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Leather — Physical and mechanical tests — Determination of resistance to grain cracking and grain crack index

*Cuir — Essais physiques et mécaniques — Détermination de la résistance
à la gerçure de la fleur et indice de gerçure*

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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 3378 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 12 originally published in *J. Soc. Leather Trades Chemists* **44**, p. 380, (1960) and declared an official method of the IULTCS in 1961. This updated version was published in *J. Soc. Leather Tech. Chem.* **84**, p. 347, (2000) and reconfirmed as an official method in March 2001. This same principle is used but the text has been updated and includes the number of test pieces to be taken.

This second edition cancels and replaces the first edition (ISO 3378:1975), which has been technically revised.

[ISO 3378:2002](https://standards.iteh.ai/catalog/standards/iso/8ad94c2d-376b-4f8e-a436-d1d0124adff7/iso-3378-2002)

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Leather — Physical and mechanical tests — Determination of resistance to grain cracking and grain crack index

1 Scope

This International Standard specifies a method for determining the resistance of leather to grain cracking and for determining the grain crack index. It is applicable to all heavy leathers.

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*

ISO 2589 *Leather - Physical and mechanical tests - Determination of thickness*

3 Principle

A sample of leather is bent, grain outwards, around a mandrel of known diameter under the minimum force required to keep the leather and mandrel in contact. The grain is kept under observation and any cracking noted.

4 Apparatus

4.1 **Test machine**, including 4.2 to 4.4.

4.2 **Clamp**, or other device, which rigidly holds one end of the test piece.

4.3 **Cylindrical roller**, diameter 25,0 mm \pm 0,5 mm fitted with a handle perpendicular to the axis with the position of the roller being adjustable with respect to its position on the handle.

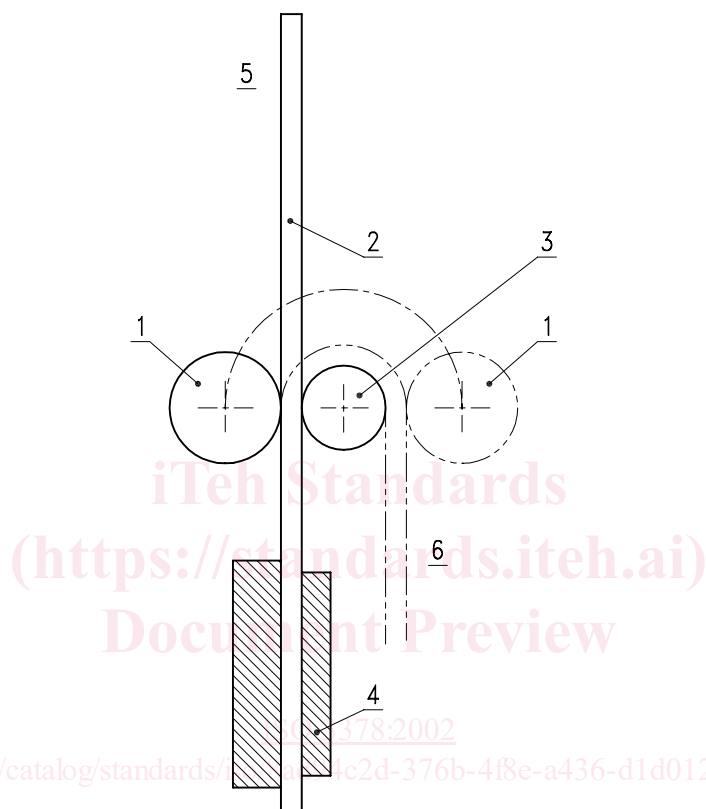
4.4 **Set of mandrels**, with diameters given in Table 1.

Table 1 — Diameter of mandrels

Mandrel number	Diameter mm
1	61,67 \pm 0,03
2	35,00 \pm 0,03
3	23,57 \pm 0,03
4	17,22 \pm 0,03
5	13,18 \pm 0,03
6	10,38 \pm 0,03
7	8,33 \pm 0,03
8	6,76 \pm 0,03

4.5 The general arrangement, is such that the roller (4.3) and mandrel (4.4) make contact with the grain and flesh surface respectively of the middle portion of the test piece across its full width. Ensure the axis of both the mandrel and the roller is perpendicular to the length of the test piece. Fix the axis of the mandrel relative to the clamp and fix the axle of the roller to a handle pivoted at the axis of the mandrel. Ensure the relative position of the clamp, roller and mandrel is adjustable so that the test piece is not subjected to any distortion when in contact with the mandrel and roller prior to the start of the test.

Figure 1 shows in plan view the relative position of the clamp (4.2), roller (4.3) and mandrel (4.4)



Key

- 1 Roller
- 2 Specimen
- 3 Mandrel
- 4 Clamp
- 5 Positions at beginning of test
- 6 Positions at end of test

Figure 1 — Positions of clamp, roller and mandrel

4.6 Press knife, the inner wall of which is a rectangle of width $25 \text{ mm} \pm 1 \text{ mm}$ and minimum length 150 mm as specified in ISO 2419.

4.7 Thickness gauge, as specified in ISO 2589.