



उत्पाद मानुयल  
संपूर्ण दूध पाउडर - विशिष्टि  
IS 1165: 2022 के अनुसार

**PRODUCT MANUAL**  
**FOR Whole Milk Powder - Specification**  
**ACCORDING TO IS 1165: 2022**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.*

|    |                                                                                              |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| 1. | मानक संख्या<br>IS No.                                                                        | : | IS 1165: 2022                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|    | शीर्षक<br>Title                                                                              | : | Whole Milk Powder - Specification                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | संशोधनों की संख्या<br>No. of amendments                                                      | : | 01                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2. | नमूना दिशानिर्देश<br>Sampling Guidelines                                                     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| a) | कच्चा माल<br>Raw material                                                                    | : | Raw material shall be in accordance with clause 3.1 of IS 1165.                                                                                                                                                                                                                                                                                                                                                                                           |
| b) | समूहीकरण दिशानिर्देश<br>Grouping Guidelines                                                  | : | Not Applicable                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| c) | नमूने का परिमाण<br>Sample Quantity                                                           | : | 2 x 500 g<br>Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market) |
| d) | परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर<br>Parameters to be Declared in Test Request |   | <ul style="list-style-type: none"> <li>Concentration Factor</li> </ul> <p>Note: Apart from the above, any other</p>                                                                                                                                                                                                                                                                                                                                       |

|    |                                                                  |                                                                                  |
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|    |                                                                  | requirements/parameters may also be declared as per the standard, as applicable. |
| 3. | परीक्षण उपकरणों की सूची<br>List of Test Equipment                | : Please refer to ANNEX –A                                                       |
| 4. | निरीक्षण और परीक्षण की स्कीम<br>Scheme of Inspection and Testing | : Please refer to ANNEX –B                                                       |
| 5. | एक दिन में संभावित परीक्षण<br>Possible tests in a day            |                                                                                  |

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|    | i. Description<br>ii. Flavour and Taste<br>iii. Free from lumps and extraneous matter<br>iv. Moisture<br>v. Milk Fat<br>vi. Milk protein in milk solids not fat<br>vii. Insolubility Index<br>viii. Total Ash<br>ix. Titratable Acidity<br>x. Scorched Particle<br>xi. Lead<br>xii. Arsenic<br>xiii. Aflatoxin M <sub>1</sub><br>xiv. Melamine |                   |
| 6. | लाइसेंस का दायरा /Scope of the Licence:                                                                                                                                                                                                                                                                                                        |                   |
|    | “Licence is granted to use Standard Mark as per IS 1165: 2022 with the following scope:                                                                                                                                                                                                                                                        |                   |
|    | Name of the product                                                                                                                                                                                                                                                                                                                            | Whole Milk Powder |

**BUREAU OF INDIAN STANDARDS**  
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**ANNEX – A**  
**LIST OF TEST EQUIPMENTS**  
***(INDICATIVE LIST, FOR GUIDANCE ONLY)***

