INTERNATIONAL STANDARD

ISO 2417

IULTCS/IUP 7

Third edition
2016-02-15

Leather — Physical and mechanical tests — Determination of the static absorption of water

Cuir — Essais physiques et mécaniques — Détermination de l'absorption statique d'eau

Reference numbers
ISO 2417:2016(E)
IULTCS/IUP 7:2016(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**
1 Scope **1**
2 Normative references **1**
3 Principle **1**
4 Apparatus **1**
5 Sampling and sample preparation **2**
6 Procedure **2**
7 Expression of results **3**
8 Test report **3**

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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 2417 was prepared by the Physical Test Commission of the International Union of Leather Technologists and Chemists Societies (IUP Commission, IULTCS) in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, the secretariat of which is held by UNI, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

It is based on IUP 7 originally published in *J. Soc. Leather Trades Chemists* **44**, p. 367, (1960) and declared an official method of the IULTCS in 1961. This updated version was published in *J. Soc. Leather Tech. Chem.* **84**, p. 323, (2000) and reconfirmed as an official method in March 2001. The same principle is used but the text has been updated and includes the number of test pieces to be taken.

IULTCS, originally formed in 1897, is a world-wide organization of professional leather societies to further the advancement of leather science and technology. IULTCS has three Commissions, which are responsible for establishing international methods for the sampling and testing of leather. ISO recognizes IULTCS as an international standardizing body for the preparation of test methods for leather.

This third edition cancels and replaces the second edition (ISO 2417:2002), of which it constitutes a minor revision to align item c) of Clause 8 with ISO 2419:2012.

Leather — Physical and mechanical tests — Determination of the static absorption of water

1 Scope

This International Standard specifies a method for determining the water absorption of leather under static conditions. The method is applicable to all leather, particularly heavy leather.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2418, *Leather — Chemical, physical and mechanical and fastness tests — Sampling location*

ISO 2419, *Leather — Physical and mechanical tests — Sample preparation and conditioning*

ISO 2420, *Leather — Physical and mechanical tests — Determination of apparent density*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Principle

A test piece of known mass or volume is immersed in water for a known period of time and the volume of water absorbed measured.

4 Apparatus

4.1 Glass Kubelka apparatus, as shown in Figure 1. The graduated scale shall be readable to 0,1 ml with an accuracy of ± 0,1 ml. The total volume of the bulb (A) and the graduated tube shall be 75 ml ± 2 ml.

4.2 Rubber stopper (C), fitted with a glass rod or a nickel or stainless steel wire of diameter about 1 mm and of sufficient length to keep the test piece at the end of the cylinder (B) distant from the stopper (C).

Dimensions in millimetres

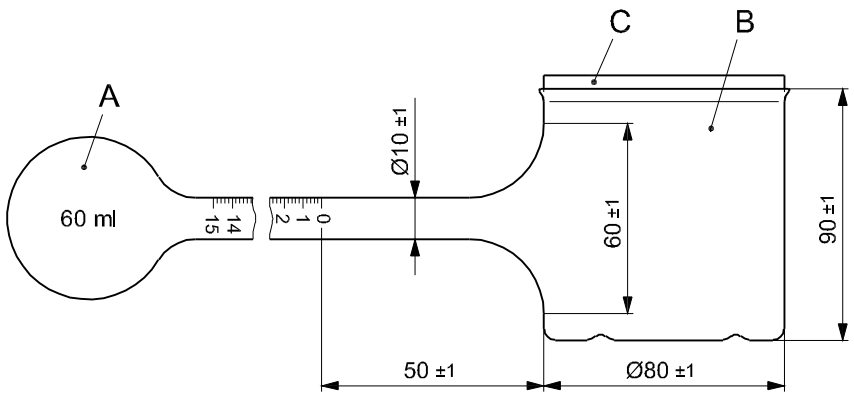

Figure 1 — Kubelka apparatus and stopper

4.3 **Press knife**, the inner wall of which is a right angled circular cylinder of diameter 70 mm ± 1 mm as specified in ISO 2419.

4.4 **Balance**, reading to 0,001 g.

4.5 **Distilled or de-ionised water**, conforming to the requirements of grade 3 of ISO 3696.

5 Sampling and sample preparation

5.1 Sample in accordance with ISO 2418. From the sample, cut three test pieces by applying the press knife (4.3) to the grain surface. Condition the test pieces in accordance with ISO 2419.

If there is a requirement for more than two hides or skins to be tested in one batch, then only one sample need be taken from each hide or skin, provided that the overall total is not less than three test pieces.

5.2 Weigh the test piece to the nearest 0,001 g or determine its volume in accordance with ISO 2420.

5.3 Carry out all further operations at a temperature of 20 °C ± 2 °C or 23 °C ± 2 °C. There is no further need for humidity control.

6 Procedure

6.1 Ensure that the Kubelka apparatus (4.1) is clean and free of grease. Wet the interior surfaces with distilled or de-ionized water (4.5) and pour out the excess.

6.2 Place the apparatus with the bulb (A) directly below the cylinder (B) and fill with sufficient distilled or de- ionized water (4.5) at 20 °C ± 2 °C or 23 °C ± 2 °C to give a water level between 0 ml and 1 ml on the graduated scale. Record the scale reading.

6.3 Place the test piece in the cylinder (B) and pour the water from the bulb (A) into the cylinder. Close the cylinder with the stopper (C) to prevent evaporation losses and place the apparatus on a level surface.

6.4 After the test piece has been immersed for a specific time (see Note 1 to 6.5) turn the apparatus so that the water drains into the bulb. One min after drainage, note the scale reading at the water level and calculate the volume of water absorbed.

6.5 If the water absorption is required at other time intervals, turn the apparatus immediately so that the water flows back into the cylinder (B) and again covers the test piece. Repeat the operation in 6.4.

NOTE 1 For most purposes, measurements after two periods of immersion are sufficient. If possible, the periods are taken from the following, 15 min ± 0,2 min; 30 min ± 0,2 min; 60 min ± 0,5 min; 120 min ± 0,5 min; 24 h ± 0,1 h.

NOTE 2 The periods of 1 min during which the water is being drained back are not to be considered as part of periods of immersion which precede them, but are considered as parts of subsequent periods of immersion. For example, if the water absorptions during periods of immersion of 15 min and 60 min are to be measured on the same test piece, and the instant of first immersion is at time zero, subsequent actions will be as follows:

— at 15 min, begin draining,

— at 16 min, read off the residual volume and immediately re-immerse the test piece,

— at 60 min, begin draining,

— at 61 min, read off the residual volume.

