shall not be more than 155 gms/sq metre.

APPENDIX 'J'

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.

2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.

3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 523 : SAGO

Quality

1. The sago shall be in the form of small hard globules or pearls made from starch obtained from Tubers of Tapioca (*Manihot utilissima*).
2. It shall be dry, pearl white in colour, free from any extraneous matter, musty or any other objectionable odour, flavouring or colouring matter and insect infestation.

Packing

3. **Tins.** The sago shall be supplied in well made hermetically sealed tins of selected IC tinplate, best coke finish. The tins shall be thoroughly cleaned before filling and be properly painted or lacquered all over on the outside including the portion under the label to prevent the tins from rust. Each tin shall contain 3.175 kg Nett of sago.
4. **Cases.** The tins shall be packed in wooden cases conforming to the design and quality given in specification No. IND/GS/FD/4(b) for wooden packing cases and shall contain 8x 3.175 kg tins.

Marking

5. **Tins.** The following particulars shall be labelled or marked on tins :-

- (a) Description of contents.
- (b) Brand, if any.
- (c) Name of manufacturer.
- (d) Month of manufacture.
- (e) Nett weight.
- (f) Warranty expiry date.
- (g) Green/Veg Logo

6. **Cases.** The following particulars shall be stencilled on one side of each packing case:-

- (a) Description of contents size 4.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011
- (b) Number of tins.
- (c) Gross weight.
- (d) Name of Manufacturer.
- (e) Month of Manufacture.
- (f) Warranty expiry date.
- (g) No and date of acceptance of tender.
- (h) Green/Veg Logo

Warranty

7. In accordance with the standard warranty clause Appendix 'J' the warranty period shall be two years.

Hygiene

8. The sago shall be manufactured in premises maintained in hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services (Army).

9. The basic hygiene requirements in factory manufacturing sago for the Defence Services shall be in accordance with Appendix 'H'.

Inspection

10. An inspection shall be carried out by the Director of Supplies and Transport or an officer acting on his behalf, on all supplies tendered for acceptance. The decision of this officer shall be final.

11. The sago shall conform to the following analysis:-

- (a) Moisture percent by weight - Not more than 11.0%
- (b) Total ash (dry basis) per cent by weight - Not more than 0.4%
- (c) Acid insoluble ash (dry basis) percent - Not more than 0.1% by weight
- (d) Colour of gelatinised alkaline paste in - Not more than IR + 3Y the porcelain cuvette on the Lovibond scale.
- (e) pH of the aqueous extract - 4.5 to 7.0
- (f) Starch - Not less than 78.0%.
- (g) Protein - Not more than 0.30%.
- (h) Sulphur Dioxide - Not more than 100 parts per million.

12. The methods of analysis shall be those laid down in IS Specification No. IS : 899-1971 for Tapioca Sago (Sabodana).

Mandatory Requirements of FSSAI/BIS

13. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

APPENDIX 'H'

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.
- (c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.
- (d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.
- (e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.
- (f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.

(g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.

(h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

(a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.

(b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.

(c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

APPENDIX 'J'

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meeting the quality parameters as DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.

2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.

3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 370 : TOMATO SAUCE

1. Quality

- (a) The Tomato Sauce shall be the product made from the properly prepared pulp, free from peel and seeds, obtained from clean, fresh, sound and ripe tomatoes mixed with requisite spices, vinegar and sugar.
- (b) The tomato sauce shall be a clean sound product, pleasant in taste and flavour and free from any fruit or vegetable other than tomato.
- (c) All spices and ingredients used shall conform to the Specifications wherever they exist; otherwise they shall be of good quality.
- (d) The tomato sauce shall be free from mineral acids, commercial organic acids and preservatives other than salt, sugar, spices, food grade acetic acid and benzoic acid.
- (e) The tomato sauce shall be adequately heat processed either before or after packing in bottles.
- (f) The tomato sauce shall be of good keeping quality and shall be showing no signs of fermentation when incubated at 28-30°C for 7 days. It shall not have a mould count in excess of 40% of the field examined, yeast and spores in excess 125 per 1/60 cm and bacteria in excess of 100 million per cc.