| Sr. No. | Tests used in with Clause Reference | Test equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Moisture, Cl.3. 5 & Table 1         | <p><b><u>Method – 1 as per IS 11623</u></b><br/>Analytical balance (capable of weighing to the nearest 1 mg, with a readability of 0.1 mg), Drying oven as per clause 5.2 of IS 11623, Metal block (provided with channels of diameter 4.3 mm for holding the columns), Copper tubes (of length 1 500 mm, of internal diameter 2 mm), Constant pressure regulator (provided with restrictors, capable of delivering 33 ml/ min <math>\pm</math> 2 ml/min of dry air to each column in the drying oven.), Tube (made of polycarbonate, of length 350 mm, of diameter 40 mm, filled with silica gel with hygrometric indicator), Desiccator, Columns as per clause 5.4 of IS 11623, Synthetic stoppers, Container: suitable for holding the columns, Container: suitable for holding the synthetic stoppers, Rod (made of polyvinyl chloride (PVC), of length 120 mm, of diameter 18 mm), Tweezers, Calibrated airflow meter (suitable for measuring a flow rate of 33 ml/min <math>\pm</math> 2 ml/min), Dry compressed air, Container (provided with an airtight lid)</p> <p><b><u>Method- II as per IS 16072</u></b><br/>Flat-Bottom Moisture Dishes (of stainless steel, glass, nickel, aluminium or porcelain having approximately 50 mm diameter and 25 mm depth) with Lid, Drying Air Oven (thermostatically controlled at 102 <math>\pm</math> 2°C), Desiccator, Bottles with stoppers</p> <p><b><u>Method- II as per ISO 21543</u></b><br/>Ethanol, or another appropriate solvent or detergent mixture, for cleaning re-usable sample containers, Cleaning solutions, Near Infrared (NIR) Instrument as per clause 6.1 of IS 21543, Grinding or grating device</p> |
| 2       | Milk Fat, Cl.3. 5 & Table 1         | <p>Ammonia solution, containing a mass fraction of NH<sub>3</sub> of approximately 25 %, Ethanol (C<sub>2</sub>H<sub>5</sub>OH), or ethanol denatured by methanol, containing a volume fraction of ethanol of at least 94%, Indicator solution (optional), Bromocresol purple solution, Patent blue V, Diethyl ether, free from peroxides, Light petroleum, with any boiling range between 30 °C and 60 °C, Analytical balance (capable of weighing to the nearest 1 mg, with a readability of 0.1 mg), Centrifuge (capable to produce a radial acceleration of around 80g to 90g at the outer end of the flasks or tubes), Distillation or evaporation apparatus, Drying oven (electrically heated, with ventilation port(s) fully open, capable of being maintained at a temperature of 102 °C <math>\pm</math> 2 °C throughout its working space. The oven shall be fitted with a suitable thermometer.), Water bath (capable of being maintained at a temperature of 37,5 °C <math>\pm</math> 2,5 °C, 50 °C <math>\pm</math> 5 °C, 65 °C <math>\pm</math> 5 °C and at boiling point),</p> <p>Fat-extraction flasks:</p> <ul style="list-style-type: none"> <li>○ Mojonnier-type fat-extraction flasks</li> <li>○ Extraction tubes-type fat extraction flask</li> <li>○ Stoppers</li> </ul> <p>Rack, Wash bottle, Fat-collecting vessels, Measuring cylinders or delivering systems, Pipettes or delivering systems, Tongs, Blender, Boiling aids</p>                                                                                                                                                                                                                   |

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| 3  | Milk protein in milk solids not fat, Cl.3. 5 & Table 1 | Potassium sulfate (K <sub>2</sub> SO <sub>4</sub> ) nitrogen free, Copper (II) sulfate pentahydrate solution, Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ), Sodium hydroxide (NaOH) solution, methyl red, ethanol, bromocresol green, Boric acid solution, Hydrochloric acid, Ammonium sulfate, Tryptophan or lysine hydrochloride, Water Bath, Analytical balance, Burette or automatic pipette, Graduated measuring cylinders, Digestion flasks (Kjeldahl), of 500 ml or 800 ml capacities, Boiling aids, e.g. hard pieces of porcelain or high-purity amphoteric alundum (i.e. carbarundum) granules, Digestion apparatus, Distillation apparatus, Digestion block and Digestion tubes, Exhaust manifold, Centrifugal scrubber apparatus or filter pump or aspirator, Distillation unit, Automatic titrator provided with a pH-meter, Filter paper, Illuminated magnetic stirrer plate. |
| 4  | Insolubility Index, Cl.3. 5 & Table 1                  | Thermometer, Water bath, Electronic Balance, Centrifuge, Electric Mixer, Mixing Jar, Interval Timer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 5  | Total Ash (On dry basis), Cl.3. 5 & Table 1            | Muffle Furnace, Desiccator, Weighing Balance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 6  | Titratable Acidity, Cl.3. 5 & Table 1                  | Analytical Balance, Sodium Hydroxide, Nitrogen, pH-meter, Magnetic stirrer, Burette, Measuring cylinder, Conical flask                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 7  | Scorched Particle, Cl.3. 5 & Table 1                   | Balance (approximately 500 g capacity and LC=0.1 g), Mixer, Scorched Particles Filtering Discs, Scorched Particles Discs Test Cards, Scorched Particles Tester, Diglycol laurate S or Antifoam B emulsion, distilled water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8  | Aerobic Plate Count, Cl. 3.5 & Table 2                 | Diluents, Plate Count Agar Medium, Oven, Incubator, Water bath, pH-meter, Petri dishes, Total delivery graduated pipettes, Colony-counting equipment, Tubes, flasks or bottles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 9  | Coliform Count, Cl. 3.5 & Table 2                      | Crystal violet neutral red bile lactose (VRBL) agar, Brilliant green lactose bile broth, Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Incubator, Water bath, Colony-counting equipment, Tubes, flasks or bottles, Durham tubes, pH-meter, Loop of platinum-iridium or nickel-chromium,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 10 | Staphylococcus Aureus, Cl. 3.5 & Table 2               | Diluent, Baird-parker Agar Medium, Potassium Tellurite solution, Egg Yolk Emulsion, Sulfamethazine, Brain-heart infusion broth, Rabbit Plasma, Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Incubator, Drying cabinet or incubator, Water bath, Test tubes, flasks or bottles with screw caps, Petri dishes, Straight wire, Pasteur pipette, Total-delivery graduated pipettes, Spreaders, pH-meter                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 11 | Yeast and Mould count, Cl. 3.5 & Table 2               | Diluent (0.1 % (mass concentration) peptone water broth), Culture medium (Dichloran 18 % (mass concentration) glycerol agar (DG18)), Incubator (capable of operating at 25°C±1°C), Total delivery pipettes, Water bath (capable of operating at 44 °C to 47 °C), pH meter, Bottles, flasks and tubes, Petri dishes (sterile, in glass or plastic, with a diameter 90 mm to 100 mm), Microscope (magnification 250 to 1 000 times)), Spreaders (made of glass or plastic of diameter less than 2 mm and length 80 mm), Binocular magnifier                                                                                                                                                                                                                                                                                                                                                     |

