
INTERNATIONAL STANDARD



4045

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

Leather — Determination of pH

Cuir — Détermination du pH

First edition — 1977-09-15

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 4045:1977](#)

<https://standards.iteh.ai/catalog/standards/sist/e7ce9fb2-026f-41fd-a31a-8f32d1ae635c/iso-4045-1977>

UDC 675 : 543.257.1

Ref. No. ISO 4045-1977 (E)

Descriptors : leather, chemical tests, measurement, pH.

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 4045 was developed by Technical Committee ISO/TC 120, *Leather*, and was circulated to the member bodies in May 1976.

STANDARD PREVIEW
(standards.iteh.ai)

It has been approved by the member bodies of the following countries :

Australia	Hungary	<u>ISO 4045:1977</u>
Brazil	India	Netherlands
Canada	Iran	New Zealand
Chile	Ireland	Poland
Czechoslovakia	Israel	Portugal
France	Korea, Rep. of	South Africa, Rep. of
Germany	Mexico	Spain
		Turkey

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

U.S.S.R.

Leather — Determination of pH

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the pH and the difference figure of an aqueous leather extract.

2 REFERENCES

ISO 4044, *Leather — Preparation of chemical test samples*.

ISO . . ., *Leather — Methods of sampling for chemical analysis*.¹⁾

3 DEFINITION

For the purpose of this International Standard the following definition applies :

difference figure : The difference between the pH value of a solution and that of its ten-fold dilution.

It is a measure of the strength of acids and bases and can never exceed the value 1. The difference figure amounts to 0,7 to 1,0 when a solution contains a free strong acid (or a free strong base). The ionization of weak acids and bases increases with greater dilution, and therefore the difference figure can only act as a criterion for the presence of free strong acid or base in aqueous extracts with pH values below 4 or over 10.

4 PRINCIPLE

Preparation of an aqueous extract from a test portion of the leather, and measurement of the pH of the extract, using a pH meter.

5 REAGENTS

5.1 Water having a pH value between 6 and 7 and a conductivity not greater than 2×10^{-6} S/cm at 20 °C.

The water shall be kept in a freshly boiled-out container of resistant glass of low alkali content.

5.2 Buffer solution, for calibrating the electrode system.

It is preferable to purchase a standard buffer solution for measurement. If purchased in concentrated form, the control buffer must be freshly prepared each time. The length of time for which buffer solutions will keep depends on their composition and the method of use. Control of the accuracy of the buffer solution is therefore indispensable.

Used buffer solution shall be discarded.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

6 APPARATUS

6.1 Suitable shaker, adjusted to a frequency of $50 \pm 10 \text{ min}^{-1}$.

6.2 pH meter with glass electrode, with a measuring range from 0 to 14 pH units, graduated in 0,05 pH unit. The electrode system shall be calibrated at intervals against the buffer solution (5.2).

NOTE — Aqueous extracts of heavily fat-liquored leather may in time make the electrode membrane dirty. In such cases the membrane should be lightly rubbed with a piece of cotton wool dipped in acetone or the electrode should be suspended in a 1 : 1 water-acetone mixture. After cleaning, the membrane should again be thoroughly soaked in water.

6.3 Balance, accurate to 0,05 g.

6.4 Glassware, as follows :

6.4.1 Wide-mouthed flask with leak-proof stopper, capacity 100 ml.

6.4.2 Measuring cylinder, capacity 100 ml, graduated in 1 ml divisions.

6.4.3 Volumetric flask, capacity 100 ml.

1) In preparation.

6.4.4 Pipette, capacity 10 ml.

NOTE — All glassware shall be made of resistant glass of low alkali content. It is necessary to check the apparatus carefully before use by a blank test using distilled water. The pH value and conductivity before and after this test shall be within the limits quoted in 5.1. Polyethylene and borosilicate glass have been found suitable.

7 SAMPLING

Samples shall be taken in accordance with ISO . . .

8 PROCEDURE

8.1 Test portion

Weigh $5 \pm 0,1$ g of the test sample, prepared in accordance with ISO 4044.

8.2 Preparation of the extract

Place the test portion (8.1) in the wide-mouthed flask (6.4.1) and add 100 ± 1 ml of water (5.1) at 20 ± 2 °C. Shake well by hand for about 30 s, so that the test portion is uniformly wet. Then shake mechanically in the shaker (6.1) for 6 h. Allow the extract to settle before decanting. If difficulty is experienced in decanting the extract from the slurry, it may be strained through a clean, dry, non-absorbent mesh (for example, nylon cloth or a coarse sintered glass filter), or centrifuged.

8.3 Determination of the pH value

8.3.1 Standardize the pH meter with two buffer solutions; one below the expected value and one above the expected

value. Both these buffer readings shall be within 0,02 pH unit of the correct reading when the meter is standardized.

8.3.2 Bring the temperature of the extract (8.2) to 20 ± 1 °C. Determine the pH value of the extract with the pH meter (6.2), to the nearest 0,05 pH unit, as soon as a steady reading has been reached. The reading shall be taken within 30 to 60 s after rinsing the electrodes in the extract.

8.4 Determination of difference figure

If the pH value is below 4 or over 10, the difference figure shall be determined. For this determination, transfer, using the pipette (6.4.4), 10 ml of the extract into the volumetric flask (6.4.3) and make up to the mark with water. Rinse the electrodes with approximately 20 ml of the diluted solution and then measure the pH value as in 8.3.

9 TEST REPORT

The test report shall include the following particulars :

- a) reference to this International Standard;
- b) details of all deviations from the prescribed test conditions;
- c) reference to any instability of the pH reading of the extract which prevents an unequivocal statement of the pH value or difference figure;
- d) statement of the mean value of the individual determinations of pH value and, if this value is below 4 or over 10, the difference figure. The figures should be given to the nearest 0,05 pH unit.

ITEH STANDARD PREVIEW
(standards.iteh.ai)
ISO 4045:1977
<https://standards.iteh.ai/catalog/standards/sist/e7ce9fb2-026f-41fd-a31a-8f32d1ae635c/iso-4045-1977>