



**PRODUCT MANUAL
FOR DAIRY WHITENER ACCORDING TO IS 12299 : 1998**

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 12299 : 1998
	Title	:	Dairy Whitener - Specification
	No. of Amendments	:	02
2.	Sampling Guidelines:		
a)	Raw material	:	NA
b)	Grouping guidelines	:	Not Applicable
c)	Sample Size	:	2 × 500 gm in original packing.
3.	List of Test Equipment	:	Please refer ANNEX – <u>A</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	Possible tests in a day:		
	i. Description ii. Flavour and Taste iii. Moisture iv. Milk Solids (Non-fat) v. Insolubility Index vi. Total Ash vii. Milk Fat viii. Total added sugar		
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 12299 : 1998 with the following scope:		
	Name of the product	:	Dairy Whitener

ANNEX - A
TO PRODUCT MANUAL
FOR DAIRY WHITENER ACCORDING TO IS 12299 : 1998

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

Sl. No.	Test Equipment	Tests used in with Clause Reference
1.	Bacteriological Incubator capable of operating at 30 ⁰ C ± 1 ⁰ C, Petri dishes, Thermostatic Water Bath- capable of operating at 44 °C to 47 °C, pH meter-having an accuracy of calibration of ± 0,1 pH unit at 25 °C, Autoclave capable of maintaining 121 ⁰ C, Hot air oven, Plate Count Agar, colony counter, Refrigerator, Test tubes, flasks or bottles, of appropriate capacity and not greater than 500 ml, Plate Count Agar.	Colony Count Cl 5.5.1 (IS 5402)
2.	Incubator, capable of operating at 30 ⁰ C ± 1 ⁰ C or 37 ⁰ C ± 1 ⁰ C, Petri dishes, Total-delivery pipettes, Water bath- capable of operating at 44 °C to 47 °C, Colony-counting equipment, Test tubes, Durham Tubes, Bottles or Flasks for boiling and storage of culture media, pH meter- having an accuracy of calibration of ± 0,1 pH unit at 25 °C, Apparatus for dry sterilization (oven) or wet sterilization (autoclave), Loop, VRBL Agar, Brilliant green lactose bile broth.	Coliform Count Cl 5.5.2 {IS 5401 (Part 1)}
3.	Sterile blender jar or mortar, Bacteriological Incubator - capable of operating at 30 ⁰ C ± 1 ⁰ C, Nutrient broth, nutrient agar, MacConkey broth, MacConkey agar, Eosin Methylene Blue Lactose Agar, peptone, Tergitol-7 Agar, Gram's Stain, Nutrient agar, TSI medium, Methyl Red, Reagents for Voges-Proskauer reaction, Simmon's Citrate Agar, peptone water, Kovac's reagent, sodium chloride, Water Bath (44 to 47°C), pH Meter, Colony Counter, Laminar Air Flow, Analytical Balance, Refrigerator.	E. coli Cl 5.5.2 {IS 5887 (Part 1)}
4.	Reference method Analytical balance (0-200 mg, LC-0.01 mg), Drying oven, metal block, copper tubes, constant pressure regulator, polycarbonate tube (filled with silica gel with hydrometric indicator), Desiccator, Columns, synthetic stoppers, Container (suitable for holding the columns), Container (suitable for holding the synthetic stoppers), Polyvinyl chloride (PVC) rod, Tweezers, Soap-film meter, Dry compressed air, Glass container with lid. Routine method	Moisture Cl 5.6, Table 1 (IS 11623 for reference purpose and IS 16072 for routine purpose)

	Flat-Bottomed moisture dishes with cover (of stainless steel, glass, nickel, aluminium or porcelain), drying oven, Desiccator, bottles (with tight fitting stoppers)	
5.	Silicon antifoaming agent Thermometers for measuring 24°C and 50°C, error +0.2°C max, Water bath, upto 100°C, LC 0.1°C Scoop Analytical balance LC 0.01g Electric mixer Interval timer Centrifuge with Centrifuge tubes Siphon fitting or suction tube attached to water pump Scoop Camel hair brush Stirring rod Magnifying glass, measuring cylinder, stop watch, pump.	Insolubility Index CI 5.6, Table 1 (IS 12759)
6.	Flat-bottom dish (of stainless steel, porcelain, silica or platinum), muffle furnace, desiccator, drying oven, Analytical balance (0-200 mg, LC-0.01 mg), Heating mantle.	Total ash (on dry basis) CI 5.6, Table 1 (Annex B of IS 14433)
7.	Ammonia solution, Ethanol, Congo red solution, Diethyl ether, Light petroleum with any boiling range between 30 °C and 60 °C, pentane with a boiling point of 36 °C, Analytical balance, capable of weighing to the nearest 1 mg, with a readability of 0,1 mg, Centrifuge, capable of holding the fat-extraction flasks or tubes and capable of spinning at a rotational frequency of 500 min ⁻¹ to 600 min ⁻¹ to produce a radial acceleration of 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 ± 2 °C throughout its working space, Water bath, capable of being maintained at a temperature of 65 °C ± 5 °C, Mojonnier-type fat-extraction flasks, Rack, for holding the fat-extraction flasks, Wash bottle, suitable for use with the mixed solvent, Fat-collecting vessels, such as boiling flasks (flat-bottomed), of capacities 125 ml to 250 ml, conical flasks, of capacity 250 ml, or metal dishes, Boiling aids, fat-free, of non-porous porcelain or silicon carbide, Measuring cylinders, of capacities 5 ml and 25 ml, Pipettes, graduated, of capacity 10 ml, Tongs, Volumetric flask, one-mark, of capacity 100 ml.	Milk Fat CI 5.6, Table 1 (IS 11721)
8.	Flat-bottom dish (of stainless steel, porcelain, silica or platinum), muffle furnace, desiccator, drying oven, Analytical balance(0-200 mg, LC-0.01 mg), dilute Hydrochloric acid, watch glass, water bath, Whatman filter paper No. 42	Acid insoluble ash CI 5.6, Table 1 (Annex C of IS 14433)
9.	Reference method (Polarimetric method) Polarimeter, mercuric nitrate solution, 0.5 N sodium hydroxide solution, Hydrochloric acid, volumetric flasks of varying capacities, filter paper, pipette, litmus paper	Total added sugar (as sucrose) CI 5.6, Table 1 (Annex C of IS 4079)

