



PRODUCT MANUAL
FOR AMMONIA PRESERVED CONCENTRATED NATURAL RUBBER LATEX
ACCORDING TO IS 5430: 2017

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 5430: 2017
	Title	:	AMMONIA PRESERVED CONCENTRATED NATURAL RUBBER LATEX
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	No specific requirement
b)	Grouping guidelines	:	NA (Sample of each type intended to be covered in the licence scope, to be tested)
c)	Sample Size	:	1 litre for all tests (incl. optional tests as per Cl. 4.4)
3.	List of Test Equipment	:	Please refer <u>ANNEX – A</u> .
4.	Scheme of Inspection and Testing	:	Please refer <u>ANNEX – B</u> .
5.	Possible tests in a day	:	Please refer <u>ANNEX – C</u> .
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 5430:2017 with the following scope:		
	Name of the product	AMMONIA PRESERVED CONCENTRATED NATURAL RUBBER LATEX	
	Type	Type HA/ Type MA/ Type LA	

ANNEXA
TO PRODUCT MANUAL
FORAMMONIA PRESERVED CONCENTRATED NATURAL RUBBER LATEX
ACCORDING TO IS 5430: 2017

List of Test Equipment

Major test equipment required to test as per the Indian Standard

S. No.	Tests used in with Clause Reference	Test Equipment	Chemicals/Reagents
1.	Dry Rubber Content (DRC) [Clause 4.3 & Table 1, S. No. i)] Test Method: IS 3708 (Part 1): 2013	a) Dish (approx. 100 mm diameter and 50 mm deep), preferably made of Glass/Porcelain. NOTE: Dishes made of aluminum are unsuitable for use with latex concentrate containing KOH b) Circulating Air Oven to maintain temperature of 70 ± 5 °C c) Balance with LC: 1 mg d) Stop Watch	<u>For latex concentrate preserved with Ammonia:</u> a) Acetic acid b) Distilled Water c) Ethanol (95%) <u>For latex concentrate preserved with Potassium Hydroxide:</u> a) Glacial Acetic acid b) Propan-2-ol c) Distilled Water d) Ethanol (95%)
2.	Non-rubber Solids [Clause 4.3 & Table 1, S. No. ii)] Test Method: IS 9316 (Part 4): 1988	a) Glass Petri Dish b) Oven to maintain temperature of 70 ± 2 °C c) Desiccator d) Balance with LC: 1 mg e) Measuring Cylinder or burette or pipette -1ml f) Stop Watch	a) Distilled Water

3.	Coagulum Content [Clause 4.3 & Table 1, S. No. iii)] Test Method: IS 9316 (Part 3): 1987	a) 180 micron IS Sieve (180±10µm) b) Two Stainless Steel Rings (of equal ID between 25 to 50 mm) c) Oven to maintain temperature of 105 ± 2 °C d) Desiccator e) Balance with LC: 1 mg f) Beaker (600 ml), with lip g) Wash Bottle h) Measuring Cylinder (200 ml) i) Stop Watch	a) Potassium Oleate or Ammonium Laurate b) Litmus Papers c) Distilled Water d) Nitric Acid
4.	Sludge content [Clause 4.3 & Table 1, S. No. iv)] Test Method: IS 3708 (Part 2): 1985	a) Centrifuge capable of producing mean acceleration of 12000 m/s ² with two 50 ml conical centrifuge tubes b) Pipette - with an aperture of about 2 mm diameter c) Hot Plate d) Air Oven to maintain temperature of 70 ± 2 °C e) Chemical Balance with LC 1 mg f) Stop Watch	a) Ammonia – alcohol mixture containing: - Ammonium hydroxide - Denatured alcohol or Rectified spirit - Distilled Water
5.	Alkalinity as ammonia [Clause 4.3 & Table 1, S. No. v)] Test Method: IS 3708 (Part 4): 2015	a) Electric Stirrer or Magnetic Stirrer b) pH Meter with LC 0.02 c) Balance with LC 0.01 g d) Burette e) Beaker – 400 ml f) Measuring Cylinder (200 ml)	a) Emulsion Stabilizer – alkyl phenol polyethylene oxide condensate type b) Sulphuric Acid or Hydrochloric acid c) Methyl Red d) Sodium Carbonate e) Methyl Orange f) Distilled Water

