

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 38-A : 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 201 and appendix 'K' thereto. Each CFC shall contain 24 cardboard cartons i.e (4 x 1)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

(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 (on dry weight basis) | - Not more than 1.0% |
| (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 H ₂ SO ₄) | - 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.

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 fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 137 : OATS CRUSHED

Quality

1. The Crushed Oats shall be the product obtained from braising or slightly crushing oats of a quality conforming to the Specification No. 135 and shall not contain the impurities other than allowed in the whole oats.

The crushed oats shall consist of flattened grains of oats: the great being bruised without being free from the husk. Fragments free husk (husk having no particles of grain adhering to it), dust and powder, and whole oats shall not exceed the proportions indicated in para 5 below.

Packing

2. The crushed oats shall be packed in new 'B' twill Jute Trade bags (in accordance with the specification No. FD/TDES/2(b)) size 44" x 26½" - Tare 2½ lb. The mouth of the bags will be rolled over and stitched with strong 3 ply jute twine with 12 to 14 stitches and properly fastened off. Each bag shall contain 80 lb. Or 100 lb. Nett of oats crushed, as may be required.

Marking

3. The bags shall be stencilled on one side as follows:-
 - (a) Oats Crushed (in 3" characters).
 - (b) Nett weight.
 - (c) Gross weight.
 - (d) Date of packing.
 - (e) Depot of origin.

Hygiene

4. The crushed oats 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. The basic hygienic requirements in a factory supplying products to the Defence Forces shall be in accordance with appendix.

In addition, all machinery including associated conveyers and spouts shall be maintained in a clean condition and free from insect infestation. The routine cleaning carried out by the Agent/Contractor shall be supplemented at intervals by the employment of special disinfestations and cleaning measures such as may be prescribed by the Director of Food Inspection.

Inspection

5. All consignments of crushed oats shall be inspected by the Assistant Inspector of Foodstuffs before despatch from the Military Grain Depot. Prior to processing the oats shall be inspected to ensure that only clean grain in accordance with Specification No.135 is utilised to manufacture the crushed oats. On appeal by the Agents against any ruling of the Assistant Inspector of Foodstuffs, this officer will draw samples (in accordance with annexure to the Purchasing Agents Contract) from the consignment in question and submit them to the Director of Food Inspection for examination. The decision of the Director of Food Inspection in respect of such consignment shall be final.

(a) Moisture Content - The percentage shall not exceed 11.0%.

(b) Admixture - Proportions shall not exceed

- | | |
|-----------------|------|
| (i) Dust/Powder | 1.0% |
| (ii) Fragments | 2.0% |
| (iii) Husk | Nil. |
| (iv) Whole Oats | 5.0% |

(c) The following sieves will be used to determine the proportion of admixture :-

(i) Dust/Powder through No. 3 sieve (aperture size 1.72 m.m. dia). (ii)

Fragments “ No.5 “ (aperture size 2.54 m.m. dia).

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SPECIFICATION NO 08 : 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.** These 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.

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".

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 (as oleic acid) | | Not more than 0.5% |
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.

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DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 38 : 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.

(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.

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 Weight basis)	-	Not more than 0.10%.

(d) Particle size :-

- | | | |
|--|---|---------------------|
| (i) Retention on 75 micron -
IS Sieve | - | Not more than 2.0%. |
| (ii) Retention on 150 micron - IS
Sieve | - | Not more than 0.5%. |
| (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 Requirements Of FSSAI/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.

APPENDIX 'J' STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 40 : 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.

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 The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011.
 - (b) Number of containers and nett weight of custard powder. (c) Gross weight (in kg).
 - (d) Name of supplier.
 - (e) Date of manufacture.

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 No IS : 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.

APPENDIX 'J' STANDARD WARRANTY CLAUSE

1. The contractor warrants the supplies delivered to be sound, wholesome, and fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 92 : 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 40 °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) **Polyphene 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.

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.

APPENDIX 'H'
(Ref Para 9 of Spn No

92 for Jelly Crystals) 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 fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 135 : OATS (AVENA SATIVA)

Quality

1. The oats shall be of the current season's crop and shall be sound, dry, sweet, clean and wholesome. They shall be free from unpleasant smell and live infestation. Insect damaged, mouldy and discoloured and foreign foodgrains shall not exceed the proportions indicated in para 5 below.
2. The oats shall be of a white coloured variety with hard, plump, thin skinned grains and free from beards.