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| 12 | Salmonella, Cl. 3.5 & Table 2                   | Buffered peptone water, Rappaport-Vassiliadis medium with soya (RVS broth) or Modified Semi-solid Rappaport-Vassiliadis (MSRV) agar and Muller-Kauffmann tetrathionate-novobiocin broth (MKTn broth, Xylose Lysine Deoxycholate agar (XLD agar), Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Drying cabinet or oven, Incubator, Water bath, Refrigerator, Freezer, Sterile loops, pH-meter, Sterile tubes, bottles, or flasks, Sterile Petri dishes                                                                                                                                                                               |
| 13 | Listeria monocytogenes, Cl. 3.5 & Table 2       | Acriflavine and nalidixic acid, Fraser broth, Listeria Agar, Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Incubators, Water bath, Sterile loops, pH meter, Graduated pipettes or automatic pipettes, Petri dishes, Microscope, Refrigerator                                                                                                                                                                                                                                                                                                                                                                                        |
| 14 | Bacillus cereus, Cl. 3.5 & Table 2              | Dilution fluid, Agar medium, Polymyxin B solution, Egg yolk emulsion, Complete medium (MYP agar), Sheep blood agar, Defibrinated sheep blood, Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Drying cabinet, Incubator, Water baths, pH-meter, Petri dishes, Graduated pipettes, Spreaders                                                                                                                                                                                                                                                                                                                                           |
| 15 | Sulphite reducing clostridia, Cl. 3.5 & Table 2 | <b><u>Horizontal method for enumeration of sulfite-reducing bacteria growing under anaerobic conditions as per ISO 15213</u></b><br>Iron sulfite agar, Saline peptone diluents, Homogenization equipment, Water bath, Anaerobic jars, Incubator, Test tubes                                                                                                                                                                                                                                                                                                                                                                                                    |
| 16 | E. coli, Cl. 3.5 & Table 2                      | Diluent, Lauryl sulfate broth, EC broth, Peptone water (indole free), Indole reagent (Kovacs' reagent), Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Incubator (capable of operating at 37 °C ± 1 °C and 44 °C ± 1 °C), Water bath (capable of being maintained at 44 °C ± 1 °C), Test tubes, of dimensions approximately 16 mm × 160 mm and 18 mm × 180 mm or 20 mm × 200 mm, Sampling loops, made of platinum/iridium or nickel/chromium, approximately 3 mm in diameter, or approximately 10 µl sterile disposable sampling loops, Durham tubes, Total-delivery pipettes, having nominal capacities of 1 ml and 10 ml, pH-meter |
| 17 | Lead, Cl. 3.7 & Table 3                         | Atomic Absorption Spectrophotometer, Pure Lead Metal, Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Standard Lead Solution, Drying Oven, Filter Papers, General Glasswares                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 18 | Arsenic, Cl. 3.7 & Table 3                      | Atomic Absorption Spectrophotometer, Vapour Generation Kit, Concentrated Hydrochloric Acid, Concentrated Nitric Acid, Concentrated Sulphuric Acid, Potassium Iodide, Sodium Borohydride, Standard Arsenic Solution, Quartz Tube, Burner, Inert Gas Supply, Reaction Vessel, Stopper Assembly, Stirrer, Laboratory Glasswares                                                                                                                                                                                                                                                                                                                                   |