6.	KOH number [Clause 4.3 & Table 1, S. No. vi)] Test Method: IS 3708 (Part 5): 2005	a) pH Meter with LC 0.01 b) Mechanical stirrer, with earthed motor and glass paddle, or Magnetic stirrer c) Glass Electrode d) Beaker – 400 ml e) Balance with LC 0.1 g f) Burette g) Pipette or Measuring Cylinder (5 ml) h) Stop Watch	a) Formaldehyde, Acid free b) Potassium Hydroxide, Carbonate-free c) Phenolphthalein d) Distilled Water (free of dissolved CO ₂)
7.	Mechanical stability [Clause 4.3 & Table 1, S. No. vii)] Test Method: IS 3708 (Part 6): 1985	a) Mechanical Stability apparatus capable of maintaining stirring speed of 14000 ± 200 rpm and consisting of - Container - Stirring Device - Holding Device b) Tachometer c) Stainless Steel Sieve (180 Micron IS sieve) d) Heating Device to maintain a temperature of 60 to 80 °C (preferably Water bath) e) Balance f) Thermometer g) Stop Watch	a) Ammonia Solution (1.6% aqueous)

8.	Volatile fatty acid number [Clause 4.3 & Table 1, S. No. viii]] Test Method: IS 3708 (Part 7): 2005	a) Steam – Jacketed Distillation apparatus (Markham Still) b) Beaker -200 ml c) Steam Bath or Water Bath capable of maintaining nominal temperature of 70 °C d) Filtration Assembly e) Balance with LC 0.1 g f) Pipette – 5, 10, 25 and 50 ml g) Conical Flasks – 50 and 250 ml h) Graduated Cylinder – 100 ml i) Aeration equipment to supply CO ₂ free air at the rate of 200 to 300 ml/min for 3 minutes j) Burette k) Stop Watch	a) Ammonium Sulphate b) Sulphuric Acid c) Barium Hydroxide d) Potassium hydrogen phthalate e) Phenolphthalein or Bromothymol Blue f) Ethanol g) Distilled Water h) Antifoaming agent
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9	Copper content [Clause 4.3 & Table 1, S. No. ix)] Test Method: IS 9316 (Part 7): 1987	a) Electrophotometer, Absorptiometer or Spectrophotometer capable of measuring optical density at approximately 435 nm b) Matched Absorption Cells – 10 to 50 mm path length c) Silica Crucibles – 50 or 80 ml nominal capacity d) Muffle Furnace – to maintain a temperature of $550 \pm 25^{\circ}\text{C}$ e) Balance f) Laboratory mill g) Separating funnel h) Ash less filter paper (150 mm dia.) i) Steam bath j) Volumetric Flask – 1000 ml, 100 ml k) Pipette – 5 ml, 10ml, 25ml l) Asbestos Board m) Stop Watch	a) Light Magnesium Oxide b) Sodium Sulphate anhydrous c) Hydrochloric Acid d) Nitric acid e) Citric acid f) Distilled Water g) Ammonia Solution h) Litmus papers i) Conc. Sulphuric acid j) Copper Sulphate Pentahydrate k) Zinc diethyldithiocarbamate or - Sodium diethyldithiocarbamate + Zinc Sulphate + Chloroform
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10	Manganese content [Clause 4.3 & Table 1, S. No. x)] Test Method: IS 9316 (Part 9): 1987	a) Electrophotometer, Absorptiometer or Spectrophotometer capable of measuring absorbance at approximately 525 nm b) Silica Crucibles – 80 ml nominal capacity c) Asbestos Board (100 mm square & 6 mm thick) d) Muffle Furnace – to maintain a temperature of 550 ± 25°C e) Absorption Cells f) Balance g) Laboratory mill g) Separating funnel h) Ash less filter paper (150 mm dia.) i) Steam bath j) Volumetric Flask – 500 ml, 100 ml k) Pipette – 2 ml, 10ml, 20ml, 25ml l) Thermometer	a) Potassium Hydrogen Sulphate b) Potassium Periodate c) Sulphuric Acid (Conc. & Dilute) d) Orthophosphoric Acid e) Potassium Permanganate f) Distilled Water g) Manganese Sulphate h) Sodium Oxalate i) Sulphur dioxide – Saturated water
11	Magnesium (Clause 4.4) - Optional Test Method: IS 3708 (Part 11): 2001	a) Analytical Balance with LC 0.01 mg b) Beaker — 500 ml c) Pipette — 20 ml and 10 ml d) Burette — 10 ml e) Conical Flask — 250 ml f) Glass Rod g) Volumetric Flask – 1000 ml	a) EDTA Solution b) Manganese Sulphate c) Eriochrome Black T d) Potassium chloride or Sodium chloride e) Conc. Ammonia Solution f) Ammonium chloride g) Distilled water h) Potassium Cyanide i) Hydroxyl Amine Hydrochloride