Packing

3. Oats shall be packed in new 'B' Twill Jute Trade Bags, size 112 cm x 67 cm – tare 1.023 kg (44" x 26½" – tare 2¼ lbs). The mouths of the bags will be rolled over and stitched with strong jute twine with 12 to 14 stitches and properly fastened. The contents of each bag will weigh 65.32 kg (144 lbs) nett.

Inspection

4. An inspection shall be carried out by the Director of Supplies and Transport or an officer acting on his behalf on all consignments tendered for acceptance. The decision of this officer shall be final.
 5. The oats shall conform to the following analysis:-
 - (a) Moisture content - Not more than 10.0%
 - (b) Maximum permissible percentages of impurities :-
 - (i) Dirt (Non-food grains seeds - Not more than 0.5%
and all extraneous matter other - Not more than 4.0%
than food grains)
 - (ii) Foreign food grains other
than oats*
- * **Note** : Black oats shall be regarded as foreign food grains and the content shall not exceed 1.0%.
- (iii) Mouldy and discoloured grains - Not more than 0.5%

(iv) Grains damaged by insect:			
New crop to July	:	Nil	
August	:	Not more than	0.5%
September	:	Not more than	1%
October	:	Not more than	1.5%
November to New crop	:	Not more than	2.5%

6. The total percentage of impurities under (i), (ii), (iii) and (iv) shall not exceed and aggregate of 6.0%.

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 149-A : 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 8 cmx 8 cm 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 10 cm x10 cm pouch made of 60 gsm 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 100 gms (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 over wrapped 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.

(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 of the nett weight | | Max 33.3% |
| (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 stapples 50% of which should be doubles. The stapples 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 stapples 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 fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 149 : PICKLES (WITHOUT VINEGAR)

Quality

1. The pickles shall be of good quality, properly prepared and matured according to accepted recipes, of pleasant taste and smell, and shall be free from injurious ingredients.
2. All spices and ingredients used shall conform to the Specifications wherever they exist; otherwise they shall be of good quality.
3. Before preparation all ingredients shall be thoroughly cleaned. Any ingredient or part of portion thereof unfit for human consumption shall not be used.
4. The vegetables and fruits used shall be fresh and of the proper stage of maturity.
5. The approved kinds of fruits and vegetables to be used for pickling are listed in the Appendix 'A'. Any vegetable or fruits outside the list may be used only with the previous approval of the Director of Supplies and Transport.
6. The pickles shall be free from mineral acids or alum; added colouring matter, the only substances that may be added are salt, sugar, spices, jiggery, soluble calcium salts and Benzoic acid as preservative.
7. Antimony free porcelain stoneware or stainless steel vessels or wooden vessel shall only be employed in the manufacture of pickles.
8. The pickles shall be free from pathogenic organisms and food spoilage organisms Food spoilage organisms include organisms which discolour the pickle of which effect their taste or smell adversely.

Packing

9. (a) Bottles. The pickles shall be packed in wide mouthed thoroughly cleaned glass bottles of good manufacture, firmly corked and properly sealed with a suitable sealing compound. The corks used shall be of good quality and capable of effecting a good seal. Metal caps of approved types lined with cork or waxed cardboard may also be used. Each bottle shall contain 454 gms nett of pickle, except chilly pickle where the nett weight shall be 400 gms. Each bottle shall be wrapped in a straw envelope.

(b) "Laminated Foil Packing". For compo pack rations, pickles shall be packed in flexible Laminated pouches of the following description:-

Type of packaging material	size of pouches before filling & sealing (cm)	Size of packs after filling & sealing (cm)	Net weight (gm)
* Sarancoated cellophane/ polyethylene Laminate and ** And Opaque paper/ polyethylene Laminate	17x12.5	17x 12.5	140

- * Laminate of 300 gauge cellophane/150 gauge polyethylene. ** Laminate of brown craft paper /200 gauge polyethylene.

Pickles shall be first packed in pouch made of cellophane/polyethylene laminate, saran coated in which the inner surface is polyethylene layer and repacked in opaque paper/polyethylene laminate pouch. Pickles shall so filled into the pouches using wide stemmed funnel that the sealing of edges of inner layer of the pouch shall not be contaminated with oil before sealing or during sealing. The width of the seal shall not be less than 1.5 cm.

