PRODUCT MANUAL
FOR MILK POWDER ACCORDING TO IS 1165 : 2002

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 licence/certificate.

1.	**Product**	:	IS 1165 : 2002
	Title	:	MILK POWDER
	No. of Amendments	:	02
2.	**Sampling Guidelines:**		
a)	Raw material	:	Not Applicable
b)	Grouping guidelines	:	Not Applicable
c)	Sample Size	:	2 x 500 g
3.	**List of Test Equipment**	:	Please refer ANNEX –A
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX –B
5.	**Possible tests in a day :**		
	(i) Moisture (ii) Insolubility Index (iii) Fat (iv) Total Ash (v) Titratable Acidity		
6.	**Scope of the Licence :**		
	"Licence is granted to use Standard Mark as per IS 1165 : 2002 with the following scope:		
	Name of the product	Milk Powder	

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ANNEX-A
TO PRODUCT MANUAL
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List of Test Equipments

Major test equipment required to test as per the Indian Standard.

Sr. No.	Test Equipment	Tests used in with Clause Reference
1.	Hot Air Oven, Electronic Balance, Dessicator	Moisture, cl.3.4.5 & Table 1
2.	Thermometer, Water bath, Electronic Balance, Centrifuge	Insolubility Index, cl.3.4.5 & Table 1
3.	Butryometer, Centrifuge, Water bath, Balance, Amyl Alcohol, Sulphuric Acid	Fat, cl.3.4.5 & Table 1
4.	Muffle Furnace, Dessicator, Weighing Balance	Total Ash, cl.3.4.5 & Table 1
5.	Weighing Balance, Sodium Hydroxide, Phenolphthalein, Rosaniline Acetate	Titratable Acidity, cl.3.4.5 & Table 1
6.	Bacteriological Incubator, Water Bath, pH meter, Autoclave, Laminar Air flow, Hot air oven, Plate Count Agar	Bacterial Count, cl.3.5.1
7.	Bacteriological Incubator, Water Bath, pH meter, Autoclave, Laminar Air flow, Hot air oven, VRBL Agar	Coliform Count, cl.3.5.2
8.	Bacteriological Incubator, Water Bath, pH meter, Autoclave, Laminar Air flow, Nutrient Broth, Nutrient Agar, Blood Agar, Salt Medium, Baird-Parker Medium, Ethyl Violet Azide Dextrose Broth, MacConkey Agar Medium	Staphylococcus Aureus, cl.3.5.3
9.	Bacteriological Incubator, Water Bath, pH meter, Autoclave, Laminar Air flow, Hot air oven, Buffered - peptone water, RV medium, Selenite/cystina medium, Phenol red/brilliant green agar, Nutrient agar, TSI Agar, Urea Agar, L-Lysine decarboxylation medium, Reagent for detection of beta-galactosidase, Reagents for Voges-Proskauer reaction	Salmonella, cl.3.5.4
10.	Bacteriological Incubator, Water Bath, pH meter, Autoclave, Laminar Air flow, Hot air oven, Nutrient Broth, Kauffmann-Muller's Tetrathionate Broth, Selenite F Broth, Desoxycholate Citrate Agar Medium, MacConkey Agar Medium, Nutrient Agar Medium for Motility Test, Medium for Hugh-Leifson's Test, TSI Medium, Medium for Urease Test, Simmon's Citrate Agar, Medium for Indole Production, Peptone Water Medium, Medium for Dihydrolase and Decarboxylase Activity, Medium for Malonate Test, Gelatin Liquification Test Medium	Shigella, cl.3.5.5

The list above is indicative only and may not be treated as exhaustive

ANNEX- B
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(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 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 stencilled with indelible ink or printed on labels applied to the container of Milk Powder thus provided always that he product so marked conform to every requirements of the specification.

3.1 Marking – The package of 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 container/package:-

a) BIS Licence No. CM/L--------.
b) BIS website details i.e.–"For details of BIS certification please visit www.bis.gov.in".

3.2 Packing and Storage – The material shall be packed and stored as per clause 4.1 and 4.2 of IS 1165.

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 and 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 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 Milk Powder accompanied by the manufacturer 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 – Milk Powder shall be the material prepared by spray drying of standardized milk obtained from fresh cow milk or buffalo milk or a mixture thereof (the standardized milk shall be prepared by adjustment of suitably reprocessed milk solids). The standardized milk shall be free from additives. All processing and drying should be carried out in a manner that minimizes the loss of nutritive value, particularly protein quality.

6.1 For improving the dispersibility of the product, lecithin to a maximum extend of 0.5 percent by mass may be added and declared on the label as per the FSS (Packaging and labelling) Regulations, 2011.

6.1.1 Milk powder may contain added Calcium Chloride, Citric acid, and sodium citrate, sodium salts of orthophosphoric acid and phosphoric acid (as linear phosphates), not exceeding 0.3 percent by mass of the finished product.

6.1.2 Milk powder may contain a maximum of 0.01 percent of butylated hydroxyanisole (BHA) by mass of the finished product.

7. HYGIENIC CONDITIONS – The product shall be manufactured and packed under hygienic conditions as per IS 2491. All the processing equipment should be properly cleaned and care should be taken to prevent infestation.

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
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Methods**			**No. of Sample**	**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-	
3.4.5 & Table 1	Moisture	-	IS 11623 & IS 16072*	R	Two	Each control unit	See note 4 below
-do-	Total Solids	-	-do-	R	Two	-do-	
-do-	Insolubility Index	-	IS 12759	R	Two	-do-	
-do-	Fat	-	IS 11721 & IS 1224 (Pt 2)**	R	Two	-do-	
-do-	Total Ash (On dry basis)	Annex A	IS 1165	R	Two	Every seventh control unit	See note 5 below
-do-	Titratable Acidity	Annex B	IS 1165	R	Two	Each control unit	See note 4 below
3.5.1	Bacterial Count	-	IS 5402	R	Two	-do-	
3.5.2	Coliform Count	-	IS 5401 (Pt 1)	R	Two	-do-	
3.5.3	Staphylococcus Aureus	-	IS 5887 (Pt 2)	S	One	Once in a month	See note 6 below
3.5.4	Salmonella	-	IS 5887 (Pt 3)	S	One	-do-	
3.5.5	Shigella	-	IS 5887 (Pt 7)	S	One	-do-	

* IS 16072 for routine purpose & IS 11623 for reference purpose.
** IS 1224(Pt 2) for routine analysis & IS 11721 for reference purpose.

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 empanelled 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, scorched particles, 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 drawal 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, total solids, insolubility index, fat, titratable acidity, bacterial 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 I 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 absence of *Staphylococcus aureus, Salmonella,* and *Shigella*. In case of failure of the sample in any one or more of these characteristics the corresponding control unit shall not be marked and two samples from every subsequent control unit shall be tested for the characteristic (s) where failure has occurred, till five consecutive control units are found meeting the specification requirement (s) whereupon the original frequency of testing may be resumed.