



PRODUCT MANUAL
FOR MALT EXTRACT ACCORDING TO IS 2404 : 1993

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 2404 : 1993
	Title	:	Malt Extract
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	Malt extract shall be prepared by digesting with water sound malted grains of cereals (such as barley, wheat and millets, that is cholam or ragi) at a suitable temperature.
b)	Grouping guidelines	:	Sample of each type to be tested for considering Grant of licence /including in the scope of licence.
c)	Sample Size	:	500 gm
3.	List of Test Equipment	:	ANNEX - A
4.	Scheme of Inspection and Testing	:	ANNEX - B
5.	Possible tests in a day :		
	i. Description ii. Density at 20 ⁰ C iii. Refractive index at 20 ⁰ C iv. Total solid v. Reducing sugar vi. Crude protein (on dry basis) vii. Diastatic activity (Lintner value).		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 2404 : 1993 with the following scope:		
	Name of the product		Malt Extract
	Type		Type 1 - Diastatic Malt Extract Type 2 - Non-Diastatic Malt Extract Type 3 - Brewery grade Malt Extract

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ANNEX-A

TO PRODUCT MANUAL FOR MALT EXTRACT ACCORDING TO IS 2404 : 1993

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sr. No.	Test used in with clause reference	Test Equipment
1.	Density at 20 °C Clause 4.4 & Table 1 (Annex A of IS 2404)	Analytical balance, Thermometer, Hot plate, Beaker.
2.	Refractive index at 20 °C Clause 4.4 & Table 1 (Annex B of IS 2404)	Abbe's Refractometer, Light Source (Tungsten lamp/Compensator/Daylight bulb/Monochromatic source), Liquid with known purity and refractive index or glass prism, Filter paper, Water bath, Distilled water.
3.	Total solids, percent by mass Clause 4.4 & Table 1 (Annex C of IS 2404)	Flat Bottom dish, Sand, 180 and 500 micron IS sieve, Conc. Hydrochloric Acid, Vacuum Oven, Analytical balance, Distilled water, Glass rod, Water bath, Desiccator.
4.	Reducing sugar, dry basis % by mass Clause 4.4 & Table 1 (Annex D of IS 2404)	Analytical Balance, Thermometer, Water bath, Stock Solution of Dextrose, Standard Solution of Dextrose, Methylene Blue Indicator Solution, Fehling's Solution A & B (Soxhlet Modification), Standardization of Fehling's Solution, Neutral Lead Acetate, Sodium Phosphate-Potassium Oxalate Solution, Sodium Hydroxide Solution Conc. Hydrochloric Acid.
5.	Crude Protein Clause 4.4 & Table 1 (Annex E of IS 2404)	Apparatus for determination of crude protein: Round bottomed flask of 1000 ml, Rubber stopper, Condenser, Rubber tube, Dip tube, 250 ml beaker, Analytical balance, Kjeldahl flask, Hot plate, Pumice stone. Reagents: Anhydrous Sodium Sulphate, Copper Sulphate, Conc. Sulphuric Acid, Sodium Hydroxide Solution, Standard Sulphuric Acid, Methyl Red Indicator Solution, Standard Sodium Hydroxide Solution.

