

भारतीय मानक
Indian Standard

IS 5430 : 2017

अमोनिया परिरक्षित सांद्रित प्राकृतिक
रबड़ लैटेक्स
(दूसरा पुनरीक्षण)

Ammonia Preserved
Concentrated Natural Rubber
Latex
(*Second Revision*)

ICS 83.040.70

© BIS 2017



भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली-110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.org.in www.standardsbis.in

September 2017

Price Group 2

Rubber and Rubber Products Sectional Committee, PCD13

NATIONAL FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Rubber and Rubber Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was first published in 1969 and revised in 1981. In the first revision, method of expressing alkalinity and coagulum content was changed; and the requirement for total solids content was removed.

This revision is being carried out to align the standard with ISO 2004 : 2010 'Natural rubber latex concentrates, centrifuged or creamed, ammonia-preserved type — Specification'.

Preserved latex is an alkaline liquid with the rubber particles suspended in a colloidal form in an aqueous phase. Being the basic material for many of the consumer and industrial products, the quality of latex needs to be controlled strictly. This standard is intended to provide the plantation industry a guide to produce latex to suit the requirements of consumers.

This standard contains clause 4.4 which call for agreement between the purchaser and the supplier.

In the formulation of this standard, considerable assistance has been derived from ISO 2004 : 2010 'Natural rubber latex concentrates, centrifuged or creamed, ammonia-preserved type — Specification' published by International Organization for Standardization.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 Rules for rounding off numerical value (*revised*). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

AMMONIA PRESERVED CONCENTRATED NATURAL RUBBER LATEX

(Second Revision)

1 SCOPE

This standard prescribes the requirements for concentrated natural rubber latices, concentrated by centrifugal process.

2 REFERENCES

The following standards contain provisions, which through reference in this test, constitute provisions of the standard. At the time of publication, the edition indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

| <i>IS No.</i> | <i>Title</i> |
|------------------------------------|--|
| 3708 | Methods of test for natural rubber latex: |
| (Part 1) : 1985 | Determination of dry rubber content (NRL:1) (<i>first revision</i>) |
| (Part 2) : 2001 | Determination of sludge content (NRL:5) (<i>first revision</i>) |
| (Part 4) : 2008/ ISO 125 : 2003 | Determination of total alkalinity (NRL:7) (<i>first revision</i>) |
| (Part 5) : 2005/ ISO 127 : 1995 | Determination of KOH number (<i>second revision</i>) |
| (Part 6) : 1985 | Determination of mechanical stability (NRL:9) (<i>first revision</i>) |
| (Part 7) : 2005/ ISO 506 : 1992 | Determination of volatile fatty acid number (<i>second revision</i>) |
| (Part 11) : 2001 | Determination of magnesium (Direct Titration Method) (NRL:18) (<i>second revision</i>) |
| 4905 : 2015 | Random Sampling and Randomization Procedures (<i>first revision</i>) |
| 5190 : 1993 | Code of packaging natural rubber latex in drums |
| 9316 | Methods of test for rubber latex : |
| (Part 3) : 1988 | Determination of coagulum content (Sieve Residue (RL:3) (<i>first revision</i>) |
| (Part 4) : 1988 | Determination of total solids content (RL:4) (<i>first revision</i>) |
| (Part 5) : 1988 | Drawing of samples (RL:5) (<i>first revision</i>) |

IS No.

Title

| | |
|-----------------|---|
| (Part 7) : 1987 | Determination of total copper (RL:7) |
| (Part 9) : 1987 | Determination of total manganese (RL:9) |

3 TYPES

This standard covers three types of concentrated natural rubber latices as follows:

- a) *Type HA* — Centrifuged natural rubber latex preserved with ammonia only with an alkalinity of at least 0.6 percent.
- b) *Type MA* — Centrifuged natural rubber latex preserved with ammonia and other preservatives as agreed to between the purchaser and the supplier with an alkalinity above 0.3 percent but less than 0.6 percent.
- c) *Type LA* — Centrifuged natural rubber latex preserved with ammonia and other preservatives as agreed to between the purchaser and the supplier with an alkalinity of not more than 0.3 percent.

