PRODUCT MANUAL
FOR SODIUM BENZOATE, FOOD GRADE
ACCORDING TO IS 4447 : 1994

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 4447 : 1994
	Title	:	SODIUM BENZOATE, FOOD GRADE
	No. of Amendments	:	03
2.	**Sampling Guidelines:**		
a)	Raw material	:	No specific requirements
b)	Grouping guidelines	:	NA
c)	Sample Size	:	200g
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 :**		
	i. Description ii. Reaction with Ferric chloride iii. Reaction with uranyl zinc acetate iv. Flame test v. Melting range of precipitate with hydrochloric acid vi. Purity vii. Moisture viii. Acidity or alkalinity ix. Readily carbonizable substances x. Readily oxidizable substance xi. Chlorinated organic compounds xii. Arsenic xiii. Heavy metals (as Pb) xiv. Lead		
6.	**Scope of the Licence :**		
	"Licence is granted to use Standard Mark as per IS 4447 : 1994 with the following scope		
	Name of the product	Sodium Benzoate, Food Grade	

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ANNEX-A

TO PRODUCT MANUAL
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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	Description Cl. 3.1	Water, Ethanol (95 %)
2	Identification, Reaction with ferric chloride Cl. 3.2.1	Ferric Chloride solution, water
3	Reaction with uranyl zinc Acetate Cl. 3.2.2.1	Uranyl zinc acetate, Acetic acid, water, weighing balance, measuring beaker/ cylinder.
4	Flame Test Cl. 3.2.2.2	Flame test apparatus
5	Melting range of Precipitate with Hydrochloric acid Cl. 3.2.2.3	Hydrochloric acid, measuring beaker/ cylinder, water, distilled water, capillary tube (wall thickness 0.10 to 0.15 mm) internal diameter (0.9 to 1.1 mm), melting point apparatus with paraffin or silicone oil) and a stirring device fitted with auxillary thermometer, vacuum dessicator, sulphuric acid.
6	Purity Cl. 3.3 and Table 1 (Annex B of IS 4447)	Hydrochloric acid-0.1 N, standard hydroxide solution- 0.5 N, Phenolphthalein indicator, Weighing balance (L.C- 1 mg), Measuring beaker/ cylinder. Ether, Bromophenol Blue, Titration equipment, water.
7	Moisture Cl. 3.3 and Table 1 (Annex D of IS 4447)	Oven (capable of maintaining 105+- 1°C), weighing bottle, weighing balance (L.C- 1 mg)
8	Acidity or Alkalinity Cl. 3.3 and Table 1 (Annex E of IS 4447)	Standard sodium hydroxide, Hydrochloric acid, Phenolphthalein Indicator, weighing balance, boiled water, measuring beaker/cylinder.
9	Readily Carbonizable Substances	Sulphuric acid, Cobalt chloride solution, Ferric chloride solution, Cupric sulphate, water,

	Cl. 3.3 and Table 1 (Annex F of IS 4447)	measuring beaker/cylinder, weighing balance (L.C- 1 mg), water, potassium iodide, Titration apparatus.
10	Readily oxidizable substances Cl. 3.3 and Table 1 (Annex G of IS 4447)	Sulphuric acid, standard potassium permanganate solution, measuring cylinder/ beaker, water, heater for boiling, weighing balance.
11	Chlorinated organic compounds Cl. 3.3 and Table 1 (Annex H of IS 4447)	Concentrated nitric acid, calcium carbonate, dilute nitric acid, measuring cylinder/ beaker, silver nitrite solution, standard hydrochloric acid, weighing balance, heater.
12	Arsenic and Lead Cl. 3.3 and Table 1 (Cl 15 of 1699)	**Instrument method**: Kjeldahl flask, Atomic absorption spectrophotometer, hydrochloric acid, water, sodium sulphate, sodium borohydride pellets, potassium chloride, measuring cylinder/ beaker, volumetric flask, weiging balance, heater. **Chemical method: For Lead**; Nitric acid, sulphuric acid, ammonium acetate-citrate solution, ammonium solution, carbon tetrachloride, ammonium hydroxide, potassium cyanide, hydroxylamine hydrochloride solution, duluzone solution, buffer pH 2. **For Arsenic:** Distillation apparatus, conical flask, sulphuric acid, potassium permanganate solution, ferrous sulphate, Hydrochloric acid, potassium bromine solution, aluminium stripes, tin chloride solution, test paper.
13	Heavy Metal (as Pb) Cl. 3.3 and Table 1 (Annex J of IS 4447)	Ammonium solution, acetic acid solution, standard lead solution, lead nitrate stock solution, measuring beaker/cylinder, weighing balance, hydrogen sulphide, pH indicator, paper.

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

ANNEX B

SCHEME OF INSPECTION AND TESTING

FOR SODIUM BENZOATE, FOOD GRADE

ACCORDING TO IS 4447 : 1994

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 **Sodium Benzoate, Food Grade** 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 - The material shall be filled in amber coloured glass containers, or any other well-closed containers, or suitable bag with inner lining of food grade material, with as little air space as possible. The containers shall be such as to preclude contamination of the contents with metals or other impurities.

3.1.1 For ECO mark the material used for product packaging shall be recyclable or biodegradable.

3.2 Marking – Each container shall be legibly and indelibly marked with the information mentioned under clause 4.2.1 of IS 4447. 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".

3.2.1 Additional information as per clause 4.2.3 shall be marked on the label for ECO mark.

4 **Control unit –** For the purpose of this scheme, Sodium benzoate, Food Grade produced in a reaction vessel and dried at a time shall constitute a control unit.

5 **LEVELS OF CONTROL**- The tests and as indicated in Table 1 and at the levels of control specified therein, shall be carried out on the entire production of the factory covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2 above.

5.2 All the production which conforms to the Indian Standard and covered by this licence shall be marked with the Standard Mark.

5.3 A sample drawn from a control unit of material and tested, shall conform to all the requirements laid down in the specification. In the event of failure of the sample in one or more of the requirements, the entire material in the control unit shall be either reprocessed for rectifying the defect or else rejected. Such reprocessed material when tested again shall conform to all requirement of the specification.

6 **ECO Mark -**The requirements for ECO Mark as stipulated under clause 3.4 of IS 4447 shall be implemented by the licensee holding licence for ECO Mark, which will be in addition to the product requirements

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

(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**
3.1	Description	3.1	IS 4447	R	One sample	Each control unit	Before drawing the sample the entire dried Sodium benzoate or one control unit shall be thoroughly mixed. Samples shall then be drawn from different parts of the control unit & then mixed thoroughly again for making a composite sample for using it for analysis for various parameters of the ISS.
3.2	Identification a) Reaction with ferric chloride	3.2.1	IS 4447	R	-do-	-do-	
3.2.2	Test for Sodium a) Reaction with uranyl zinc acetate b) Flame Test c) Melting range of Precipitate with Hydrochloric acid	Annex A 3.2.2.2 Annex C	IS 4447 -do- -do-	R R R	-do-	-do-	
3.3 & Table 1	i) Purity ii) Moisture iii) Acidity or Alkalinity iv)Readily Carbonizable Substance v) Readily oxidizable substance vi) Chlorinated organic compounds vii) Arsenic (as As) viii) Heavy Metal (as Pb) ix) Lead	Annex B Annex D Annex E Annex F Annex G Annex H 15 Annex J 15	IS 4447 -do- -do- -do- -do- -do- IS 1699 IS 4447 IS 1699	R R R R R R R R R	-do-	-do-	

Note-1: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control and submit his own levels of control in column 3 with proper justification for approval by BO Head.

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.