	Routine method [Volumetric (Lane-Eynon) method] 0.1 N sodium hydroxide, sucrose, watch glass, concentrated Hydrochloric acid, litmus paper, methylene blue indicator solution, copper sulphate, concentrated sulphuric acid, potassium sodium tartarate (Rochelle salt), zinc acetate solution, potassium ferrocyanide solution, concentrated ammonia solution, acetic acid solution	
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The above list is indicative only and may not be treated as exhaustive.

*The list does not cover Salmonella and Staphylococcus aureus as these parameters are to be tested from outside approved lab.

ANNEX - B

**SCHEME OF INSPECTION AND TESTING
FOR DAIRY WHITENER ACCORDING TO IS 12299 : 1998**

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 AND MARKING — The Standard Mark, as given in the Schedule of the licence, shall be marked on the containers of Dairy Whitener provided always that the product in each container to which this mark is thus applied, conform to every requirements of the specification.

3.1 Marking – The material shall be marked as per the provisions of the Indian Standard. In addition, the following details shall be mentioned on each container legibly and indelibly:

- a) In case of flexible pack, the following information shall be marked on the label:
“Once opened, the entire product content should immediately be placed in a clean air-tight container.”
- b) BIS Licence No.CM/L_____
- c) 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 6.1 of IS 12299.

4. CONTROL UNIT – For the purpose of this Scheme, the entire quantity of dairy whitener manufactured continuously at a time in 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 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. HYGIENIC CONDITIONS - The material shall be manufactured, packed, stored and distributed under hygienic conditions (See IS 2491). All the processing equipments should be properly cleaned and care should be taken to prevent infestation.

7. 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 Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Description	4	IS 12299	R	One	Every half an hour	See Note 3
5.3	Flavour and Taste	5.3	IS 12299	R	One	-do-	-do-
5.5.1	Bacterial Count	-	IS 5402	R	One	Each control unit	See Note 4
5.5.2	Coliform Count	-	IS 5401 (Part 1)	R	One	-do-	-do-
5.5.2	E Coli	-	IS 5887 (Part 1)	R	One	-do-	-do-
5.5.2	Staphylococcus aureus	-	IS 5887 (Part 2)	S	One	Once in a month	See Note 5
5.5.3	Salmonella	-	IS 5887 (Part 3)	S	One	Once in a month	-do-
5.6 & Table 1	Moisture	-	IS 16072 (Routine purpose) & IS 11623 (Reference purpose)	R	One	Every half an hour	See Note 3
-do-	Milk Solids (non-fat)	-	By Calculation	R	Two	-do-	See Note 7
-do-	Insolubility Index	-	IS 12759	R	Two	-do-	-do-
-do-	Total Ash (on dry basis)	Annex B	IS 14433	R	One	4th Control Unit	See Note 6
-do-	Acid Insoluble ash	Annex C	IS 14433	R	One	4th Control Unit	-do-
-do-	Milk Fat	-	IS 11721	R	Two	Each control unit	See Note 7
-do-	Total added sugar	Annex C	IS 4079	R	Two	Each control unit	-do-

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 for approval by BO Head.

Note 3: Sample shall be taken at the packing stage after every half an hour which shall be examined visually for appearance, colour, scorched particles, absence of lumps and extraneous matter; added colours and examined by organoleptic methods for flavour and taste; and analyzed for moisture content. 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 for its conformity to these requirements of the specification.

Note 4: One sample from every control unit shall be tested for the requirements of bacterial count, coliform count, E. coli, as laid down in the specification. If it fails, the entire quantity of the material in the control unit shall be considered unfit for the purpose of marking and the material shall be rejected.

Note 5: A sample shall be tested once a month for the absence of Staphylococcus aureus and Salmonella. In case of failure of the sample in any once 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 control units are found to meet specified requirements whereupon the original frequency of testing may be resumed. The requirement for salmonella may be tested in an independent laboratory.

Note 6: One sample from every fourth control unit shall be tested for Total ash and acid insoluble ash. In case if failure of the sample in either of these requirements the control unit shall be considered unfit for the purpose of marking. The control unit may however be reprocessed and the defect(s) rectified. Such reprocessed material when tested again, shall conform to all these requirements before it is considered fit for marking. All subsequent control units shall tested for these requirements till five consecutive control units tested conforms to these requirement of the specification, whereupon the original frequency of testing may be resumed.

Note 7: Two samples 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 total solids, insolubility index, milk fat, total added sugar. If any one or both the samples fail to conform to anyone or more of these requirement (s) as given in the specification, the entire material in the control unit shall not be marked. The material may, however, be reprocessed and the defect(s) rectified. Such reprocessed material when tested again shall conform to all the requirements of the specification.