4 REQUIREMENTS

4.1 Colour

The colour of all types of latex, when visually examined, shall not be pronounced blue or grey.

4.2 Odour

For all types of latex there shall not be any pronounced odour of putrefaction after neutralization with boric acid.

4.3 The latex shall conform to the requirements prescribed in Table 1.

4.4 Optional Requirements

The limit of magnesium content when determined in accordance with the method prescribed in IS 3708 (Part 11) shall be as agreed to between the purchaser and the supplier.

5 SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

5.1 The method of drawing representative samples of

Table 1 Requirements for Concentrated and Preserved Natural Rubber Latices
(Clause 4.3)

| Sl No. | Characteristics | Requirement | | | Method of Test, Ref to |
|--------|--|----------------|-------------------------|----------------|--------------------------|
| | | Type HA | Type MA | Type LA | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Dry rubber content, percent by mass, <i>Min</i> | 60.0 | 60.0 | 60.0 | IS 3708 (Part 1) |
| ii) | Non-rubber solids ¹⁾ , percent by mass, <i>Max</i> | 1.8 | 1.8 | 1.8 | — |
| iii) | Coagulum content, percent by mass of latex, <i>Max</i> | 0.03 | 0.03 | 0.03 | IS 9316 (Part 3) |
| iv) | Sludge content, percent by mass, <i>Max</i> | 0.05 | 0.05 | 0.05 | IS 3708 (Part 2) |
| v) | Alkalinity as ammonia, percent by mass of latex | 0.6 <i>Min</i> | Above 0.3 but below 0.6 | 0.3 <i>Max</i> | IS 3708 (Part 4)/ISO 125 |
| vi) | KOH number, <i>Max</i> | 0.8 | 0.8 | 0.8 | IS 3708 (Part 5)/ISO 127 |
| vii) | Mechanical stability ²⁾ s, <i>Min</i> ³⁾ | 650 | 650 | 650 | IS 3708 (Part 6) |
| viii) | Volatile fatty acid number, <i>Max</i> ³⁾ | 0.10 | 0.10 | 0.10 | IS 3708 (Part 7)/ISO 506 |
| ix) | Copper content, ppm of total solids, <i>Max</i> | 8 | 8 | 8 | IS 9316 (Part 7) |
| x) | Manganese content, ppm of total solids, <i>Max</i> | 8 | 8 | 8 | IS 9316 (Part 9) |

¹⁾ Difference between total solids content and dry rubber content. Total solids content may be determined in accordance with IS 9316 (Part 4).

²⁾ Test for mechanical stability shall be carried out at least 20 days of the packing of rubber latex.

³⁾ Or as agreed to between the purchaser and the supplier.

the material and criteria for conformity shall be as prescribed in Annex A.

6 PACKING AND MARKING

6.1 Packing

The latex shall be packed in mild steel drums with internal bituminous coating having capacity 210 ± 5 litres. Polyethylene or epoxy lined mild steel drums or flexi bags capable of holding 22.0 ± 0.5 MT or any other bulk container may also be used for packaging, if specifically required by the consumer on mutually acceptable terms (see IS 5190).

6.2 Marking

The containers shall be marked with the following:

- Name of the producer or trademark, if any;
- Type of latex;
- Net and gross mass, in kg;
- Dry rubber content (DRC); and
- Date of packing.

6.3 The containers may also be marked with the Standard Mark.

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX A
(Clause 5.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1 TANK SUPPLIES

A-1.1 When the material is supplied in tanks or other bulk containers, each tank or bulk container shall be sampled separately.

A-1.2 A representative sample shall be drawn from each tank or bulk container according to 5 of IS 9316 (Part 5).

A-1.3 The sample shall be tested for all the requirements given in 4. The material in tank or bulk container shall be considered as conforming to this specification if the corresponding representative sample satisfies all the requirements given in this standard.