6.	Diastatic activity (Lintner value) Clause 4.4 & Table 1 (Annex F of IS 2404)	Analytical balance, Porcelain basin, Graduated Flask, Water bath, Thermometer, Narrow-bore pipette. Reagents: Soluble Starch Solution, Standard Sodium Hydroxide Solution, Fehling's Solution (Soxhlet Modification)-Solution A & Solution B, Methylene blue solution.
8.	Total bacterial count Clause 4.4 & Table 2 (IS 5402)	Diluents, Distilled water, Plate count agar (PCA), Autoclave Flasks, Pipettes, Tips, Loop, Laminar air flow, Test tubes Thermometer, Water- bath, Incubator, Petri dishes, pH meter Colony counting equipment.
9.	Coliform Bacteria Clause 4.4 & Table 2 (IS 5401)	Crystal violet neutral red bile lactose (VRBL) agar Diluents Distilled water, pH meter, Water- bath, Brilliant green lactose bile broth, Apparatus for dry sterilization (oven), Wet sterilization (autoclave), Incubator, Petri dishes, Total-delivery pipettes, Colony-counting equipment, Test tubes, Durham tubes, Bottles or flasks, Loop.
10.	Yeast count Clause 4.4 & Table 2 (IS 5403)	Yeast Extract-Dextrose-Chloramphenicol-Agar Medium Apparatus for Dry Sterilization (Oven), Wet Sterilization (Autoclave), Incubator, Water-Bath, Temperature Compensated pH Meter, Culture Bottles or Flasks, Graduated Pipettes, Petri Dishes.
11.	Mould count Clause 4.4 & Table 2 (IS 5403)	Yeast Extract-Dextrose-Chloramphenicol-Agar Medium Apparatus for Dry Sterilization (Oven), Wet Sterilization (Autoclave), Incubator, Water-Bath, Temperature Compensated pH Meter, Culture Bottles or Flasks, Graduated Pipettes, Petri Dishes.

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

ANNEX B

SCHEME OF INSPECTION AND INSPECTION FOR MALT EXTRACT ACCORDING TO IS 2404 : 1993

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 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 of Malt Extract or printed on the labels applied to the container, as the case may be, provided always that the material in each container to which this mark is thus applied conforms to every requirement of the specification.

3.1 Packing – Malt extract shall be packed in sealed, clean, sound and air-tight containers made of galvanized iron, glass or any other suitable material.

3.2 Marking – Each container of Malt Extract shall be marked or labelled with the particulars as mentioned under clause 5.2 of IS 2404. In addition, the following details shall be mentioned on each container 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 of this Scheme, the total quantity of malt extract prepared by digesting with water sound malted grains of cereals (such as barley, wheat & millets like cholam or ragi) at a suitable temperature & the strained Water extract evaporated at a time 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.

5.2 On the basis of the tests and analysis results, the decision regarding the conformity or otherwise of a control unit of malt extract to the requirements of the specification shall be made as follows:

5.2.1 A composite sample shall be prepared by taking malt extract from four randomly selected drums from a control unit and tested for all the requirements as given in Table 1. The control unit shall be marked only if it satisfies the given requirements of the specification.

5.2.2 The control units shall be declared to conform to the requirements of this specification if all the test results in 5.2.1 satisfy the respective requirements.

6. RAW MATERIAL – Routine analysis of various raw materials going into the manufacture of Malt Extract shall be made on each lot received in the factory or alternatively raw materials of known composition may be used.

7. HYGIENIC CONDITIONS: Malt extract shall be manufactured in premises maintained under hygienic condition as per IS 2491.

8. 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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Subcontracting permitted	Levels of control		
Cl.	Requirements	Test Methods Cl. Ref.	Test method IS		No. of sample	Frequency	Remarks
4.2.1	Description	4.2.1	IS 2404	R	One	Each control unit	
4.4 & Table 1 i)	Density at 20°C	Annex A	-do-	R	One	-do-	
ii)	Refractive index at 20°C	Annex B	-do-	R	One	-do-	
iii)	Total solids	Annex C	-do-	R	One	-do-	
iv)	Reducing sugar	Annex D	-do-	R	One	-do-	
v)	Crude protein	Annex E	-do-	R	One	-do-	
vi)	Diastatic activity (Lintner value)	Annex F	-do-	R	One	-do-	Only for Type I
4.4 & Table 2 i)	Total bacterial count	-	IS 5402	R	One composite sample	-do-	See cl. 5.2.1 of SIT
ii)	Coliform Bacteria	-	IS 5401	R	-do-	-do-	
iii)	Yeast count	-	IS 5403	R	-do-	-do-	
iv)	Mould count	-	IS 5403	R	-do-	-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.