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उत्पाद मैनुअल
सत्तू
IS 16892:2018 के अनुसार

PRODUCT MANUAL FOR
SATTU
ACCORDING TO IS 16892:2018

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 16892:2018
	शीर्षक **Title**	:	SATTU
	संशोधनों की संख्या **No. of Amendments**	:	01
2.	**नमूना दिशानिर्देश** **Sampling Guidelines:**		
a)	**कच्चामाल** **Raw material**	:	Single or combination of clean, washed, dried and sound grains of maize, gram, barley, wheat conforming to mandatory requirements under the provisions of the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011 (For compliance of ingredients, supplier's certificate or manufacturer's declaration/undertaking shall be obtained)
b)	**समूहीकरण दिशानिर्देश** **Grouping guidelines**	:	NIL
c)	**नमूने का आकार** **Sample Size**	:	500gm * 2

3.	**परीक्षण उपकरणों की सूची List of Test Equipment**	:	कृपया Annex-A देख Please refer ANNEX –A
4.	**निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing**	:	कृपया Annex-B देख Please refer ANNEX –B
5.	**एक दिन में संभावित परीक्षण Possible tests in a day**		
	1. Description 2. Particle size 3. Moisture (on dry basis) 4. Total Ash (on dry basis) 5. Acid Insoluble Ash (on dry basis) 6. Free from kesari dal or its flour **7.** Uric Acid		
6.	**लाइसेंस का दायरा /Scope of the Licence :**		
	"Licence is granted to use Standard Mark as per IS 16892:2018 with the following scope:		
	Name of the product	**SATTU**	
	Grades	a) SPECIAL; b) STANDARD; c) GENERAL	
	Sizes	Fine/Course	

ANNEX A
List of Test Equipment

Major test equipment required to test as per the Indian Standard

Chemical Parameters:

S.No	Tests used in with Clause Reference	Test Equipment / chemicals
1	Description (Cl. 4.1)	Appearance, taste, odour- Sensory analysis test as agreed between manufacturer and purchaser.
		Contamination, infestation and spoilage visible to eye (Corrected, if necessary for abnormal vision) by suitable magnification (not exceeding X 10)
2	Free from kesari dal or its flour (Cl. 4.3)	Steam-bath
		Air-Oven
		Chromatographic Paper- Whatman No-1
		Hemoglobin Pipette
		Ethanol
		Isopropanol solution
		Ninhydrin Solution
		Buffer- Pyridine: acetic acid: water (0.5:5:95)
		Liquified Distilled Phenol – Glass - Distilled Water (4:1) solution
3	Uric acid (Cl. 4.4)	Photo-Electric Colorimeter
		Volumetric Flask- 50ml, 1L
		Burette

		Nessler's Tubes
		Sodium Tungstate Solution
		Standard Sulphuric Acid Solution
		Benedict's Uric Acid Reagent
		Sodium Cyanide Solution
		Weighing balance
		Waring Blender
		Distilled water
		Centrifuge
		Standard Uric Acid Solution (Benedict's)
4	Aflatoxin (Cl. 4.5)	Weighing Balance
		Blender
		Fluted filter paper
		Glass microfiber filter paper
		Volumetric flasks, class A grade, 2ml capacity
		Spectrometer, capable measuring wavelengths between 200nm and 400nm
		Quartz glass cells, optical path length 1 cm
		Membrane filter for aqueous solutions made of PTFE
		HPLC apparatus
		Flourescence detector
		Standard solution of mixed aflatoxins
		Stock solution of mixed aflatoxins
		Water, as per grade 1 of ISO 3696:1987
		Sodium Chloride
		Iodine or pyridinium hydrobromide perbromide
		Acetonitrile, HPLC grade
		methyl alcohol, analytical grade

		aflatoxin
		Methanol, HPLC grade
		Toluene, analytical grade
		0.45 µm Membrane filter
		Dark or brown glass bottle
		Aflatoxin B1, B2, G1 and G2 stock solutions
		Sulphuric Acid
5	Moisture (Cl. 4.7 & Table 1(i)	Weighing Balance
		Moisture dish
		Hot Air oven
		Dessicator
6	Total ash (Cl. 4.7 & Table 1(ii)	Weighing Balance
		Dessicator
		Stop watch/timer
		Silica or porcelain dish
		Muffle furnace
		Heating mantle
7	Acid Insoluble Ash (Cl. 4.7 & Table 1(iii)	Weighing Balance
		Dessicator
		Porcelain or silica dish
		Timer/clock
		Muffle furnace
		Watch glass
		Water bath
		hydrochloric acid
		Hot Air oven
		Funnel

