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# International Standard



# 976

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Rubber latices — Determination of pH

*Latex de caoutchouc — Détermination du pH*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 976 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

This second edition cancels and replaces the first edition (ISO 976:1977), of which it constitutes a minor revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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# Rubber latices — Determination of pH

## 1 Scope and field of application

This International Standard specifies a method for the determination of the pH of natural rubber latex which contains preservative agents and which has been submitted to some type of concentration process, and also for the determination of the pH of synthetic rubber latex.

NOTE — The accuracy of the method decreases at pH values above 11.

## 2 References

ISO 123, *Rubber latex — Sampling*.

ISO 3696, *Water for laboratory use — Specifications and methods of test*.<sup>1)</sup>

## 3 Sampling

Sampling shall be carried out in accordance with one of the methods specified in ISO 123.

## 4 Reagents

Use only reagents specified by the manufacturer of the pH-meter, or commercially available analytical grade solutions of known pH. Where these are not available, prepare standard solutions using only reagents of recognized analytical grade, and only carbon dioxide-free distilled water or water of equivalent purity (grade 3 as defined in ISO 3696).

**Borax**, 0,01 mol/dm<sup>3</sup> solution.

Dissolve 3,814 g of sodium tetraborate decahydrate (Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>·10 H<sub>2</sub>O) in water and dilute to 1 000 cm<sup>3</sup> in a volumetric flask.

The solution shall be stored in chemically resistant glass or polyethylene containers, fitted with soda-lime carbon dioxide traps. It shall be replaced after 1 month.

The pH of this solution is 9,20 at 23 °C.

## 5 Apparatus

Ordinary laboratory apparatus and

**pH-meter**, equipped with glass electrode and saturated calomel cell, and capable of being read to 0,02 unit. The glass electrode shall be of a type suitable for use in solutions of pH up to 13.

NOTE — Glassware with either cm<sup>3</sup> or ml marking is satisfactory for use with the procedure specified in this International Standard.

## 6 Procedure

### 6.1 Standardization of pH-meter

Calibrate the pH-meter according to the manufacturer's instructions within 2 pH units of the range of the latex to be tested, using commercially available solutions of known pH. If needed, use the borax solution. Standardization shall be carried out at an equilibrium temperature of 23 ± 1 °C (27 ± 1 °C for tropical countries).

Successive readings shall agree within 0,05 pH unit.

### 6.2 Determination of pH of latex

Wash the electrodes with water and wipe dry with soft absorbent paper. Bring the latex to an equilibrium temperature of

1) At present at the stage of draft.

$23 \pm 1 \text{ }^\circ\text{C}$  ( $27 \pm 1 \text{ }^\circ\text{C}$  for tropical countries), immerse the electrodes in the latex, and measure the pH value.

If a series of determinations is to be made, recalibrate the pH-meter in accordance with 6.1 at 30 min intervals, or more frequently, depending on the change found at each successive check.

Any film of rubber remaining on the glass electrode after washing it with water shall be removed with a rubber solvent, before storing or re-using the electrode.

When not in use, glass electrodes shall be kept in water and the calomel cell in a saturated potassium chloride solution.

The determination shall be carried out in duplicate and the results shall agree within 0,1 pH unit.

## **7 Test report**

The test report shall include the following particulars :

- a) reference to this International Standard;
- b) all details necessary for the identification of the sample;
- c) the pH value of the latex, expressed to the nearest 0,1 unit, and the test temperature;
- d) any unusual features noted during the determination;
- e) any operation not included in this International Standard or in the International Standard to which reference is made, or regarded as optional.

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