



**PRODUCT MANUAL
FOR BENZOIC ACID, FOOD GRADE ACCORDING TO IS 4448 : 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 4448 : 1994
	Title	:	Benzoic Acid, Food Grade
	No. of Amendments	:	02
2.	Sampling Guidelines:		
a)	Raw material	:	No specific guidelines
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. Purity iii. Sulphated ash iv. Readily carbonizable substances v. Readily oxidizable substance vi. Loss on drying vii. Chlorinated organic compounds viii. Arsenic ix. Heavy metals (as Pb) x. Lead		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 4448 : 1994 with the following scope		
	Name of the product	:	Benzoic Acid, Food Grade

ANNEX-A
TO PRODUCT MANUAL
FOR BENZOIC ACID, FOOD GRADE ACCORDING TO IS 4448 : 1994

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, Chloroform, Ethanol (95 %)
2	Identification Tests Reaction with ferric chloride Cl. 3.2	Weighing balance (L.C- 0.1 mg), Ferric Chloride, test tube, filter paper, burner
	Cl. 3.3 Table 1 :	
3	Purity (Annex A of IS 4448)	Phenol red, weighing balance (0.1mg accuracy), Measuring cylinder/ beaker, sodium hydroxide, ethanol, Phnenolphtalein indicator, water, concentrated sulphuric acid, silica gel.
4	Melting range (Annex B of IS 4448)	Capillary tube (thickness of wall 0.10 to 0.15mm, internal diameter 0.9 to 1.1 mm), melting point apparatus (with liquid paraffin or silicone oil and a stirring device, auxillary temperature range upto 200 °C, thermometer), vacuum dessicator, sulphuric acid, standard thermometer, heater.
5	Sulphated Ash (Annex C of IS 4448)	Weighing balance, crucible, sulphuric acid, dessicator
6	Readily carbonizable substances (Annex D of IS 4448)	Sulphuric acid, Ferric Chloride, cobalt chloride solution, cupric sulphate, water, weighing balance, hydrochloride acid, water, measuring cylinder/ beaker, iodine flask, potassium iodide, stop watch, sodium thiosulphate, starch, hydrochloride acid. Cupric sulphate, hydrochloric acid, acetic acid, potassium iodide.
7	Readily oxidizable substances (Annex E of IS 4448)	Sulphuric acid, standard potassium permanganate solution, measuring cylinder/ beaker, heater, weighing balance.
8	Loss on drying	Sulphuric acid/silica gel, dessicator
9	Chlorinated organic compounds (Annex F of IS 4448)	Sodium hydroxide solution, concentrated nitric acid, calcium carbonate, nitric acid dilute, measuring cylinder/ beaker, silver nitrate solution, standard hydrochloric acid, weighing balance (L.C- 0.1 mg), filter.
10	Arsenic Lead (Cl. 15 of IS 1699)	Instrument method: Kjeldahl flask, Atomic absorption spectrophotometer, hydrochloric acid, water, sodium sulphate, sodium borohydride pellets, potassium

		<p>chloride, measuring cylinder/ beaker, volumetric flask, weighing balance, heater.</p> <p>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.</p> <p>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.</p>
11	Heavy metal as lead (Annex G of IS 4448)	Ammonium solution, acetic acid solution, standard lead solution, lead nitrate stock solution, measuring beaker/cylinder, weighing balance, hydrogen sulphide, pH indicator, paper.

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

ANNEX B

**SCHEME OF INSPECTION AND INSPECTION FOR
BENZOIC ACID, FOOD GRADE
ACCORDING TO IS 4448 : 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 **Benzoic Acid, 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.
 - 3.2 **Marking** – Each container shall be legibly and indelibly marked with the information mentioned under clause 4.2.1 of IS 4448. 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, Benzoic acid, Food Grade reacted, processed, dried and pulverized at a time shall constitute a control unit.
5. **LEVELS OF CONTROL**- The analysis and tests, as indicated in Table 1 and at the levels of control specified therein, shall be carried out on the entire production of the factory which is 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 On the basis of the tests and analysis results, decision regarding the conformity or otherwise of a control unit to the requirements of the specification shall be made as follows:
- 5.4 Two samples drawn at equal interval from a control unit shall be tested for Purity, Melting range and lose on drying. A composite sample prepared by mixing equal quantities taken from the two samples shall be tested for the remaining requirements given under Table 1. In case any of the sample fails in one or more requirements, the entire control unit represented by the sample shall be reprocessed and defect(s) rectified. Such reprocessed material when tested again shall conform to all the requirements of the specification.
- 6. 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	Recommended Levels of Control		
Cl.	Requirement	Test Method Cl. Ref.	Test method IS		No. of Sample	Frequency	Remarks
3.1	Description	3.1	IS 4448	R	One sample*	Each control unit	
3.2	Identification Tests: Reaction with ferric chloride	3.2.1 & 3.2.2	-do-	R	-do-	-do-	
3.6 & Table 1	Purity, as C ₇ H ₆ O ₂ ,	Annex A	-do-	R	Two [@]	-do-	
-do-	Melting Range	Annex B	-do-	R	-do-	-do-	
-do-	Sulphated Ash	Annex C	-do-	R	One *	-do-	
-do-	Readily carbonizable substances	Annex D	-do-	R	-do-	-do-	
-do-	Readily oxidizable substances	Annex E	-do-	R	-do-	-do-	
-do-	Loss on drying	3.3 Table 1	-do-	R	Two [@]	-do-	
-do-	Chlorinated organic compounds	Annex F	-do-	R	One *	-do-	
-do-	Arsenic	15	IS 1699	R	-do-	-do-	
-do-	Heavy metals	Annex G	IS 4448	R	-do-	-do-	
-do-	Lead	15	IS 1699	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.

Note-3: *Individual sample shall be a representative of the material and both the samples to be drawn at equal interval from the control unit.

@Composite sample shall be made by mixing equal quantity taken from the two samples.