		conical flask
		Whatman filter paper No-42 or equivalent
		Heating mantle
8	Alcoholic Acidity(Cl. 4.7 & Table 1(iv)	Weighing Balance
		Conical stoppered flask
		Neutral ethyl alcohol
		Stopper
		Dry filter paper
		Burette
		Pipette
		Standard Sodium Hydroxide solution
		Phenolphthalein
		Rectified Spirit
9	Protein (Cl. 4.7 & Table 1(v)	Weighing Balance
		Round bottom flask
		Rubber stopper
		Kjeldal setup
		Kjeldal flask
		Potassium sulphate or sodium sulphate (Anhydrous)
		Mercuric oxide or metallic mercury or Copper (II) sulphate pentahydrate
		Conc. sulphuric acid
		Sodium Hydroxide
		methyl red indicator
		Sulphite or Thiosulphate solution
		Zinc granules
		Beaker
		Pipette

		conical flask
		Paraffin or silicon antifoam (optional)
		Heating mantle
		Burette
10	Crude fibre (Cl.4.7 & Table 1(vi)	Weighing Balance
		Sodium Hydroxide
		Acetone or 95% (V/V) ethyl Alcohol, or methanol or propan-2-ol
		Extraction solvent
		Sieve
		Reflux Condenser
		Heating mantle
		Filter Aid
		sulphuric acid
		Incineration Dish or filter crucible
		Separating device
		Anti-bumping agent, if necessary
		Hot Air oven
		Wide mouth vessel with condenser
		Desiccator
		desiccant
		Hydrochloric acid
		Anti-foam agent, if necessary
		Muffle Furnace
11	Particle size (Cl. 4.9)	Weighing balance
		500m IS Sieve
		1000m IS Sieve
		Brush

Microbiological Parameters:

S.No	Tests used in with clause reference	Test Equipment / chemicals
1	Total Bacterial Count (Cl. 4.7 & Table 1(vii)	Plate count agar
		Weighing Balance
		Hot Air oven for dry sterilization or autoclave for wet sterilization
		Pipette of nominal capacity 1 ml
		Incubator
		Petri dishes
		Water bath
		pH Meter
		Test tubes, petri dishes, flasks or bottles
		Colony counting equipment

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

ANNEX B
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 carriedout 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 AND MARKING – The Standard Mark as given in Schedule of the license and Licence Number(i.e.CM/L ….) shall be marked legibly and indelibly on each pack, provided always that product thus marked conforms to all the requirement of the specification. Packing and marking shall be done as per the requirements of the standard. In addition, the following details shall be mentioned on each pack legibly and indelibly:

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 or this scheme, the quantity of sattu manufactured continuously in a day from the same consignment of raw materials and from the same set of machineries shall constitute a control unit.

4.1 On the basis of the test results, decision regarding the conformity or otherwise of a control unit with the requirement of the specification shall be taken. In case of failure of sample, the control unit shall be rejected.

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 place of manufacture, packing and storage of the material and equipment employed shall be maintained under hygienic conditions (See IS 2491) all the processing equipment should be properly cleaned and care should be taken to prevent infestation and contamination. Schedule for each activity for this purpose shall be displayed prominently in the factory premises and records of compliance shall be maintained.

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. Any rejected material which is potentially resalable shall be destroyed in such a manner that it cannot be used for any other purpose. A separate record shall be maintained giving information relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

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	Requirement	Method of test			No. of Sample	Frequency	Remarks
		Clause	Reference				
4.1	Description & Conformity to Clause 4.1	4.1	IS 16892	R	One	Each control unit	
4.2	Ingredients	4.2	IS 16892	R	One	Each control unit	
4.3	Free from kesari dal or its flour	Appendix A	IS 2400	R	One	Each control unit	
4.4	Uric Acid	-	IS 4333 (Part 5)	R	One	Each control unit	
4.5	Aflatoxin	-	IS 16287	S	One	Each month	
Table 1 (Sl. No. i)	Moisture	Appendix A	IS 1009	R	One	Each control unit	
Table 1 (Sl. No. ii)	Total Ash (Dry basis)	Appendix B	IS 1009	R	One	Each control unit	
Table 1 (Sl. No. iii)	Acid Insoluble Ash (on dry basis)	Appendix C	IS 1009	R	One	Each control unit	
Table 1 (Sl. No. iv)	Alcoholic Acidity as H_2SO_4 (on dry basis)	Appendix E	IS 1009	R	One	Each control unit	
Table 1 (Sl. No.v)	Protein	-	IS 7219	R	One	Each control unit	
Table 1 (Sl. No. vi)	Crude Fibre	-	IS 10266 (Pt-1)	R	One	Each control unit	
Table 1 (Sl. No.vii)	Total Bacterial Count	-	IS 5402	R	One	Each control unit	
4.9	Particle Size	4.9	IS 16892	R	One	Each control unit	

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 for approval by BO Head.