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Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of pH of aqueous extract

Plastiques — Résines d'homopolymères et de copolymères de chlorure de vinyle — Détermination du pH de l'extrait aqueux

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 1264 was developed by Technical Committee ISO/TC 61, *Plastics*.

This second edition was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 1264-1975), which had been approved by the member bodies of the following countries :

Australia	Hungary	Poland
Austria	India	Romania
Belgium	Iran	South Africa, Rep. of
Bulgaria	Israel	Spain
Canada	Italy	Sweden
Czechoslovakia	Japan	Switzerland
Egypt, Arab Rep. of	Korea, Dem. P. Rep. of	Turkey
France	Korea, Rep. of	USA
Germany, F. R.	Netherlands	Yugoslavia
Greece	New Zealand	

The member body of the following country had expressed disapproval of the document on technical grounds :

United Kingdom *

* Later on the member body of the United Kingdom expressed approval of the second edition.

Printed in Switzerland

Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of pH of aqueous extract

1 Scope and field of application

This International Standard specifies a method for the determination of the pH of the aqueous extract from homopolymer and copolymer resins of vinyl chloride, by means of a pH meter equipped with a glass electrode.

This determination is not suitable for estimating the electrical qualities of the resin, but may be of interest in selecting additives and, especially, stabilizers which are to be used for the preparation of compounds.

2 Principle

Treatment of a test portion of resin with a given volume of an aqueous solution of sodium chloride previously neutralized to pH 7,0 ± 0,2. After stirring and decanting, measurement of the potential difference existing between a glass electrode and a reference calomel electrode immersed in the liquid phase of the mixture maintained at 23 ± 2 °C, and reading of this difference, expressed in pH units, directly on the pH meter scale.

3 Reagent

Sodium chloride, 10 g/l solution, neutral or neutralized to pH 7,0 ± 0,2, with 0,01 mol/l acid or alkali solution.

(For the preparation of this aqueous solution use only distilled water.)

4 Apparatus

NOTE — Before use, all the glassware should be de-activated by a suitable method, such as the one described in the annex.

4.1 pH meter, equipped with a glass electrode, allowing pH measurements to the nearest 0,1 pH unit.

As temperature has a great influence on measurement results, the pH meter used shall be equipped with a device allowing compensation for temperature.

The pH meter shall be regularly checked by pH measurement of standard buffer solutions.

4.2 Pipette.

4.3 Beaker, of capacity 100 ml.

4.4 Flask, of capacity 100 ml, fitted with a ground glass stopper.

4.5 Mechanical shaker/stirrer.

5 Procedure

Before all measurements of pH of the aqueous extract, carry out a blank test on the sodium chloride solution (clause 3). This solution can be regarded as correct if the value of the pH, so determined, is between 6,8 and 7,2.

If such is not the case, neutralize the solution again as described in clause 3 and carry out a fresh confirmation.

If the value of pH is between 6,8 and 7,2, continue the determination as described below :

Introduce into the flask (4.4), previously washed out with the sodium chloride solution verified as above :

a) 10 ± 0,5 g of resin;

b) 50 ± 2 ml of sodium chloride solution.

Stopper the flask and place it on the shaker (4.5). Agitate rapidly for 60 ± 5 min. Allow the flask to stand for 5 to 10 min to allow the resin to settle (below or on the surface of the liquid).

Then, using the pipette (4.2), transfer approximately 30 to 40 ml of the liquid above or below the resin into the beaker (4.3), which has been rinsed beforehand with the sodium chloride solution. (In cases where a large amount of foam has been formed, filtering may be necessary before pipetting.) Measure the pH of the aqueous solution at a temperature of 23 ±2 °C by means of the pH meter (4.1).

Carry out two determinations. Express the values in pH units to one decimal place. If the difference in duplicate determinations is greater than 0,2 pH units, carry out a further series of determinations until agreement within this limit is obtained.

6 Expression of results

Calculate the arithmetic mean of the two values finally retained, rounding to the first decimal place, according to the usual rules.

NOTE — Co-operative tests have shown reproducibility between different laboratories, on the values of pH thus determined, of ± 0,3.

7 Test report

The test report shall include the following particulars :

a) reference to this International Standard;

b) complete identification of the product tested;

c) the result expressed according to clause 6;

d) any circumstances which may have affected the result.

Annex

Recommended method for the de-activation of glassware

Immerse the glassware in a 100 g/l hydrochloric acid solution for 2 days. Replace the hydrochloric acid with a fresh solution and allow to stand for a further 2 days.

Wash copiously with de-ionized water four or five times.

Wash with distilled water three times.

Dry in an oven at 120 °C for 24 h.