उत्पाद मानयल
टैपिओका सागो (साबूदाना) - विशिष्टि

IS 899:2022 के अनसार

PRODUCT MANUAL
FOR TAPIOCA SAGO (SABOODANA)
ACCORDING TO IS 899: 2022

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 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.	**उत्पाद** **Product**	:	IS 899 : 2022
	शीर्षक **Title**	:	TAPIOCA SAGO (SABOODANA)
	संशोधनों की संख्या **No.of amendments**	:	01
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	a) Tapioca Sago shall be made from Starch obtained from sound tubersof tapioca, free from any fungal or bacterial contamination, as per provisions of Clause 4.2 of IS 899:2022. b) In case of addition of pesticide residue, the manufacturer is required to submit declaration/undertaking in compliance to Cl. 4.5 of IS 899:2022
b)	**समूहीकरण दिशानिर्देश** **Grouping Guidelines**	:	कृपया Annex-ए देखें Please see ANNEX - A
c)	**नमूने का आकार** **Sample Size**	:	100 g
3.	**परीक्षण उपकरणों की सूची List of Test Equipment**	:	कृपया Annex- बी देखें Please see Annex – B

4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	कृ पया Annex- C देखें Please see Annex – C
5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day** : All tests		
	i. Description (for end product), Cl. 4.1 ii.Visual Examination of Raw Material, Cl. 4.2 iii. Dirt & Other Extraneous Matter, Cl. 4.3 iv. Gelatinization, Cl. 4.4 v. Moisture, Cl. 4.7 and Table 1 vi. Total Ash (dry basis), Cl. 4.7 and Table 1 vii. Acid insoluble Ash(dry basis), Cl. 4.7 and Table 1 viii. Starch (dry basis), Cl. 4.7 and Table 1 ix. Protein (dry basis), Cl. 4.7 and Table 1 x. Sulphur dioxide, Cl. 4.7 and Table 1 xi. Crude Fibre (dry basis), Cl. 4.7 and Table 1 xii. pH of Aqueous Extract, Cl. 4.7 and Table 1 xiii. Colour, Cl. 4.7 and Table 1 xiv. Hydrocyanic Acid, Cl. 4.7 and Table 1 (*if the manufacturer is having inhouse test facilities*)		
6.	**लाइसेंस का दायरा / Scope of the Licence**:		
	Licence is granted to use Standard Mark as per IS 899: 2022 with the following scope:		
	उत्पाद का नाम **Name of the product**		Tapioca Sago (Saboodana)
	प्रकार **Grade**		a) Special; and/or b) Standard; and/or c) General

ANNEX A
TO THE PRODUCT MANUAL FOR TAPIOCA SAGO (SABOODANA) ACCORDING TO IS 899: 2022
GROUPING GUIDELINES

1. Tapioca Sago (Saboodana) have been classified into following 3 grades (clause 3):

Sl. No.	Grades
i.	Special
ii.	Standard
iii.	General

2. The manufacturer shall declare the Grade of Tapioca Sago (Saboodana), they intend to cover in the scope of licence.

3. If the manufacturer has applied for 'Special Grade' and the product is confirming to the requirements of 'Special Grade' as per IS 899:2022, 'Standard Grade' and 'General Grade' may also be included in his scope of licence.
   Also, if a manufacturer has applied for 'Standard Grade' and the product is confirming to the requirements of 'Standard Grade' as per IS 899:2022, 'General Grade' may also be included in his scope of licence.