2. Packing

- (a) **Bottles.** The tomato sauce shall be neatly packed in narrow mouthed thoroughly cleaned white glass bottles of good manufacture, firmly crown corked and covered with good quality plastic screw cap. The net contents of each bottle shall be 500 gms or 1 kg of tomato sauce. Each bottle shall be wrapped in a straw envelope.
- (b) **Cases.** The bottles shall be packed in upright position in strong wooden cases fabricated according to drawing No. FD/TDES/1(e). Each case shall contain 24 (6 x 4) bottles.

3. Marking

- (a) **Bottles.** Each bottle shall be labelled with following particulars :-

- (i) Description of contents.
- (ii) Nett weight of contents (in ozs).
- (iii) Name of manufacturer.
- (iv) Date of manufacture.
- (v) F.P.O number.
- (vi) Green Logo.

- (b) **Cases.** Each case shall be stencilled with the following particulars on one side :-

- (i) Description of contents.
- (ii) Gross weight.
- (iii) Number of bottles.
- (iv) Name of manufacturer.
- (v) Date of manufacture.
- (vi) Expiry of warranty.
- (vii) Number and ate of acceptance of Tender.
- (viii) Green Logo. On the top of each opposite side of the case the following shall be stencilled In Block Red ½" letters:-

"GLASS WITH CARE" On the to of each packing case the following shall be stencilled in Block Red ½ " letters :-

"THIS SIDE UP"

4. Warranty. In accordance with the Standard warranty clause (Appendix 'J'), the warranty period being 9 months.

5. Hygiene

- (a) The tomato sauce shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services in India.
- (b) The hygiene requirements in the factory producing tomato sauce shall be in accordance with the Appendix 'H'.

6. Inspection

- (a) An inspection shall be carried out by the Director of Supplies and Transport (or an officer acting on his behalf) on all supplies tendered for acceptance. The decision of this officer shall be final.
- (b) The tomato sauce shall conform to the following analysis:-
- (i) Total solids : Not less than 25 percent.
 - (ii) Crude fibre : Not more than 0.5 percent.
 - (iii) Salt : Not less than 1.5 percent.
 - (iv) Total Sugar : Not less than 10 percent and not more than 15 percent.
 - (v) Acids (as acetic acid) : Not more than 1.5 percent.
 - (vi) Benzoic acid : Not more than 750 ppm.
 - (vii) The amount of heavy metals shall not exceed the limits shown in the Appendix III.
- (c) The methods of analysis used shall be those laid down by the Association of official Agricultural Chemists (A.O.A.C. latest edition).

Mandatory Requirements Of FSSAI/BIS

7. All mandatory requirements of FSSAI/BIS, as amended from time to time, pertaining to the above specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

APPENDIX-III TO SPECIFICATION NO 370 FOR TOMATO SAUCE

The limits of heavy metals in processed foodstuffs :-

- (a) Lead not more than 2.5 parts per million.
- (b) Copper not more than 50 parts per million.
- (c) Zinc not more than 50 parts per million.
- (d) Tin not more than 250 parts per million.
- (e) Arsenic as Arseniousoxide not more than 1.5 parts per million.

APPENDIX 'H'

STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

- (a) **Floors.** The floors should be impervious and kept clean all times.
- (b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.

(c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.

(d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.

(e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.

(f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.

(g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.

(h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

(a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.

(b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.

(c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

APPENDIX 'J'

STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meets the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.

2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meets the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.

3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

DEFENCE FOOD SPECIFICATIONS-2020
SPECIFICATION NO 334 : MALTED MILK FOODS WITH COCOA POWDER

Quality

1. The Malted Milk Food will be of uniform and homogenous consistency. It will be in the form of a mix of granules / flakes for use as a beverage. The average ratio of granules/powder would be 55 : 45. These shall be free from starch (except starch natural to cocoa powder) and added non-milk fat.

