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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1802

DETERMINATION OF BORIC ACID IN LATEX

1st EDITION

October 1970

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1802, *Determination of boric acid in latex*, was drawn up by Technical Committee ISO/TC 45, *Rubber*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1802, which was circulated to all the ISO Member Bodies for enquiry in March 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	Switzerland
Austria	Israel	Turkey
Brazil	Italy	U.A.R.
Ceylon	Netherlands	United Kingdom
Czechoslovakia	New Zealand	U.S.A.
France	Poland	U.S.S.R.
Germany	South Africa, Rep. of	Yugoslavia
Greece	Spain	
Hungary	Sweden	

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 1802 October 1970

DETERMINATION OF BORIC ACID IN LATEX

1. SCOPE

This ISO Recommendation describes a procedure for the determination of boric acid in natural rubber latex which contains preservative agents and which has been submitted to some type of concentration process. The procedure is not necessarily suitable for latices from natural sources other than *Hevea brasiliensis* or for latices of synthetic rubber, compounded latex, vulcanized latex or artificial dispersions of rubber.

2. PRINCIPLE OF METHOD

The pH of a quantity of latex containing about 0.02 g of boric acid is adjusted to 7.5 at which value boric acid exists substantially in the undissociated form. Mannitol is then added in excess to form the strongly acidic boric acid-mannitol complex. Hydrogen ions equivalent to the boric acid present in the latex are thus liberated and the pH falls. Boric acid is determined from the amount of alkali required to restore the pH of the latex to 7.5.

3. REAGENTS

All reagents should be of recognized analytical reagent quality and distilled water or water of equivalent purity should be used whenever water is specified.

3.1 *Sodium hydroxide*, approximately 0.05 N solution.

The solution should be standardized by titration with boric acid solution using the following procedure :

Pipette 5 ml of the boric acid solution (3.5) into a 250 ml beaker. Add 2 ml of stabilizer solution (3.3) and 50 ml of water. If the pH of the solution, measured electrometrically, exceeds 5.5, add hydrochloric acid solution (3.2), drop by drop, with constant stirring to reduce the pH to a value between 5.5 and 2.5. Allow the solution to stand for 15 minutes. Add the sodium hydroxide solution (3.1) from a burette, with constant stirring, until the pH is 7.50. Add 4 g of mannitol (3.4) with continued stirring. The pH falls. Again add sodium hydroxide from the burette and record the volume of solution required to restore the pH to 7.50.

Calculate the normality, N, of the sodium hydroxide solution as follows :

$$N = 0.081 \frac{m_1}{T}$$

where

m_1 is the mass, in grammes, of boric acid in 1000 ml of boric acid solution;

T is the volume, in millilitres, of sodium hydroxide solution required to restore the pH to 7.50.