



उत्पाद मैनुअल
रैखिक ऐल्किल बेंजीन - विशिष्ट
IS 12795: 2020 के अनुसार

PRODUCT MANUAL
FOR LINEAR ALKYL BENZENE
ACCORDING TO IS 12795: 2020

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता 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 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 uniformity 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.

1.	मानक संख्या IS No.	:	IS 12795: 2020
	शीर्षक Title	:	रैखिक ऐल्किल बेंजीन LINEAR ALKYL BENZENE
	संशोधनों की संख्या No. of amendments	:	01
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Not applicable

c)	नमूने का परिमाण Sample Quantity	:	1 litre Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	i) Colour ii) Moisture iii) Specific gravity iv) Doctor test v) Bromine Indexvi) Molecular Weight vii) Paraffin viii) Chain length distribution ix) Refractive Index x) LAB content Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide readyreference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	IS 12795 : 2020 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है "Licence is granted to use Standard Mark as per IS 12795 : 2020 with the following scope:		
	Name of the product उत्पाद का नाम		Linear Alkyl Benzene

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX – A
LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Saybolt Colour IS 1448 (Part 14) or Lovibondscale, IS 1448 (Part 13), ASTM D 6045	<u>1448 (Part 14)</u> - Saybolt Chromometer with reference slides or <u>1448 (Part 13)</u> - Lovibond Tintometer in a test room as per Cl 6 of IS 1448 (Part 13), Colour Standards, calibrated glass/liquid reference standard ASTM D 6045 - Spectrophotometer/Tristimulus Filter Colorimeter, Ultrasonic Bath, Kerosine, hot plate
2	Specific gravity, IS 1448(part 32) or ASTM D-4052	<u>ASTM D-4052</u> - Digital Density Analyzer - Circulating Constant-Temperature Bath - Syringes - Autosampler - Temperature Sensing Device - Ultrasonic Bath - Cleaning Solvent - Acetone - Dry Air Or - <u>IS 1448(part 32)</u> - Pyknometer - Constant-temperature water bath - Bath thermometer - Balance - surfactant cleaning fluids
3	Moisture, IS 286/ IS 1448 (Part 182)/ ASTM D- 6304/UOP 481	<u>IS 1448 (Part 182)</u> - Karl Fischer reagents - Molecular sieve pellets, type 4 A - Xylene - Sodium dioctylsulfosuccinate - Automatic coulometric Karl Fischer titrator, - Non-aerating mixer, Syringes, - weighing Balance, - Volumetric flask, - Sealable bottles or desiccators, - Ovens, - Cooling bath, - Thermometer OR <u>IS 286 (Distillation method)</u> - Distillation apparatus and reagents (as per distillation method) (As per 5 of IS 286) OR

		<u>ASTM D-6304</u> - Coulometric Karl Fischer Apparatus (using electrometric end point) Water Vaporizer Accessory Syringes Karl Fischer Reagent Xylene - Water - Hexane
4	Doctor Test IS 1448(Part 19)	- Apparatus: Mixing cylinders (50 ml), Measuring cylinders (5 ml and 10 ml), Separating funnel (stoppered) made of glass - Reagents: Lead acetate trihydrate crystals, Sodium hydroxide (NaOH), solid, Sodium plumbite (Doctor) solution, Cadmium chloride, Hydrochloric acid (HCl), concentrated, Sulfur- sublimed (flowers of sulfur), Potassiumiodide solution, Acetic acid solution, Starch solution
5	Flash Point IS 1448(Part 21) or ASTM D – 93	<u>IS 1448 (Part 21)/ ASTM D – 93</u> - Pensky Martens Closed cup Flash Point apparatus with suitable temperature indicator, - Barometer - Heating bath or oven, capable of controlling the temperature to ± 5 °C
6	Bromine IndexUOP 304 Or ASTM D 2710 ASTM D 1492	<u>ASTM D 2710</u> - Electrometric End Point Titration Apparatus - Titration Vessel - Burets - Iodine Number Flask - Bromide-Bromate Standard solution - Potassium Iodide solution - Sodium Thiosulphate solution - Starch indicator solution - Sulphuric acid - Titration Solvent - Acetic Acid, glacial - Methanol - I, 1,1-Trichloroethane - Dichloromethane <u>ASTM D 1492</u> - Amperometric Coulometric, Syringe, - Acetic Acid, glacial - Methanol - Potassium Bromide solution,
7	Ready Biodegradabilityof sulphonate, IS 13933 or ASTM D 2667	<u>IS 13933</u> - Air Generator with carbon dioxide free air - Setup as per Fig 2 of IS 13933 : 1995, Erlenmeyer flask - Carbon Dioxide Scrubbing Apparatus with sodium hydroxide and barium hydroxide - Carbon Dioxide Production Apparatus - Mineral Salts Medium- Ferric Chloride Solution' Magnesium Sulphate Solution' Calcium Chloride Solution' Phosphate Buffer Solution' ammonium Sulphate Solution - Hydrochloric Acid Solution