2. The material obtained by a combination of whole milk, partially skimmed milk or milk powder, with the wort separated from a mash of ground barley malt, any other malted cereal grains and wheat flour or any other cereal flour or malt extract with or without addition of optional ingredients (see para 4 below), cocoa powder and may also contain added sugar in such a manner as to secure complete hydrolysis of the starchy material and prepared in a percentage specified as granules / flakes not less than 55% and powder not more than 45% when sieved on a 500 micron sieve in a sample pack of 12 x 500 gms packages, with min of 50% of granules in each pack when sieved on a 500 micron sieve, and by roller drying, spray drying, vacuum drying or any other suitable process.

3. The sugar, milk powder and cocoa powder used in the manufacture of Malted Milk Foods shall conform to BIS Specification No IS:498-1985, IS:1165- 1992 and IS:1164-1986 respectively.

4. **Optional Ingredients:** In addition to ingredients mentioned above the products may contain any of the optional ingredients, singly or in combination as given below:-

- (a) Flavouring agents and spices (Those permitted under FSSAI Rules)
- (b) Emulsifying agents (Those permitted under FSSAI Rules)
- (c) Sodium Chloride
- (d) Sodium or potassium bicarbonate and
- (e) Minerals and Vitamins

5. Malted Milk Foods shall be free from preservatives and added colouring matters, free flowing, free from rancidity or other off odours, dirt, grittiness, filth, insect infestation, fungus growth, adulterants and other harmful ingredients.

6. Malted Milk Foods shall have fresh odour, taste and flavour characteristic of product and in a state of perfect preservation.

7. On reconstitution the material shall disperse and dissolve satisfactorily without excessive sedimentation and shall yield a product of good palatability having characteristic flavour and body.

Packing

8. Malted Milk Foods shall be packed in any of the following trade packs:-

(a) **Refill Packs (Bag-in-Box Type).** 500 gm Malted Milk Food shall be packed in a laminated bag of suitable thickness made from paper/foil/polyester (PFP) and hermetically sealed by band sealing having seal width not less than 5 mm without any leaks/discontinuity. Such bag shall be further packed in a multicoloured decorative printed duplex box of suitable size made from cardboard of not less than 325 GSM.

(b) **PET Bottles.** Malted Milk Foods shall be packed in 500 gm PET bottles having heat sealed diaphragm without any leaks/discontinuity made from plain or printed LDPE laminated aluminium foil and provided with tightly fitted HDPE screw cap having wax coated paper wad of not less than 100 GSM.

9. Corrugated Fibreboard Cartons (CFCs). The Refill packs/PET bottles shall be further packed in 5 ply CFCs of suitable size made from virgin kraft paper having moisture barrier capability and provided with 4 pairs of rust proof metal staples at the flap joints and 2 end plates. The refill packs/PET bottles shall be packed in one layer and each CFC shall contain 24 or 20 such packs respectively. The bottom flaps of CFC shall be closed with PVC adhesive after forming whereas the top flaps shall be closed with PVC adhesive tape having width not less than 5 cm and shall be provided with 2 rounds of polypropylene strapping at right angles to PVC adhesive tape and ends secured with rust proof metal staples or heat welding.

Marking

10.

(a) **Refill Packs (Bag-in-Box Type).** The paper/Foil/Polyester (PFP) bag shall be without any marking/printing in regard to description of the contents.