4. It shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the Grades to be included in the licence.

5. During the operation of licence, BO shall ensure that all the Grades of Tapioca Sago (Saboodana), covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX-B

TO PRODUCT MANUAL
FOR TAPIOCA SAGO (SABOODANA)
ACCORDING TO IS 899: 2022

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sl No.	Tests used in with Clause Reference	Test Equipment
1.	Dirt & Other Extraneous Matter, Cl. 4.3	Beaker(250 ml), Glass rod
2.	Gelatinization Cl 4.4	Analytical Balance, 200ml Conical Flask, Measuring Jar, Water Cooled Condenser, Wire Gauge, Heating Mantle, Bunsen burner, 850 micron IS sieve, porcelain dish, water bath, hot air oven-capable of operating at 110+2^{o}C.
3.	Moisture Cl 4.7 & Table 1	**Method I:** Hot air oven-capable of operating at 100 to 110°C, wide mouth glass weighting bottle, Desiccator, Analytical balance. **Method II (Oven Drying Method):** Metal dish, Electrical oven- capable of operating at 130 to 130 ^{o}C, Analytical balance, weighing dish.
4.	Total ash (dry basis) Cl 4.7 & Table 1	Analytical balance, Platinum or porcelain or silica dish, burner, muffle furnace-capable of operating at 550 $\pm$ 25°C.
5.	Acid insoluble ash (dry basis) Cl 4.7 & Table 1	Concentrated hydrochloric acid, watch glass, Wattman Filter paper number 42, muffler furnace-capable of operating at 550 $\pm$ 20°C, hot air oven-capable of operating at 105 to 110°C.
6.	Starch (dry basis) Cl 4.7 & Table 1	**Acid hydrolysis method:** Ethyl ether , Ethyl alcohol, dilute hydrochloric acid, sodium carbonate solution, stock solution of dextrose, standard dextrose solution, methylene blue indicator solution, Fehling's solution (Soxhlet modification), Copper Sulphate, Rochelle Salt, Sodium Hydroxide, Burette, Filter Paper, Reflux Condenser.
7.	Protein (dry basis) Cl 4.7 & Table 1	Kjeldahl flask, Digestion stand, Distillation Steam Distillation apparatus, Burette, Mechanical Grinder or Mortar, Sieve (0.6 mm), Conc, Sulphuric Acid, Sodium Hydroxide solution, Boric Acid, Compound catalyst, Standard Sulphuric acid, Indicator (methyl red, methylene blue, ethyl alcohol), brown glass bottle

8.	Sulphur dioxide Cl 4.7 & Table 1	**Method I (Referee method):** Hydrogen peroxide, sulphuric acid, sodium hydroxide solution, , sulphur dioxide apparatus, boiling flask, gas inlet tube, dropping funnel, delivery tube, receiver, gas-washing bottle, burette, carbon dioxide, concentrated hydrochloric acid, sodium carbonate solution, hydrogen peroxide, standard sodium hydroxide solution, bromophenol blue indicator. **Method II (Routine method):** Sulphuric acid, sodium hydroxide, iodine solution, starch solution indicator, distilled water
9.	Crude fibre (dry basis) Cl 4.7 & Table 1	Dilute sulphuric acid, Sodium Hydroxide Solution, Petroleum ether, Soxhlet apparatus, reflux condenser, filtering cloth, Gooch Crucible, Ignited Asbestos
10.	pH of aqueous extract Cl 4.7 & Table 1	Electrodes and potentiometric equipment, conical flask, buffer solutions (4.5 to 7), Analytical balance.
11.	Colour of gelatinized alkaline paste Cl 4.7 & Table 1	Lovibond tintometer, porcelain cuvette, reagent, Sodium Hydroxide Solution, 250-micron IS Sieve, Analytical balance.
12.	Hydrocyanic Acid Cl 4.7 & Table 1	Mechanical grinding mill, Sieve with 1 mm aperture, weighing balance, volumetric flask, pipette 100 ml capacity, steam distillation apparatus, Sodium Hydroxide, Ammonia, Potassium Iodide Solution, Silver Nitrate Standard Solution, Linamarase solution, Distillation Apparatus.
13.	Preparation of material Cl 7.3 of IS 899	Mortar and Pestle, Weighing Balance, 250 Micron IS Sieve, Stopper Glass Bottle.

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

ANNEX C
SCHEME OF INSPECTION AND INSPECTION
FOR TAPIOCA SAGO (SABOODANA)
ACCORDING TO IS 899 :2022

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 inthe specification.

