



उत्पाद मैनुअल
स्टाइरीन - ब्यूटाडाइन रबड़ लैटेक्स - विशिष्टि
भाग - 1 नॉन - कार्बोक्सिलेटेड
IS 11356 (Part 1): 2023 के अनुसार

PRODUCT MANUAL
FOR Styrene-Butadiene Rubber Latex Part 1
(Non-carboxylated) ACCORDING TO IS 11356 (Part 1): 2023

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, 2023 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या IS No.	:	IS 11356 (Part 1):2023
	शीर्षक Title	:	Styrene-Butadiene Rubber Latex Part 1 (Non-carboxylated)
	संशोधनों की संख्या No. of amendments	:	2
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirements for Raw Materials. 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	:	Please refer to Annex-A
c)	नमूने का परिमाण Sample Quantity	:	2.0 Litres/2.0 Kg 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).

d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	i. Type of the material Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex –B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex - C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	All Tests 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 ready reference 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:		
	Licence is granted to use Standard Mark as per IS 11356 (Part 1) : 2023 with the following scope:		
	Name of the product		Styrene-Butadiene Rubber Latex Part 1 (Non-carboxylated)
	Type		Type 1 or/and Type 2 or/and Type 3

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-11000

Annex- A

GROUPING GUIDELINES

1. Each Type intended to be covered in the scope of the licence is to be tested.
2. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
3. During operation of licence, samples of each type covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – B

LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl.	Test used in with clause reference	Test Equipment/Apparatus/Glass wares [IS METHOD]	Chemical/Reagents
(1)	(2)	(5)	(6)
1.	Total Solid, Percent (Clause 4.1 Table 1) IS 9316 (Part 4) / ISO 124	Flat-bottomed dishes, lipless, of diameter approximately 60 mm Analytical balance with accuracy 0.1 mg. Pipette 1 ml Glass Rod Desiccator Ovens, capable of being maintained at 70 °C ± 5 °C, 105 °C ± 5 °C, or at another selected temperature between 100 °C and 160 °C accurate to ±5 °C/ Vacuum Oven	No chemical required
2.	pH at 25 °C (Clause 4.1 Table 1), IS 9316 (Part 6)	pH-meter with temp indicator (with accuracy 0.01 pH) Combined electrode Magnetic stirrer and magnetic bar Thermometer (1 °C) dry glass or inert plastic vessel Electrode holder	Buffer solution, of nominal pH 7, Buffer solution, of nominal pH 4, Buffer solution, of nominal pH 9 Reference electrolyte (potassium chloride + silver chloride) Distilled Water
3.	Surface Tension, Dynes/cm, at 25 °C, (Clause 4.1 Table 1), IS 9316 (Part 1) / ISO 1409	Tensiometer (Du Noüy type), with a platinum or platinum-iridium alloy ring of either 60 mm or 40 mm nominal circumference / Tensiometer (Wilhelmy type), with a flat, thin plate made of platinum or platinum-iridium alloy Glass dish or vessel, of 50 cm ³ capacity Pipette Filter Paper Bunsen or ethanol lamp Thermostatic bath gas burner or Bunsen	Distilled water, carbon-dioxide-free Toluene, of recognized analytical purity
4.	Specific Gravity (Clause 4.1 Table 1), IS 3104 (Part 2)	Hydrometer Hydrometer Vessel Thermometer with 0.1 °C accuracy loop stirrer	Distilled Water
5.	Residual Styrene, percent by mass (Clause 4.1 Table 1), IS 4511 (Part 3)/ ISO 13741-1	IS 4511 (Part 3) Dean and Stark-Distillation Apparatus (capacity 500-ml) Iodine Flask - 250-ml capacity Weighing Balance Burette Flask with stopper Stop Watch funnel lip/vapour seal Pipette Arrangement for cooling solution to 27+2 degree ISO 13741-1 Gas Chromatograph as per Cl 6 of the ISO Carrier gas Nitrogen, helium or hydrogen Micro syringe	IS 4511 (Part 3) Methanol Reagent (containing 100 mg/kg p-tert butyl catechol or an equivalent polymerization inhibitor) Standard Potassium Bromide - Potassium Bromate Solution (potassium bromate + potassium bromide) Sulphuric Acid Solution - 18 percent (m/m). Potassium Iodide Solution - 10 percent (m/m) Standard Sodium Thiosulphate Solution - 0.1 N Starch Indicator Solution

