

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION
R 976**

METHOD FOR THE DETERMINATION OF pH OF LATEX

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 976, *Method for the determination of pH of 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, in 1963, to the adoption of a Draft ISO Recommendation.

In November 1963, this Draft ISO Recommendation (No. 621) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	Germany	Poland
Australia	Hungary	Spain
Austria	India	Sweden
Brazil	Israel	Switzerland
Canada	Italy	United Kingdom
Chile	Japan	U.S.S.R.
Colombia	Korea, Rep. of	Yugoslavia
Czechoslovakia	Netherlands	
France	New Zealand	

One Member Body opposed the approval of the Draft :

U.S.A.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in February 1969, to accept it as an ISO RECOMMENDATION.

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METHOD FOR THE DETERMINATION OF pH OF LATEX

1. SCOPE

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

2. REAGENTS

2.1 Borax solution, 0.05 M

Dissolve 19.072 g of sodium tetraborate decahydrate ($\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$) (see Annex, section A.1) in carbon dioxide-free distilled water and dilute to 1 litre in a one-mark graduated flask. The borax used should comply with the specification given in the Annex.

The solution should be stored in chemically resistant glass or polyethylene containers, fitted with soda-lime carbon dioxide traps. It should be replaced after one month.

The pH of this solution is 9.18 at 25 °C.

2.2 Trisodium phosphate solution, 0.01 M

Dissolve 1.780 g of disodium hydrogen phosphate dihydrate ($\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$) (see Annex, section A.2) in 100 ml of 0.1 M carbonate-free solution of sodium hydroxide, and dilute to 1 litre with carbon dioxide-free distilled water in a one-mark graduated flask. The disodium hydrogen phosphate used should comply with the specification given in the Annex.

The solution should be stored in wax-coated glass containers or polyethylene containers fitted with soda-lime carbon dioxide traps.

The pH of this solution is 11.72 at 25 °C.

3. APPARATUS

3.1 pH-meter, equipped with glass electrode and saturated calomel cell of the sleeve or sintered disk type and capable of being read to 0.02 units.

The instrument is equipped with a null-deflection indicator in preference to a direct reading meter.

3.2 Glass electrode, of the type suitable for solutions of high pH.

4. PROCEDURE

4.1 Standardization of pH-meter

Switch on the pH-meter and allow it to warm up according to the manufacturer's instructions.

Wash the electrodes with distilled water and then with 0.05 M borax solution. Immerse the electrodes in 0.05 M borax solution and bring the assembly to a temperature of 25 ± 1 °C. Adjust the instrument to read pH 9.18.

Check the adjustment on a separate portion of 0.05 M borax solution. Successive readings should agree within 0.05 pH units.

Wash the electrodes with distilled water and 0.01 M trisodium phosphate solution and measure the pH of this solution at an equilibrium temperature of 25 ± 1 °C.

The instrument is considered to be operating satisfactorily if the value obtained for the pH of the 0.01 M phosphate solution is between 11.67 and 11.77.

4.2 Determination of pH of latex

Wash the electrodes with distilled water and wipe dry with soft absorbent paper. Immerse the electrodes in the prepared latex, bring the assembly to an equilibrium temperature of 25 ± 1 °C, and measure the pH value.

Duplicate determinations should agree within 0.05 unit.

The pH of the latex should be reported to the nearest 0.05 unit.

Glass electrodes should be kept in distilled water when not in use and the calomel electrode in saturated potassium chloride.

If a series of determinations is to be made, the pH-meter should be checked, using 0.05 M borax solution, at 30 minute intervals, or more frequently depending on the change found at each successive check.

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