1.1 The manufacturer shall prepare and implement a calibration plan for the test equipment.

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 Schedule of the licence shall be stenciled/printed on each container (bags, pouches etc.) of Tapioca Sago (Saboodana) or printed on the labels applied to the container(bags, pouches etc.), provided always that the material to which this mark is thus applied conforms to every requirement of the specification.

3.1 **Packing** – The material shall be packed in suitable form of packing as per provisions of Clause 5.1. of IS 899:2022. However, the container shall be free from any insect infestation or fungus contamination and also free from any undesirable or obnoxious smell.

3.2 **Marking** – The containers of the product shall bear legibly and indelibly the information as mentioned under clause 5.2.1 of IS 899:2022. In addition, the following details shall be mentioned on each container:
a) BIS Licence No. 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, the entire quantity of the same grade of Tapioca Sago (Saboodana) manufactured and filled continuously in a day 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. **HYGEINIC CONDITIONS** – The product shall be manufactured and packed under strict hygienic conditions as per provisions of IS 2491, cross-referred in clause 4.6 of IS 899: 2022.

7. **REJECTION-** 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)
(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required(or) S: Sub-contracting permitted**	**Levels of Control**		
Clause	**Requirements**	**Test Method Cl. Ref.**	**Test Method IS**		**No. of Samples**	**Frequency**	**Remarks**
4.1	Description	4.1	IS 899	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
4.2	Visual Examination of Raw Material	4.2	IS 899	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
4.3	Dirt & Other Extraneous Matter	6	IS 4706 (Part 1)	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
4.4	Gelatinization	8	IS 4706 (Part 1)	R	One	Each Control Unit	See Note 4 below
4.7 & Table 1	Moisture	4	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Total Ash (dry basis)	5	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Acid Insoluble Ash(dry basis)	8	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Starch(dry basis)	9	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Sulphur Dioxide	11	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Crude Fibre (dry basis)	12	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	pH of Aqueous Extract	13	IS 4706 (Part 2)	R	-do-	-do-	See Note 4 below
4.7 & Table 1	Protein (dry basis)	10	IS 4706 (Part 2)	R	-do-	Every 7th Control Unit	See Note 5 below
4.7 & Table 1	Colour	9	IS 4706 (Part 1)	R	-do-	Every 7th Control Unit	See Note 5 below
4.7 & Table 1	Hydrocyanic Acid	Annex A	IS 899	S	-do-	Once in a month	See Note 6 below

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 hisown levels of control in column 3 with proper justification for approval by BO Head.

Note-3: In case the production is started after the shutdown of the plant, for more than a week time for any reason, it shall be ensured, before packing and dispatching the material with Standard Mark, that the material is tested and found for conforming to all the requirements of the specification.

Note-4: One sample shall be tested from each control unit before packing and tested for Gelatinization, Moisture, Total ash, Acid insoluble ash, Starch, Sulphur dioxide, Crude fibre and pH of aqueous extract. If the sample fails in any one or more of these requirements as given in the specification, the entire material in the control unit shall notbe marked. The material may, however, be reprocessed and the defect(s) rectified. Such re-processed material when tested again shall conform to all the requirements of the specification.

Note-5: One sample from every seventh control unit (starting from a control unit chosen at random) shall be tested for Protein and Colour on Lovibond scale. If the sample fails to satisfy the requirements, the corresponding control unit, shall not be marked. The material in the control unit may, however, be reprocessed and the defect(s) rectified. Suchre-processed material when tested again shall conform to all the requirements of the specification. One sample from every subsequent control unit shall be tested for Protein and Color on Lovibond scale until seven consecutive control units are found meeting the specification requirement, whereupon the original frequency of testing may be resumed.

Note-6: One sample in a month shall be tested for Hydrocyanic acid. In case of failure of any sample, the corresponding control unit shall not be marked, the same may however be reprocessed and the defect(s) rectified. Two samples from subsequent two batches shall be tested. The original frequency shall be resumed in case they are found meeting the requirements.