(b) **Duplex Boxes.** Each duplex box shall be printed with the following particulars:-

- (i) Description of contents i.e. Malted Milk Food with Cocoa.
- (ii) Name of manufacturer.
- (iii) Brand, if any.
- (iv) Nett weight of contents (in gm).
- (v) List of ingredients used in descending order of wt or volume.
- (vi) Nutritional information per 100 gm/ 100 ml / per serving as indicated in the para for mandatory requirements of PFA/BIS.
- (vii) Date/month of manufacture.
- (viii) Batch No/Lot No.
- (ix) AT No & Date
- (x) Ingredients used.
- (xi) Cautionary notice: Pour contents of this refill pack into a dry tin or jar and replace the lid tightly.
- (xii) Instructions for reconstitution.
- (xiii) For Defence Services only.
- (xiv) Veg Logo

Note :- Ser No (vii) & (viii) to be Debossed/Embossed on duplex boxes.

(c) **PET Bottles.** The label of each PET bottle shall be pasted/shrink wrapped with multicoloured, decorative, printed propriety chromoart trade paper label of 120 gsm OR Multicoloured, decorative PVC shrink sleeve wrap of not less than 30 Micron thickness having following particulars:-

- (i) Description of contents i.e Malted Milk Food with Cocoa.
- (ii) Name of manufacturer.
- (iii) Brand, if any.
- (iv) Nett weight of contents (in gm).
- (v) Date/month of manufacture.
- (vi) Batch No/Lot No.
- (vii) AT No & Date
- (viii) Ingredients used.
- (ix) Instructions for reconstitution.
- (x) For Defence Services only.

11. Corrugated Fibreboard Cartons (CFCs). The following particulars shall be printed on the sides of each CFC:-

- (a) Description of contents(size 4.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.
- (b) Name of manufacturer.
- (c) Date of manufacture.
- (d) Gross weight (in Kg).
- (e) No of packs X Nett wt (In gm).
- (f) Batch No/Lot No.
- (g) AT No and date.
- (h) Warranty expiry date.
- (j) FOR DEFENCE SERVICES ONLY.

Warranty

12. In accordance with the standard warranty clause, Appendix □J', the warranty period shall be one year.

Hygiene

13. The Malted Milk Foods shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and Director General of Medical Services (Army).

14. The basic hygienic requirements in a factory producing Malted Milk Foods shall be in accordance with Appendix □H'.

Inspection

15. An inspection shall be carried out by the Director General of Supplies and Transport or an officer acting on his behalf on all supplies tendered for acceptance. The decision of this officer shall be final.

16. The Malted Milk Foods shall conform to the following analysis:-

(a) Chemical.

- (i) Moisture, percent by mass - Not more than 4.0
- (ii) Total protein (Nx6.25) - Not less than 11.5 (on dry basis) percent by mass
- (iii) Total ash (on dry basis) - Not more than 5.0 percent by mass
- (iv) Milk fat (on dry basis) - Not less than 6.0%
- (v) Acid insoluble ash (on dry basis) - Not more than 0.1%
- (vi) Solubility percent by mass - Not less than 80
- (vii) Cocoa Powder (on dry basis) - Not less than 5.0 percent by mass
- (viii) Artificial colouring matter - Nil

(b) Microbiological.

- (i) Yeast and mould count - Absent in 0.1 gm
- (ii) Salmonella and Shigella - Absent in 0.1 gm
- (iii) E. Coli - Absent in 0.1 gm
- (iv) Vibrio cholera and V. - Absent in 0.1 gm paraheamolyticus
- (v) Coliform count, max - NMT 10/gm
- (vi) Total plate count (TPC) - NMT 50,000/gm

Note.

- (a) Eight samples will be used for Microbiological test.
- (b) Refer para 2.4.11 (Malted and Malt based foods) and Sampling Guidelines of Food Safety and Standards Regulations, 2011".

(c) Physical.

- (i) An Average Granule powder ratio of 55 : 45 in a sample pack of 12 x 500 gms packs will be achieved, with minimum of 50% granules in each pack.
- (ii) **Procedure to Ascertain the Granule/Powder Ratio.** At one time Sieve 125 gms of Malted Milk Food on a Simon laboratory sifter using standard IS 500 micron sieve for 30 seconds. On complete sieving of the 500 gms packet the required ratio of granules: powder is to be calculated against the nett weight of each packet.

