PRODUCT MANUAL
FOR CHAKKA AND SHRIKHAND
ACCORDING TO IS 9532 : 1980

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 9532 : 1980
	Title	:	Specification for Chakka and Shrikhand
	No. of Amendments	:	Nil
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	All ingredients used in preparation of chakka and shrikhand shall be as per clause 3.1 and 3.2 of IS 9583.
b)	**Grouping guidelines**	:	Not Applicable
c)	**Sample Size**	:	2 × 500 g in original packaging.
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:**		
	Chakka: i. Appearance and colour ii. Odour and Flavour iii. Texture and Consistency iv. Milk fat (on dry basis) v. Milk protein (on dry basis) vi. Titratable acidity vii. Total ash		
6.	**Scope of the Licence:**		
	"Licence is granted to use Standard Mark as per IS 9532 : 1980 with the following scope:		
	Name of the product	Chakka/Shrikhand as applicable	

ANNEX - A
TO PRODUCT MANUAL
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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.	**Method 1 (Routine analysis method)** Flat-Bottomed Dishes of appropriate material (stainless steel, nickel or aluminium) Quartz sand or sea sand - which passes through 500-micron IS Sieve and is retained by 180-micron IS Sieve Well-Ventilated Oven (capable of being maintained at 102 $\pm$ 1 degree C) Analytical balance (0-200 grams/0.1 mg) Desiccator Boiling water bath Water bath capable of being controlled at 30° to 40° C. Short Glass Stirring rods Hydrochloric acid Distilled water **Method 2 (In case of dispute)** By calculation	Total solids Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2
5.	Analytical balance (capable of weighing to the nearest 1 mg, with a readability of 0,1 mg), Centrifuge (capable of spinning at a rotational frequency of 500 min−1 to 600 min−1), 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), water bath (capable of being maintained at a temperature of between 30 °C and 40 °C, and 40 °C and 60 °C), Mojonnier-type fat-extraction flasks, rack, wash bottle, 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, measuring cylinders, pipettes, tongs, 100 ml one-mark volumetric flask. Ammonia solution, Ethanol or ethanol denatured by methanol, Congo red solution, Diethyl ether (free from	Milk fat on dry basis Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2

	peroxides), Light petroleum, (with any boiling range between 30 °C and 60 °C) or as equivalent pentane (with a boiling point of 36 °C.), mixed solvent (equal volumes of diethyl ether and light petroleum).	
6.	Kjeldahl flasks 500 ml to 800 ml Heating mantle, Boiling chips Distillation assembly as per Fig 1 of IS 7219 Weighing balance (capable of weighing to the nearest 1 mg, with a readability of 0,1 mg), Erlenmeyer flask-500 ml. Concentrated sulphuric acid (nitrogen free) Mercuric Oxide or Metallic Mercury or Copper(II) Sulphate Pentahydrate (nitrogen free) Potassium Sulphate or Anhydrous Sodium Sulphate (nitrogen free) Zinc Granules Potassium sulphide or hydrated sodium thiosulphate Sodium Hydroxide (nitrogen free) Hydrochloric or Sulphuric Acid, Standard Solution - 0.1 or 0.5 N Methyl Red Indicator paraffin or silicon antifoam	Milk protein on dry basis Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2
7.	Weighing balance (0-200 grams/0.1 mg) Sodium Hydroxide solution - approximately 0.1 N Phenolphthalein indicator solution	Titratable acidity Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2
8.	**Routine method (Polarimetric method)** Analytical balance (capable of weighing to the nearest 0,01 g), Glass beaker-100ml, Volumetric flasks- 50 ml and 200 ml, graduated pipettes of varying capacities, graduated measuring cylinders-25 ml, filter funnel (of diameter 8 cm to 10 cm, and folded medium-grade), filter paper (of diameter 15 cm), polarimeter tube (exactly 2 dm long), Polarimeter or saccharimeter, Thermostatic water baths, Zinc acetate solution, Potassium hexacyanoferrate(II) solution, Dilute hydrochloric acid, Ammonium hydroxide solution, Dilute acetic acid, **Reference method [Volumetric (Lane-Eynon) method]:** Sodium hydroxide solution -0.1 N, Sucrose, watch glass, Volumetric flask-1 litre, concentrated Hydrochloric acid, litmus paper, methylene blue indicator solution, copper sulphate, concentrated sulphuric acid, potassium sodium tartarate (Rochelle	Sugar Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2

	salt), Sodium hydroxide, zinc acetate solution, potassium ferrocyanide solution, Concentrated Hydrochloric acid, Concentrated ammonia solution, acetic acid solution, Burette-50 ml, Pipette, Flask-300 ml, Heating arrangement, wire gauze.	
9.	Flat-bottom dish (of stainless steel, porcelain, silica or platinum), Muffle Furnace (capable of maintaining a temperature of 550 $\pm$ 20°C), Desiccator, Drying Oven, Analitical Balance (0-200 grams/0.1 mg).	Total ash (on dry basis) Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2
10.	Bacteriological Incubator (capable of operating at 30°C $\pm$ 1°C or 37°C $\pm$ 1°C), Water Bath (capable of operating at 44°C to 47°C or at 100°C), pH meter, Autoclave, Hot air oven, Test tubes, Durham tubes, Bottles or flasks, Loop, VRBL Agar, Brilliant green lactose bile broth, colony counter, Refrigerator.	Coliform count Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2
11.	Bacteriological Incubator (Capable of being maintained at 25 $\pm$ l°C**.)**, Water Bath (Capable of being maintained at 45 $\pm$ 1°C), pH meter, Autoclave (capable of operating at 121 $\pm$ 1 °C, Hot air oven (capable of operating at 170 to 175°C), Temperature Compensated pH Meter (having an accuracy of calibration of $\pm$ 0.1 pH unit at 25°C, Culture Bottles or Flasks, Graduated Pipettes, Petri dishes, Yeast Extract-Destmse-Chloramphenicol-Agar medium.	Yeast and Mould count Cl 3.1.6, Table 1 & Cl 3.2.6, Table 2

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

ANNEX – B

SCHEME OF INSPECTION AND TESTING FOR CHAKKA AND SHRIKHAND ACCORDING TO IS 9532 : 1980

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 container of Chakka and Shrikhand or printed on the labels applied to it, as the case may be, provided always that material so marked conform to requirements of the specification.