|    |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19 | Aflatoxin M <sub>1</sub> , Cl. 3.7 & Table 3 | <p><b><u>Clean-up by immunoaffinity chromatography and determination by high-performance liquid chromatography method as per ISO 14501</u></b></p> <p>Acetonitrile, pure, HPLC grade, Acetonitrile solution, Nitrogen gas, Aflatoxin M<sub>1</sub> standard solutions, Disposable syringes of capacities 10 ml and 50 ml, Vacuum system, e.g. Büchner flask, Vac-Elut system or peristaltic pump, Centrifuge, Pipettes, Water baths, Filter paper (Whatman No. 42), HPLC apparatus, Reversed phase HPLC analytical column, Fluorescence detector, Spectrophotometer, Analytical balance</p> <p><b><u>Clean-up by immunoaffinity chromatography and determination by thin-layer chromatography method as per ISO 14674</u></b></p> <p>Chloroform, Acetonitrile, Diethyl ether, Methanol, Toluene, Acetone, Isopropanol, Aflatoxin M<sub>1</sub> standard solutions, Volumetric pipettes, Hamilton-like microsyringes, Laboratory glassware, One-mark volumetric flask, Measuring cylinder, Disposable syringes, of capacities 10 ml and 100 ml, Evaporation system, Spectrometer, Water bath, Centrifuge, Filter paper (Whatman No. 42), Analytical balance, Magnetic stirrer, Vortex type stirrer, Oven, Vacuum system, Thin-layer chromatography (TLC) container and plates, UV lamp, Densitometer (optional)</p> |
| 20 | Melamine, Cl. 3.7 & Table 3                  | <p><b><u>Simultaneous quantitative determination of melamine by liquid chromatography electrospray ionization tandem mass spectrometry</u></b></p> <p>Water, Acetonitrile, Ammonium acetate, Melamine and its standard solutions, Conical tubes, Centrifuge, Volumetric pipettes, Automatic micropipette, Nylon syringe filter, Degassing system, Analytical balance, Sonification device, Vials, LC-MS/MS equipment, HPLC Column, One-mark volumetric flasks</p> <p><b>OR</b></p> <p><b><u>Quantitative analysis melamine in milk-based infant formula and cow milk by liquid chromatography using linear ion-trap mass spectrometry</u></b></p> <p>Water, Acetonitrile, Ammonium acetate, Formic acid, Melamine and its standard solutions, Centrifuge tubes, Centrifuge, HPLC Column, Plastic syringes, Syringe filters, HPLC Surveyor MS pump, Analytical balance, One-mark volumetric flasks</p>                                                                                                                                                                                                                                                                                                                                                                                                              |

**Annex-B**  
**TO PRODUCT MANUAL FOR WHOLE MILK POWDER**  
**ACCORDING TO IS 1165:2022**

**SCHEME OF INSPECTION AND TESTING**

1. **LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
  - 1.1. The manufacturer shall prepare and implement a calibration plan for the test equipments.
2. **TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **PACKING, STORAGE AND MARKING** – The Standard Mark, as given in the Schedule of the licence, shall be stenciled with indelible ink or printed on labels applied to the container of Whole Milk Powder, that is being delivered to the customer provided always that material so marked conform to requirements of the specification.
  - 3.1 **Packing and Storage** – The material shall be packed in quantities as per provisions of clause 4 of IS 1165.
  - 3.2 **Marking** – The package of the Whole Milk Powder shall bear legibly and indelibly the information mentioned under clause 5.1 of 1165. In addition, the following details shall be mentioned on each package: -
    - a) BIS Licence No. CM/L -----.
    - b) BIS website details i.e.–“For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)”.
  - 3.3 **REPACKING MATERIAL** – The packing material used in repacking shall be of desired quality so as to avoid any change in the original properties and preclude contamination of the content. Each package/container of the repacking shall be visually examined for soundness of packing and correctness of labels. The product shall be packed as per cl. 4.1 of IS 1165.
4. **CONTROL UNIT** – For the purpose of this scheme, the following shall constitute a control unit:
  - 4.1. In case of packing units: For the purpose of this Scheme, the quantity of Whole Milk Powder manufactured continuously at a time in a period of 24 hours shall constitute a control unit.
  - 4.2. In case of repacking units: For the purpose of this Scheme, each control unit of BIS certified Whole Milk Powder accompanied by the manufacturer's Test Certificate and repacked continuously up to 24 hrs/less than a period of 24 hours shall constitute a control unit.