17. The methods of analysis shall be those as laid down in Bureau of Indian Standards Specification No IS: 1806-1975 for Malted Milk Foods, latest edition of AOAC, Appendix 'A' and 'B' to this specification.

Mandatory Requirements Of FSSAI/BIS.

18. All mandatory requirements of FSSAI /BIS, as amended from time to time, pertaining to the above Specification including marking of BIS certification mark for container/contents, Best Before _____, coloured symbol for declaring vegetarian and non-vegetarian food etc on packs shall be complied with.

19. The list of ingredients, nutritional information per 100 gm / 100 ml / per serving etc, as given in the Govt of India, Office of the ADG (PFA) GSR No 664(E) dt 19 Sep 2008 published in Part II, Section 3, Sub sec (i) of Gazette of India, Extra Ordinary, amended vide corrigendum GSR 135 (E) dt 27 Feb 2009, issued on 06 Mar 2009, to be complied with.

**Appendix 'A' to Specification No 334
for Malted Milk Foods with cocoa powder-2020
MICROBIOLOGICAL TESTING PROCEDURES FOR
SPECIAL FOOD PACKS
(Foods which are NOT thermo stabilised)**

1. Temporary microbiological specification for each food item have been laid down. All the foods shall conform to these specifications for acceptance.

Sampling Procedure.

2. **Sample size.** Sample size per each lot of food shall be the square-root of the number of servings present in each lot.

3. **Sample selection.** An equivalent number of representative serving size portions will be randomly selected from foods prepared and stored in bulk under storage conditions. Foods packed in individual servings will be randomly selected.

Microbiological Tests

4. Food shall be tested for standard plate count (SPC), total Coliforms, E.Coli, staph, aureus (Coagulase positive staph), Salmonella and Yeasts and moulds.

Food Slurry Preparation

5. Representative portions from each sample are taken aseptically so that the combined weight is 60 g. The combined sample shall constitute a microbiological test sample for that food.

6. Transfer aseptically the microbiological test sample into a sterile blender cup. Prepare 1:10 dilution by adding 0.1% peptone water (1 part by weight of food: 9 parts by weight of diluent) that is approximately 540 ml of peptone water diluent are required for 60 g of food sample.

7. Instead of sterile blender cup, sterile mortar and pestle may also be used for food slurry preparation. Homogenise the food in blender for 2 mins. Resultant Food Slurry (FS) shall contain 0.1 g of food sample per ml of FS. Do not hold FS for more than 30 mins before diluting further.

Test Procedures

8. Standard microbiological laboratory procedures including control media and control diluents shall be utilised with each test.

9. **Standard Plate Counts (Total aerobic organisms):** Make decimal dilutions in duplicate with 10 ml of FS. Take 2 Petri dishes and transfer to each dish 1 ml of the selected decimal dilution. Dilutions may be made up to 10^{-3} and plate all dilutions in duplicate plates.

10. If one or both dishes corresponding to certain dilution contain between 30-300 colonies, calculate the arithmetic mean of the number of colonies counted in the two dishes. Multiply this value by the reciprocal of the corresponding dilution to obtain the number of micro organisms per ml or per g of the product. Express this result as a number between 1.0-9.9 multiplied by 10^n where n being the appropriate power of 10.

11. **Coliforms.** These are to be enumerated by the 3 tube MPN method. 1 ml of appropriate dilutions is added to each of the 3 tubes. For this purpose 3 ml of food slurry which is 10^{-1} dilution and similar volumes from dilutions used for SPC may be utilised. The tubes should be incubated at 37 °C for 48 hrs. Look for growth and gas in the Durham tubes which is a positive reaction for coliform. The counts may be read from the MPN tubes according to the standard procedure.