10. **Cases.** The bottles shall be packed in upright position in strong wooden cases fabricated according to specification No IND/GS/FD/4(b). Each case shall contain 12 bottles of one kind of pickles only.

Marking

11. **Bottles.** The following particulars shall be labelled on each bottle:-

- Description of contents, e. g pickles – Mango.
- Name of manufacturer.
- Date of manufacture.
- Net weight of contents.
- FPO number.

12. The Laminated pouches shall be printed or have printed Label pasted on it with the following particulars:-

- Description of contents, e.g PICKLES IN OIL (Mango, chillies or mixed as the case may be).
- Name of Manufacturer.
- Date of manufacture.
- Nett weight.

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

- (a) Description of contents size 5.0 cm characters or suitable size or as per The Legal Metrology (Packaged Commodities) Acts, 2009 and Rules, 2011
- (b) Gross weight.
- (c) Number of bottles.
- (d) Name of manufacturer.
- (e) Date of manufacture.
- (f) Expiry of warranty.
- (g) Number and date of acceptance of Tender.

On the opposite side of the case the following shall be stencilled in Block Red 1.5 cm letters.

“GLASS WITH CARE”

On the top of each packing case the following shall be stencilled in Block Red 1.5 cm letters.

“THIS SIDE UP”

Warranty

14. In accordance with the standard warranty clause (Appendix 'J') the warranty period shall be 12 months for bottles and 6 months for Laminate packs.

Hygiene

15. The pickles 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 (Army).
16. The hygiene requirements in a factory producing the pickles shall be in accordance with the Appendix 'H'.
17. 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.
18. The pickles shall conform to the following analysis:-
- (a) Citric Acid - Not less than 1.2% (for pickles in citrus juice)
 - (b) Salt content - Not less than 12.0% and not more than 18.0% (for pickles in citrus juice or brine)
 - (c) Benzoic acid - Not more than 250 ppm.
19. The amounts of heavy metals shall not exceed the limits shown in Appendix 'B'.
20. The methods of analysis shall be those laid down by the Association of official Agricultural Chemists (A. O.A.C - latest edition).

APPENDIX 'A'**Vegetables and fruits allowed**

- | | |
|--------------------------------|--------------------------------------|
| 1. Amla (Phyllanthus embelica) | 8) Ginger |
| 2. Brinjal | 9) Jack Fruit (raw) |
| 3. Cabbage | 10) Lemon |
| 4. Carrot | 11) Mango (raw) |
| 5. Cauliflower | 12) Onion |
| 6. Chillies (Green) | 13) Radish, Turnip |
| 7. Cucumber | 14) Taint - Capparis decidua (Forsk) |
| | Pax, Syn. C.aphylla or Roth |
| | 15. Karonda – Carissa carandus. |

Combinations of two or more of these item may be allowed provided they are accepted recipes and approved by the Director of Supplies and Transport

Varieties of pickles

The following varieties of pickles may be prepared:-

- (a) Plain pickles in Brine and Spices.
- (b) Pickles in citrus juice.
- (c) Pickles in oil.
- (d) Any other approved types.

Spices and Preservatives

The following spices are allowed:-

- | | |
|------------------------|----------------------|
| 1. Fenu-greek | 8) Mustard |
| 2. Chilli | 9) Salt |
| 3. Coriander | 10) Sugar or jiggery |
| 4) Cumin seeds (Jira) | 11) Turmeric |
| 5) Thyme seeds (Ajwan) | 12) Curry leaves |
| 6. Pepper | 13. |
| | Garlic |
| 7. Asafeoetida | 14. |
| | Fennel |

Only clean pure spices of good quality shall be used.

Oils

The following refined oils shall only be used:-

1. Mustard Oil
2. Groundnut Oil
3. Til oil

APPENDIX 'B' Limits of Heavy Metals

- | | |
|-------------|------------------------|
| (a) Lead | Not more than 5 ppm. |
| (b) Copper | Not more than 15 ppm. |
| (c) Zinc | Not more than 19 ppm. |
| (d) Tin | Not more than 140 ppm. |
| (e) Arsenic | Not more than 1 ppm. |

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 fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.

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

DEFENCE FOOD SPECIFICATIONS-2013

SPECIFICATION NO 187 : 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.
- (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 date of acceptance of Tender.

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 187 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 Arsenious oxide 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 fit for human consumption 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 unfit for human consumption 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 fit for human consumption 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.