5. **LEVELS OF CONTROL** – The tests as indicated in column 1 of Table 1 and the levels of control submitted by the manufacturer in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.
- 5.1. All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.
6. **RAW MATERIAL** – Whole Milk Powder shall be the material obtained by partial removal of water from milk. The fat and/or protein content of the milk may be adjusted by addition and/or withdrawal of milk constituents, in such a way, as not to alter the whey protein to casein ratio of the milk being adjusted. All processing and drying should be carried out in a manner that minimizes the loss of nutritive value, particularly protein quality. The product shall be free from added whey and whey preparations
- 6.1 The product may also be obtained by concentrating milk protein by ultrafiltration of milk, partly skimmed milk or skimmed milk. However, the provisions of clause 3.2, 3.3, 3.4, 3.6 of IS 1165: 2022 to be maintained.
7. **HYGIENIC CONDITIONS:** The product shall be manufactured and packed under hygienic conditions, as per provisions of clause 3.8 of IS 1165: 2022.
8. **REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**  
(Recommended Levels of Control by BIS- For Guidance Only)

| (1)<br>Test<br>Details |                                                                                                |                             |                                | (2)                                                                                         | (3)           |                                       |                                                           |
|------------------------|------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------|---------------------------------------------------------------------------------------------|---------------|---------------------------------------|-----------------------------------------------------------|
| Cl.                    | Requirement                                                                                    | Test Methods                |                                | Test equipment<br>requirement<br>R: required<br>(or)<br>S: Sub-<br>contracting<br>permitted | No. of Sample | Levels of<br>Control<br><br>Frequency | Remarks                                                   |
|                        |                                                                                                | Clause                      | Reference                      |                                                                                             |               |                                       |                                                           |
| 3.1                    | Description                                                                                    | 3.1                         | IS 1165                        | R                                                                                           | One           | Every half an hour                    | See note 3 below                                          |
| 3.2                    | Flavour and Taste                                                                              | 3.2                         | -do-                           | R                                                                                           | One           | -do-                                  |                                                           |
| 3.3                    | Free from lumps and extraneous matter                                                          | 3.3                         | -do-                           | R                                                                                           | One           | -do-                                  | See note 3 below                                          |
|                        | Free from vegetable oil/fat, mineral oil, thickening agents, added flavor and sweetening agent | 3.3                         | -do-                           | ---                                                                                         | ---           | ---                                   | Manufacturer to submit declaration / undertaking          |
| 3.5 & Table 1          | Moisture                                                                                       | --                          | IS 11623, IS 16072*, ISO 21543 | R                                                                                           | Two           | Each control unit                     | See note 4 below                                          |
| -do-                   | Total Solids                                                                                   | --                          | -do-                           | R                                                                                           | Two           | -do-                                  | (To be obtained by calculation as per Note under Table 1) |
| -do-                   | Milk Fat                                                                                       | --- & Cl.5 of IS 1224(Pt 2) | IS 19316 & IS 1224 (Pt 2) **   | R                                                                                           | Two           | -do-                                  | See note 4 below                                          |
| -do-                   | Milk protein in milk solids not fat                                                            | --                          | IS 11917                       | R                                                                                           | Two           | -do-                                  | See note 4 below                                          |
| -do-                   | Insolubility Index                                                                             | --                          | IS 12759                       | R                                                                                           | Two           | -do-                                  | See note 4 below                                          |
| -do-                   | Titrateable Acidity                                                                            | ---                         | IS 11765                       | R                                                                                           | Two           | -do-                                  | See note 4 below                                          |
| -do-                   | Total Ash (On dry basis)                                                                       | Annex A                     | IS 1165                        | R                                                                                           | Two           | Each seventh                          | See note 5 below                                          |