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

ANNEXB
TO PRODUCT MANUAL
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ACCORDING TO IS 5430: 2017

Scheme of Inspection And Testing

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.

2.1 The manufacturer shall prepare a calibration plan for the test equipments.

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 the Schedule of the license shall bestenciled on or given on the labels attached with each container of natural rubber latex, provided always that the product thus marked and packed conforms to all the requirement of the specification.

3.1 Marking and packing shall be done as per the provisions of the Indian Standard. In addition, the following details shall be mentioned on the labels attached to each container:

- 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 contents of each storage tank shall constitute a control unit. Samples shall be drawn after homogenous blending by thorough agitation as per methods prescribed in IS: 3708 (Part 1).

4.1 One sample shall be drawn from each storage tank and tested for conformity for dry rubber content, alkalinity, volatile fatty acid number and shall be released or filling into the drum only when found to pass.

4.2 A composite sample per control unit shall be prepared by mixing the samples drawn while filling each and every one of the drums from the storage tank and this sample shall be used for testing all the requirements.

4.3 In respect of all other clauses of the specification and at all stages of processing, the factory shall maintain appropriate controls and checks to ensure that their product conforms to the various requirements of the specification.

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.

6. REJECTIONS – 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
(PARA 5 OF THE SCHEME OF INSPECTION AND TESTING)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control*		
Cl.	Requirement	Test Methods			No. of Sample*	Frequency*	Remarks*
		Clause	Reference				
4.1	Colour	4.1	IS 5430:2017	R	2	Each Control Unit	One sample from the storage tank and one sample during filling in drums.
4.2	Odour	4.2	IS 5430:2017	R	2	Each Control Unit	
4.3 & Table 1	Dry Rubber Content (DRC)	--	IS 3708 (Part 1)	R	2	Each Control Unit	
4.3 & Table 1	Non-rubber solids (see note 3)	--	IS 9316 (Part 4)	R	1	Each Control Unit	
4.3 & Table 1	Coagulum content	--	IS 9316 (Part 3)	R	1	Each Control Unit	
4.3 & Table 1	Sludge content	--	IS 3708 (Part 2)	S	1	Once in three months	
4.3 & Table 1	Alkalinity as NH ₃	--	IS 3708 (Part 4)/ ISO 125	R	2	Each Control Unit	One sample from the storage tank and onesample during filling in drums.
4.3 & Table 1	KOH number	--	IS 3708 (Part 5)/ ISO 127	R	1	Each Control Unit	
4.3 & Table 1	Mechanical stability	--	IS 3708 (Part 6)	R	1	Each Control Unit	
4.3 & Table 1	Volatile fatty acid number	--	IS 3708 (Part 7)/ ISO 506	R	2	Each Control Unit	One sample from the storage tank and one sample during filling in drums.
4.3 & Table 1	Copper content	--	IS 9316 (Part 7)	S	1	Once in three months	
4.3 & Table 1	Manganese content	--	IS 9316 (Part 9)	S	1	Once in three months	
4.4	Magnesium (Optional requirement)	--	IS 3708 (Part 11)	S	As agreed to between the purchaser and the supplier		

Note-1: 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.

Note-3: Difference between total solids content and dry rubber content. Total solids content may be determined in accordance with IS9316 (Part 4).

ANNEX C
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Possible Tests in a Day

- (i) Colour [Clause 4.1]**
- (ii) Odour [Clause 4.2]**
- (iii) Alkalinity as ammonia [Clause 4.3 & Table 1, S. No. v]**
- (iv) Mechanical stability [Clause 4.3 & Table 1, S. No. vii]**
- (v) Volatile fatty acid number [Clause 4.3 & Table 1, S. No. viii]**