		Analytical balance Volumetric flasks	ISO 13741-1 Propionitrile (internal Standard) Dimethyl formamide Tetra hydrofuran Certified Reference material
6.	Bound styrene IS 4511 (Part 4)	Reflux Condenser/Soxhlet extractor Abbe-Type Refractometer Aluminium Foil Glass Standard Hydraulic Press Scissors - small and sharp. High-Speed Mechanical Stirrer Cheese cloth Drying Tray - preferably of stainless-steel wire gauze. Vacuum Oven	Sodium Chloride Solution - 20 percent Sulphuric Acid Solution – Congo Red Indicator Paper Ethanol-Toluene Azeotrope (ETA) a- Bromonaphthalene
7.	Brookfield Viscosity, mPa.s, SP.1, 12 RPM/ SP2, 12 rpm at 25°C, IS 9316 (Part 2) / ISO 1652	Viscometer as per IS 9316 (Part 2) Spirit level or Bubble level Glass Beaker of min 85 mm dia, capacity min 600 ml Rectangular Bar of 9.5 mm x 3.0 mm Water Bath (1 °C accuracy) Glass Rod/Stirrer Screen with aperture approx 500 µm Stop watch	No chemical required
8.	Mooney viscosity Annexure B	High Speed Agitator Drying Trays Oven - capable of maintaining 120 ± 5°C. Laboratory Mill Mooney Machine - with large rotor. (as per IS 3660 (Part 7))	Sulphuric Acid -18 percent (v/v). Sodium Chloride Solution - 10 percent Phenyl Beta Nephthylamine Solution Styrenated phenol Distilled water Congo red paper Sulphuric acid
9.	Mechanical stability(Clause 4.1 Table 1), Annexure C	Mechanical Stability Measuring Apparatus containing Latex Container Stirring Apparatus (14000 rpm) Preliminary Filter- stainless steel wire cloth width of 180 ± 15 mm. Test Filter - a disk of stainless steel wire cloth width of 180 ± 15 mm. Drying oven (capable of maintaining more than 100 C) Weigh balance (L.C 0.5g)	Soap Solution - 5 percent Distilled Water
10.	Coagulum content, percent by mass, IS 316 (Part 3) / ISO 706	Test Filter (SS wire cloth with aperture width 180 ± 10 µm/ 80 mesh sieve) Two SS rings (ID between 25 mm to 50 mm) Beaker (min 600 ml) Oven Desiccator Filter Paper Weighing Balance Stop Watch	Water Soluble Ethoxylated Alkyl Phenol (5 percent m/m) Distilled Water Litmus paper

ANNEX – C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) 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 (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: the quantity of the STYRENE-BUTADIENE RUBBER LATEX (NON-CARBOXYLATED) of each type produced in a single batch 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**. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

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.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 TEST RECORDS- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the license shall be marked legibly and indelibly on each container of STYRENE-BUTADIENE RUBBER LATEX- NON-CARBOXYLATED, provided always that the material to which this mark is thus applied conforms to every requirement of the specification.

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

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each packaging:

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

3.3 If material is supplied in bulk packaging like in tank cars, tank trucks, container ships etc. the Standard Mark as given in Schedule of the licence and Licence Number (i.e. CM/L) shall be incorporated on a test certificate to be provided along with each tank car/tank truck/container ship as per the format at Appendix 1 enclosed, provided always that the product thus marked conforms to all the requirement of the specification. Packing shall be done as per provisions of Indian Standard and the marking details as per Cl 5.2.1 of IS 11356 (Part 1): 2023 shall also be indicated on the test certificate.

4. REJECTION - 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
(Recommended Levels of Control by BIS- For Guidance Only)

(1)				(2)		
TEST DETAILS				LEVELS OF CONTROL		
Clause	Requirement	Test Method		No of Sample	Frequency	Remarks
		Clause	Reference			
4.1, Table 1	Total Solid, percent		IS 9316 (Part 4)	One	Each control unit	
4.1, Table 1	pH at 25 °C		IS 9316 (Part 6)	One	Each control unit	
4.1, Table 1	Surface Tension, Dynes/cm, at 25 °C		IS 9316 (Part 1)	One	Once in three months	
4.1, Table 1	Specific Gravity		IS 3104 (Part 2)	One	Each control unit	
4.1, Table 1	Residual Styrene, percent by mass		IS 4511 (Part 3)	One	Each control unit	
4.1, Table 1	Bound styrene, percent by mass,		S 4511(Part 4)	One	Once in a month	
4.1, Table 1	Brookfield Viscosity, mPa.s, SP.1, 12 RPM/ SP2, 12 rpm at 25°C		IS 9316 (Part 2)	One	Each control unit	
4.1, Table 1	Mooney Viscosity ML at 100 °C		IS 11356(Part 1)	One	Each control unit	
4.1, Table 1	Mechanical stability coagulum percent by mass		IS 11356 (Part 1)	One	Each control unit	
4.1, Table 1	Coagulum content, percent by mass		IS 9316 (Part 3)	One	Each control unit	

Appendix-1
TEST CERTIFICATE

XYZ COMPANY (REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)
TEST CERTIFICATE FOR STYRENE-BUTADIENE RUBBER LATEX PART 1 NON-CARBOXYLATED

TEST CERTIFICATE NO. _____ DATED _____

SUPPLIED TO M/s _____ (Name and Address of Consignee)

It is certified that the material described below fully conforms to IS 11356 (Part 1): 2023.

The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks License No. CM/L _____ are as indicated below against each order no. etc.

(PLEASE REFER TO IS 11356 (Part 1): 2023 FOR DETAILS OF SPECIFICATION REQUIREMENTS) TEST RESULTS

Order no and date	Name of the material	Test	Requirement	Observed value	Control Unit/ Batch Number	Month and Year of manufacture	Quantity	Remarks
		Total Solid, percent						
		pH at 25 °C						
		Surface Tension, Dynes/cm, at 25 °C						
		Specific Gravity						
		Residual Styrene, percent by mass						
		Bound Styrene, percent by mass						
		Brookfield Viscosity, mPa.s, SP.1, 12 RPM/ SP2, 12 rpm at 25°C						
		Mooney Viscosity ML1+4 at 100 °C						
		Mechanical stability coagulum percent by mass						
		Coagulum content, percent by mass						

The material supplied conforms to specified requirements of IS 11356 (Part 1): 2023.

REMARKS:

Tank Car / Tank Truck / Container ship no.

(Signature) For
XYZ Company

MATERIAL SUPPLIED BY

Name and Address of manufacturer:

Recognized Trade Mark if any:

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