|               |                              |     |                            |   |     | control unit      |                  |
|---------------|------------------------------|-----|----------------------------|---|-----|-------------------|------------------|
| -do-          | Scorched Particle            | --- | IS 13500                   | R | Two | Each control unit | See note 4 below |
| 3.5 & Table 2 | Aerobic Plate Count          | --  | IS 5402 (Part-1)           | R | Two | -do-              | See note 4 below |
| -do-          | Coliform Count               | --  | IS 5401 (Pt 1)             | R | Two | -do-              | See note 4 below |
| -do-          | Staphylococcus Aureus        | --  | IS 5887 (Pt 8/Sec 1 or 2)  | S | One | Once in a month   | See note 6 below |
| -do-          | Yeast and Mould count        | --- | IS 16069 (Part 2)          | R | Two | Each control unit | See note 4 below |
| -do-          | Salmonella                   | --- | IS 5887 (Pt 3)             | S | One | Once in a month   | See note 6 below |
| -do-          | Listeria monocytogenes       | --- | IS 14988(Part-1)           | S | One | -do-              | See note 6 below |
| -do-          | Bacillus cereus              | --- | IS 5887(Part-6)            | S | One | -do-              | See note 6 below |
| -do-          | Sulphite reducing clostridia | --- | IS 18349 (Part 1)          | S | One | -do-              | See note 6 below |
| -do-          | E. coli                      | --- | IS 16424                   | S | One | -do-              | See note 6 below |
| 3.7 & Table 3 | Lead                         | --- | IS 12074                   | S | One | -do-              | See note 6 below |
| 3.7 & Table 3 | Arsenic                      | --- | IS 11124                   | S | One | -do-              | See note 6 below |
| 3.7 & Table 3 | Aflatoxin M <sub>1</sub>     | --- | IS 18108 or IS S 18110 (#) | S | One | -do-              | See note 6 below |
| 3.7 & Table 3 | Melamine                     | --- | IS 16195                   | S | One | -do-              | See note 6 below |

\* IS 16072 for routine purpose & IS 11623 for reference purpose.

\*\* IS 1224(Pt 2) for routine analysis & IS 19396 for reference purpose.

# In case of dispute, IS 18110 shall be the referee method.

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification.

Note 3: A sample shall be taken at the packing/repacking stage after every half an hour which shall be examined visually for appearance, colour, absence of lumps and extraneous matter; examined by organoleptic methods for flavour and taste. If the sample does not conform to the specification in any one or more of these requirements, the material manufactured during the half an hour prior to drawl of sample shall either be rejected or reprocessed (in case of packing units only) for its conformity to these requirements of the specification.

Note 4: Two sample shall be drawn from every control unit-one during the first half of the packing period and other during the second half of the packing period. These samples shall be individually tested for moisture, milk fat, Milk protein in milk solids not fat, insolubility index, titratable acidity, Scorched Particle, aerobic plate count, and coliform count. If any one or both the samples fail to conform to anyone or more of these requirements(s) as given in the specification, the entire material of the control unit shall not be marked. The material may, however, be reprocessed (in case of packing units only) and the defect(s) rectified. Such reprocessed material when tested again shall conform to all the requirements of the specification.

Note 5: Two samples from every seventh control unit (starting from a control unit chosen at random) shall be tested for total ash. If any one or both the samples fail to satisfy the requirement, the corresponding control unit shall not be marked. The material in the control unit may however, be reprocessed (in case of packing units only) and the defect rectified. Such reprocessed material when tested again shall conform to all the requirements of the specification. Two samples from every subsequent control unit shall be tested for the characteristic where failure has occurred till seven consecutive control units are found meeting the specification requirements whereupon the original frequency of testing may be resumed.

Note 6: A sample shall be tested every month for *Staphylococcus aureus*, *Salmonella*, *Listeria monocytogenes*, *Bacillus cereus*, *Sulphite reducing clostridia*, *E. coli*, Lead, Arsenic, Aflatoxin M<sub>1</sub> and Melamine. In case of failure of the sample in any one or more of these parameter(s), the root cause of failure shall be investigated, Corrective actions/Preventive be taken and dispatch to be kept on hold. Thereafter, the samples from two consecutive control units shall be tested for the parameter(s) where failure has occurred and once the same has been found to be conforming, original frequency of testing be restored and dispatch resumed.