A-2 DRUM SUPPLIES

A-2.1 Lot

In a single consignment, all the drums of the same size, same type and belonging to the same batch of manufacture shall constitute a lot.

A-2.2 For ascertaining the conformity of material to the requirements of this standard, samples shall be tested from each lot separately.

A-2.3 The number of drums (*n*) to be selected for sampling shall depend on size of the lot (*N*) and shall be in accordance with col 1 and 2 of Table 2.

Table 2 Scale of Sampling

| Lot Size <i>N</i> | No. of Drums to be Selected <i>n</i> |
|----------------------|--|
| (1) | (2) |
| Up to 25 | 3 |
| 26 to 50 | 5 |
| 51 to 100 | 7 |
| 101 and above | 10 |

A-2.4 These drums shall be chosen at random from the lot. In order to ensure the randomness of selection, reference may be made to IS 4905. In case this standard is not readily available, the following procedure may be adopted:

Starting from any drum in the lot, count them as 1, 2, 3..... up to *r* and so on in one order, where *r* is the integral part of *N/n*. Every *r*th drum thus counted shall be selected to constitute the required sample size.

A-3 METHOD FOR TAKING SAMPLES FROM SELECTED DRUMS

A-3.1 From each of the drums selected according to A-2.3 and A-2.4, a representative sample shall be drawn

in accordance with the procedure prescribed in 5 of IS 9316 (Part 5).

A-4 TEST SAMPLE AND REFEREE SAMPLE

A-4.1 From the samples (A-3.1) representing different drums in the lot, a small but approximately equal quantity of material shall be taken and mixed thoroughly to form a composite sample, not less than 1 800 g. The composite sample so obtained shall be divided into three equal parts, one for the purchaser, another for the supplier and the third for the referee.

A-4.2 The remaining portions of the material in the samples (A-3.1) shall be divided into three equal parts, each forming an individual sample. One set of individual samples representing the drums selected (*n*) shall be for the purchaser, another for the supplier and the third for the referee.

A-4.3 All the individual and composite samples shall be transferred to separate containers. Each container shall then be sealed air-tight with stoppers and marked with full details of sampling, the date of sampling, month and year of manufacture, batch or code number and other important particulars of the consignment.

A-4.4 The referee sample consisting of a composite sample and a set of individual samples shall bear the seals of both the purchaser and the supplier and shall be kept at a place agreed to between the two. This shall be used in case of any dispute between the two.

A-5 NUMBER OF TESTS

A-5.1 Tests for determination of dry rubber content, alkalinity as ammonia, volatile fatty acid number and mechanical stability shall be conducted on each of the individual samples.

A-5.2 Tests for the remaining characteristics shall be carried out on the composite sample.

A-6 CRITERIA FOR CONFORMITY

A-6.1 The lot shall be declared as conforming to the requirements of the specification if A-6.1.1 and A-6.1.2 are satisfied.

A-6.1.1 For characteristics tested on individual samples (see A-5.1), all the test results on each of the individual samples shall satisfy the corresponding requirements given in Table 1.

A-6.1.2 For the remaining characteristics given under 4, all the test results on composite sample shall meet the corresponding requirements specified in 4.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: PCD 13 (2636).

Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
|-----------|---------------|---------------|
| | | |
| | | |
| | | |
| | | |

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones : 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

Telephones

{ 2323 7617
2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi
KOLKATA 700054

{ 2337 8499, 2337 8561
2337 8626, 2337 9120

Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, CHANDIGARH 160019

{ 26 50206
265 0290

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113

{ 2254 1216, 2254 1442
2254 2519, 2254 2315

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400093

{ 2832 9295, 2832 7858
2832 7891, 2832 7892

Branches: AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. COIMBATORE. DEHRADUN. DURGAPUR. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. JAMMU. JAMSHEDPUR. KOCHI. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAIPUR. RAJKOT. VISAKHAPATNAM.

Published by BIS, New Delhi