12. **Faecal coliform.** Take 10 ml FS and distribute 1 ml each into 10 tubes of EC broth. Incubate them at 44 °C for 24 hrs. Look for growth and gas which constitutes a positive reaction. Transfer one or two tubes of growth from positive tubes on to Mac conkey and EMB ager confirm colonies growing on them by IMVIC test. IMVIC patterns of +++- or -++ are considered confirmed E.Coli types I and II respectively. Presence of a single confirmed E.Coli of either type shall cause the food to be rejected.

13. **Coagulase positive staphylococci.** Transfer 50 ml of FS into 50 ml of double strength trypticase Soya broth (TSB) and incubate at 37 °C for 2 hrs. Add 100 ml of single strength TSB containing 19.5 g NaCl. The final salt concentration in TSB will be 10%. Incubate at 37 °C for 24 hrs. Spread 0.1 ml of TSB culture on each of 2 plates of Baird parker agar.

14. Incubate Baird Parker agar plates at 37 °C and examine after 24 hrs and again after 44 hrs for the presence of staph aureus. Typical staph, aureus colonies are circular, smooth, convex grey to jet black, frequently with light colour margin, surrounded by opaque zone and frequently with an outer clear zone. Transfer typical colonies (about 5 numbers) to Brain Heart Infusion (BHI) broth tubes and incubate at 37 °C for 24 hrs. After incubation perform gram stain on each BHI tube.

15. If gram positive cocci are present, transfer 0.3 ml of BHI culture to a small test tube containing 0.5 ml of coagulate plasma. Mix and incubate in a water bath at 37 °C for 6 hrs. The confirmed coagulase positive colony shall have a 4+ reaction. A single coagulase positive colony shall cause rejection of the food.

16. **Salmonella.** Transfer 250 ml of FS into 250 ml of double strength lactose broth. Incubate at 37 °C for 24 hrs. Transfer 1 ml of lactose broth into 10 ml each of selenite cysteine broth and tetra thionide broth. Incubate at 37 °C for 24 hrs. From each enrichment streak a loopful on one plate each of 3 selected media. Brilliant green agar (BGA), Bismoth Sulfite agar, Salmonella Shilgella agar (SS). BGA and SS plates are incubated at 37 °C for 24 hrs and BS plates for 48 hrs. Typical salmonella colonies are pink to deep pink red on BGA, black on BS and smooth and colourless on SS. Pick 2 or more typical colonies from each plate showing growth and inoculate into triple sugar iron agar (TSI) and lycine iron agar (LIA) in random i.e. do not obtain more inoculate after inoculating TSI. Incubate all slants at 37 °C for 24 hrs.

17. Transfer positive TSI (acidic yellow and alkaline red slant with or without gas and H₂S, LIA alkaline, purple throughout with or without H₂S) slants to urea broth tubes and incubate for 24 hrs at 37 °C. Positive TSI and/or LIA slants with a urase indicative reaction shall constitute a presumptively positive salmonella culture. Presumptive positive culture shall be confirmed by the requisite biochemical reactions and a single conformed positive salmonellas culture shall cause rejection of the food lot.

18. **Yeasts and Moulds.** Transfer 1 ml of FS into each of 10 Petri dishes and pour with potato dextrose agar. Acidify with tartaric acid of pH of 3-3.5. Incubate plates at 25 °C and count after 3 and 5 days. The total number of yeasts and moulds colonies on the 10 plates shall not exceed the prescribed number.

19. The total number of yeasts and moulds colonies on the 10 plates shall constitute the yeasts and mould count per gram.

APPENDIX 'B' TO SPECIFICATION NO 334 FOR MALTED MILK FOODS WITH COCOA POWDER-2020 Test for Starch.

Dissolve the Malted Milk Food in boiling water (1: 8 dilution). To 5 ml of the cooled Malted Milk Food solution, add about 0.5 ml of 0.1% solution of Iodine in potassium Iodide. The mixture should not develop any blue colour in order to give a negative test.