3.1 Packing – All the material used for wrapping or packaging the Chakka and Shrikhand shall be of such a nature as to impart no off-flavour or odour, nor in any other way contaminate the product packed under normal conditions of manufacture, storage and use.

3.2 Marking – The containers of Chakka and Shrikhand shall be done as per the provisions of the Indian Standard. In addition, the following shall be incorporated on each container:

a) BIS Licence Number CM/L_____.
b) BIS website details i.e. -"For details of BIS certification please visit **www.bis.gov.in**".

4. CONTROL UNIT – For the purpose of this scheme, all the curd broken and Chakka collected at a time shall constitute a control unit. The entire quantity of Shrikhand 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 & Table 2 and the levels of control in column 3 of Table 1 & Table 2 respectively, 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 – A sample of milk shall be taken from each tank of the standardized milk and tested for acidity and fat content. The milk shall be free from adulterants, preservatives and any matter foreign to milk. The fat percentage of milk other than skimmed milk and reconstituted skimmed milk shall be such that the final product conform to the requirements given in Table 1 of IS 9532. Only the tank loads of milk found to be satisfactory in these requirements shall be used in the manufacture of chakka. Records of all these tests shall be maintained.

6.1 The sugar used in the manufacture of shrikhand should preferably conform to IS 5982. Other ingredients used in preparation of chakka and shrikhand shall be as per clause 3.1 and 3.2 of IS 9583.

7. 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**.**

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 FOR CHAKKA

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Method Cl. Ref.**	**Test Method IS**		**No. of Sample**	**Frequency**	**Remarks**
3.1.1.1	Signs of fat, water seepage or both in Chakka	3.1.1.1	IS 9532	R	One	Every Control Unit	-
3.1.2	Appearance and Colour	3.1.2	-do-	R	One	-do-	-
3.1.3	Odour & Flavour	3.1.3	-do-	R	One	-do-	-
3.1.4	Texture & Consistency	3.1.4	-do-	R	One	-do-	-
3.1.6 & Table 1	Total Solids	Appendix B	IS 1166	R	One	-do-	-
3.1.6 & Table 1	Milk Fat (on dry basis)	-	IS 11762	R	One	-do-	As referred in Appendix B-2.1 of IS 1166
3.1.6 & Table 1	Milk Protein (on dry basis)	-	IS 7219	R	One	-do-	-
3.1.6 & Table 1	Titratable acidity	Appendix D	IS 1166	R	One	-do-	-
3.1.6 & Table 1	Total Ash	Annex B	IS 14433	R	One	Composite sample of one day's production	
3.1.6 & Table 1	Coliform Count	-	IS 5401 (Part 1)	R	One	Every Control Unit	-
3.1.6 & Table 1	Yeast & Mould count	-	IS 5403	R	One	-do-	-

TABLE 2
LEVELS OF CONTROL FOR SHRIKHAND

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Method Cl. Ref.**	**Test Method IS**		**No. of Sample**	**Frequency**	**Remarks**
3.2.1	General requirements	3.2.1, 3.2.1.1 & 3.2.1.2	IS 9532	R	One	Every Control Unit	-
3.2.2	Appearance and colour	3.2.2	-do-	R	One	-do-	-
3.2.3	Odour & Flavour	3.2.3	-do-	R	One	-do-	-
3.2.4	Texture & Consistency	3.2.4	-do-	R	One	-do-	-
3.2.6 & Table 2	Total Solids	Appendix B	IS 1166	R	Two	-do-	-
3.2.6 & Table 2	Milk Fat (on dry basis)	-	IS 11762	R	One	-do-	As referred in Appendix B-2.1 of IS 1166
3.2.6 & Table 2	Milk Protein (on dry basis)	-	IS 7219	R	Two	Every Tenth Control Unit	See Note 3
3.2.6 & Table 2	Titratable acidity	Appendix D	IS 1166	R	Two	Every Control Unit	-
3.2.6 & Table 2	Sugar	Appendix C	IS 1166	R	One	-do-	-
3.2.6 & Table 2	Total Ash	Annex B	IS 14433	R	One	-do-	-
3.2.6 & Table 2	Coliform Count	-	IS 5401	R	One	-do-	-
3.2.6 & Table 2	Yeast & Mould count	-	IS 5403	R	One	-do-	-

Note-1: Levels of control given in column 3 of Table 1 & Table 2 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-2 : Whether test equipment is required or sub-contracting is permitted in column 2 of Table 1 & Table 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 -3 : In case any one or both the samples fail, the entire control unit represented by the sample(s) shall not be marked. The control unit may be reprocessed suitably to rectify the defect and shall be tested again for conformity to all the requirements before it is marked. Two samples from every subsequent control unit shall be tested until three consecutive units are satisfactory where upon the original frequency of two samples from every tenth control unit shall be resumed.