INTERNATIONAL STANDARD

ISO 17235

IULTCS/IUP 36

Second edition
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Leather — Physical and mechanical tests — Determination of softness

Cuir — Essais physiques et mécaniques — Détermination de la souplesse

Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 17235 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, the secretariat of which is held by UNI, in collaboration with the Physical Test Commission of the International Union of Leather Technologists and Chemists Societies (IUP Commission, IULTCS), in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement). This method is technically similar to the method in IUP 36.

IULTCS, originally formed in 1897, is a worldwide 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 second edition cancels and replaces the first edition (ISO 17235:2002), which has been technically revised. Subclause 4.1.8 has been added.

Leather — Physical and mechanical tests — Determination of softness

1 Scope

This International Standard specifies a non-destructive method for determining the softness of a leather. It is applicable to all non-rigid leathers, e.g. shoe-upper leather, upholstery leather, leather goods leather and apparel leather.

2 Normative references

The following referenced documents are indispensable for the application of this document. 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*

3 Principle

A cylindrical rod of defined mass is lowered at a specified rate onto a securely clamped area of leather. The distension of the leather produced is recorded as the softness.

4 Apparatus

4.1 Test machine, shown diagrammatically in Figure 1, including the parts described in 4.1.1 to 4.1.8.

4.1.1 Circular aperture (A), diameter 35,0 mm ± 0,1 mm.

4.1.2 Metal rings, able to fit into aperture A and reduce the diameter of the aperture to 25,0 mm ± 0,1 mm and 20,0 mm ± 0,1 mm, respectively.

NOTE The apertures described above are more conveniently referred to by their nominal diameters of 35 mm, 25 mm and 20 mm, respectively.

4.1.3 Clamps (B), capable of holding the leather securely both before the load pin is released and when the maximum force is applied, whilst leaving the portion over the aperture free to move.

4.1.4 Cylindrical load pin (C), diameter 4,9 mm ± 0,1 mm and length 11,5 mm ± 0,1 mm, rigidly attached to a cylindrical mass (D). The total mass of load pin and cylindrical mass shall be 530 g ± 10 g.

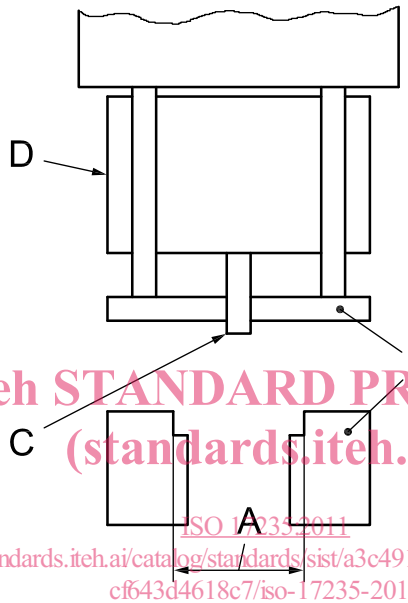
4.1.5 Means of guiding the load pin, such that the load pin acts perpendicularly to the leather surface and the vertical travel of the load pin is restricted to a distance, 11,5 mm ± 0,1 mm.

4.1.6 Means of lowering the load pin, such that the load pin travels its full permitted distance of 11,5 mm ± 0,1 mm in 1,5 s ± 0,5 s.

4.1.7 Gauge, reading to 0,1 mm, to directly measure the distension of the leather by the load pin.

4.1.8 Forces: The effective total test force is composed of the total weight of the load pin and the cylindrical mass of 5,2 ± 0,1 N, an additional constant operational force of 1,2 N ± 0,2 N, and an additional linear increasing spring force of 0,4 N ± 0,1 N (at 5 mm spring deflection), so that the effective total test force is in a range of 6,4 N to 7,2 N.

4.2 Flat rigid metal disc, minimum diameter 60 mm.



Key

A aperture
B clamps
C cylindrical load pin
D cylindrical mass

Figure 1 — Diagrammatic layout of the test machine

5 Sampling and sample preparation

Condition the leather in accordance with ISO 2419.

NOTE It might be possible to take measurements without physically cutting a sample from the hide or skin.

6 Procedure

6.1 Select the aperture from 35 mm, 25 mm or 20 mm.

NOTE It is suggested that the apertures are used as follows:

— 35 mm: measurement of firmer leathers, for example shoe-upper leathers;
— 25 mm: measurement of leathers of moderate softness, for example upholstery leathers and softer shoe upper leathers;
— 20 mm: measurement of softer leathers, for example apparel leathers.

6.2 Open the test machine and place the metal disc (4.2) over the circular aperture.

6.3 Raise the load pin and close the test machine to clamp the metal disc in position.

6.4 Release the load pin, allow the reading on the gauge to become steady and set to zero. Open the test machine and remove the metal disc.

6.5 Place the area of the leather defined in ISO 2418 over the aperture ensuring that the leather lies flat, that there are no obvious defects such as flay cuts or scar tissue over the aperture and that there is sufficient leather to allow effective clamping.

6.6 Raise the load pin and close the test machine to clamp the leather in position.

6.7 Release the load pin, allow the reading on the gauge to become steady and record the reading. Open the test machine and remove the leather.

6.8 Take three readings and report the mean and the range.

7 Test report

The test report shall include the following information:

a) a reference to this International Standard, i.e. ISO 17235:2011;

b) the nominal aperture(s) used in tests;

c) identification of the areas tested and the individual and mean deflections recorded on the gauge for each aperture used;

d) the standard atmosphere used for conditioning and testing as given in ISO 2419;

e) any deviations from the method specified in this International Standard;

f) full details for identification of the sample and any deviations from ISO 2418 with respect to sampling.

Annex A
(informative)

Source of apparatus

An example of a suitable product available commercially is given below. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO or CEN of this product.

The recommended apparatus is the ST 300 softness tester manufactured for example by:

MSA Engineering Systems Ltd., 3 Assured Drive, Thurmaston, Leicester, LE4 8BB, United Kingdom.