APPENDIX 'H' STANDARD MINIMUM REQUIREMENTS OF HYGIENE IN FOOD FACTORIES

1. To ensure the standard of hygiene in a factory the following minimum requirements shall apply:-

(a) **Floors.** The floors should be impervious and kept clean all times.

(b) **Lighting and Ventilation.** Adequate standards of lighting (natural and artificial) in working parts of the factory together with adequate ventilation and sufficient space for and protection from machinery.

(c) **Fly / Rodent / Pest / Bird Proofing.** Fly / rodent / pest / bird proofing of factory premises to the extent necessary to protect raw material during storage and processing and the manufactured products until it has been packed and the containers sealed.

(d) **Water-Supply.** An adequate supply of potable water in the factory and drinking water for the employees will be provided which shall be periodically tested and certified as free from injurious bacteria and other substances by a public health laboratory.

(e) **Disposal of Wastes.** An efficient drainage system must be provided with proper methods of disposal of waste water and other effluents. Provision must exist to eliminate dusts/fumes if any.

(f) **Conservancy.** A proper conservancy system adequately serviced with approved methods of disposal of human excreta.

(g) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during handling of raw materials or its manufacture.

(h) **Safety.** Adequate fencing of machinery shall be secured in the case of all types of machinery and its moving parts and the moving machinery shall be kept in a position which provides sufficient safeguard against any accident. Each factory must have first aid box with necessary minimum items.

2. Workers.

(a) So far as the health of the employees is concerned, they shall be periodically examined by Medical Officer and it should be ensured that no individual suffering from any communicable disease or any disability likely to result in contamination of the raw materials, implements, equipments or finished products, is employed.

(b) All the employees should be protected against communicable diseases with preventive inoculation / vaccination.

(c) Provisions for personal hygiene of employees will include potable drinking water, washing facilities (Soap, basin or taps, nail brushes and towels) sanitary annexes and at least two sets of clean clothing for each employee for use only in the factory and Masks / hand gloves, where necessary. There should be a separate room for keeping the personal belongings and to change the clothes and for drying of wet clothes.

APPENDIX 'J' STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and meets the quality parameters as per DFS for a specified number of months from the last day of the month of manufacture, in any climate and under all conditions of storage and movement in India.

2. In the event of the supplies or a part thereof having been declared during the period of warranty as being not meeting the quality parameters as per DFS by the Director General of Supplies and Transport, or any officer acting on his behalf, (whose opinion as to whether or NOT the particular consignment is meeting the quality parameters as per DFS will be final), the purchaser will have the right to dispose of the condemned stock in any way he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period, or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase, or an officer acting on his behalf, in regard to these charges will be final.

3. The declaration by the Chief Director of Purchase, or an officer acting on his behalf, communicated to the contractor in writing that a particular consignment has been condemned will be taken by the Contractor as the conclusive evidence of the proper condemnation of that consignment.

**REVISED ASC SPECIFICATION FOR HEXAMINE COOKER AND MATCH BOXES FOR
INCLUSION IN MODIFIED ONE MAN MINI COMPO PACK RATION**

1. Hexamine cooker/stove shall be fabricated as per the drawing/design attached as Annexure I and II or III with this specification. The sheet used shall be lacquered/ zinc coated to avoid corrosion / rusting during storage. The base of the cooker (Figure I) shown in Annexure II shall be folding. The central plate shown in Annexure I & II shall fix properly in the base in order to provide stability.
2. Safety Match Boxes. Safety match box containing minimum 50 sticks should conform to BIS Specification No IS: 2653-1980 for quality analytical parameters and methods of tests.
3. Packing. Each safety Match Box shall be packed in a Ziplock polypropylene pouch of 75 micron of suitable size. Such two packs of Match Boxes and one Hexamine cooker shall then be packed together in a polypropylene pouch of 75 micron. Each pouch shall be properly heat sealed without any discontinuity.