		- activated sludge
8	Distillation IS 1448(Part 18) or ASTM D 86	Distillation unit comprising of the distillation flask, the condenser and associated cooling bath, a metal shield or enclosure for distillation flask, the heat source, the flask support, the temperature measuring device and the receiving cylinder to collect the distillate (As per IS 1448(Part 18))
9	Molecular Weight, Table 1 (Annex B) or UOP 698-12	- Chromatographic Fused Silica Column - Gas Chromatograph (able to control temperature of sample, injector port and column) with Flame ionization detector - Data Processing System - Leak Detector Gas - Regulator for cylinders containing Air, Hydrogen and Nitrogen/Helium - Syringe (10 µl), - Auto sampler vials - High purity carrier gas (zero gas) — Nitrogen or Helium with ultra-high purity of about 99.99 percent - High purity hydrogen gas (zero gas) — 99.99 percent - Air (zero gas) - Gas purifier - Working standard solutions, of five different concentrations - Standard stock solutions, for internal reference standards (As per Annex B of IS 12795)
10	Paraffin Percent by mass, (Annex C)	- Gas Chromatogram system with fused silica column, capable of data processing - Cylinders with regulators containing Air, Hydrogen and Nitrogen/Helium - C10 to C14 individual normal paraffins namely decane, undecane, dodecane, tridecane and tetradecane
11	Sulphonability percent by mass Annex D	- Analytical Balance (0.1mg accuracy) - Four necked flask arrangement with ice pack - Thermometer - Highly pure Hyamine/Hyamine 1622, chloroform-petroleum ether, chloroform, filter paper, hot water bath, Buchner funnel, steam bath - Oleum
12	Chain length distribution, Annex E or UOP 688-12	- Gas Chromatogram system with fused silica column, capable of data processing - Cylinders with regulators containing Air, Hydrogen and Nitrogen/Helium - C10 to C14 individual normal paraffins namely decane, undecane, dodecane, tridecane and tetradecane
13	Refractive Index Annex G Or IS 1448 (Part 158)	<u>IS 12795</u> Procedure A (manual) - High Resolution Refractometer — Optical- Mechanical Refractometer of Abbe type. - Temperature Control Unit — equipped with pump for maintaining the prism temperature within 0.1°C. - Temperature Measuring Device - Light Sources - Light Filters

		- N-pentane - Toluene (HPLC Grade) - 1-Bromonaphthalene (Purity of 98 percent, <i>min</i>) - Primary Reference Materials-Solid reference standards with refractive index value engraved, Distilled or deionized water, 2,2,4-trimethylpentane (99 percent purity, <i>min</i>), Methylcyclohexane (99 percent purity, <i>min</i>), Toluene (99 percent purity, <i>min</i>) - Secondary reference materials- <i>Mineral oil calibration standards</i>, Procedure B (Automatic) - Automatic digital refractometer, - Temperature control unit - Temperature measuring device - Light source - Light Filters - Reagents and materials — as prescribed in G-3. G-4.3.3 liquid reference standards, OR <u>IS 1448 (Part 158)</u> - Refractometer (critical angle type) - Glass certified reference material - White light source (e.g. 40 W lightbulb) - Sodium arc lamp - Thermostatted bath and circulating pump
14	Tetralins (weight percent)Annex H	<u>IS 12795</u> - (HPLC)High Performance Liquid Chromatography apparatus with chromatographic column of normal phase which is 250 mm long with an internal diameter of 4 mm containing micro particulatesilica coupled with data processing system. - 2,2,4-trimethyl pentane - Tetrahydronaphthalene - Hexane - Toluene
15	LAB content, UOP 698-12	- Gas Chromatogram system with fused silicacolumn, capable of data processing - Cylinders with regulators containing Air, Hydrogen and Nitrogen/Helium

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Entire quantity of material produced continuously at a time in each reaction vessel shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each container of linear alkyl benzene provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 Additional Marking requirements: The container of linear alkyl benzene shall also be marked with the following additional requirement

a) “For BIS certification details please visit www.bis.gov.in”

4. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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
(ONLY FOR GUIDANCE PURPOSE)

(1) Test Details				(2)	(3)		
Cl.	Requirement	Test Methods		Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of Sample	Frequency	Remarks
		Clause	Reference				
4.1	Description	4.1	IS 12795:2020	R	Manufacturer shall maintain adequate inspection and in process control, to ensure product meets specified requirements and maintain test records		
4.2 Table1	Requirements for LinearAlkyl Benzene						
i	Colour <i>a) Saybolt, Min or b) Lovibondscale,</i>	Annex A	IS 12795:2020/ ASTM D 6045	R	One	Each control unit	
ii	Specific gravity at 15.5°/15.5°C		IS 1448(part 32) or ASTM D-4052	R	One	Each control unit	
iii	Moisture, ppm,		Cl 5 of IS 286 or IS 1448 (P-182) or ASTM D-6304 or UOP 481	R	One	Each control unit	
iv	Doctor test		IS 1448(Part 19)	R	One	Each control unit	
v	Flash Point (Closed cup)°C,		IS 1448(Part 21) or ASTM D – 93	R	One	Once a week	
vi	Bromine Index		UOP 304 or ASTM D 2710 or ASTM D 1492	R	One	Each control unit	
vii	Ready biodegradability of sulphonate		IS 13933 or ASTM D 2667	S	One	Once in 2 years or whenever there is change	1. Type test 2. Linear alkyl benzene is to be

						in composition, source of raw material and process.	sulphonated as given in Annex F of IS 12795:2020 before carrying out ready biodegradability test.
viii	Distillation, 95 percent recovery at °C		IS 1448(Part 18)	R	One	Once a week	
ix	Molecular weight		Annex B of IS 12795 or UOP 698-12	R	One	Each control unit	
x	Paraffin, percent by mass	Annex C	IS 12795:2020	R	One	Each control unit	
xi	Sulphonability, percent by mass	Annex D	-do-	R	One	Once a week	
xii	Chain-length distribution,		Annex E of IS 12795 or UOP 698-12	R	One	Each control unit	
xiii	Refractive Index		Annex G of IS 12795 or IS 1448(Part 158)	R	One	Once a week	
ivx	Tetralins (weight percent)	Annex H	IS 12795:2020	R	One	Once in a month	
xv	LAB content, percent		UOP 698-12	R	One	Each control unit	