# DRAFT INTERNATIONAL STANDARD **ISO/DIS 4044 IULTCS/IUC 3**

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# Leather — Chemical tests — Preparation of chemical test samples

Cuir — Essais chimiques - Préparation des échantillons pour essais chimiques

ICS: 59.140.30



## **ISO/CEN PARALLEL PROCESSING**

This draft has been developed within the International Organization for Standardization (ISO), and processed under the ISO lead mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



**Reference numbers** ISO/DIS 4044:2014(E) IULTCS/IUC 3:2014(E)

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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.

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.

ISO 4044/IUC 3 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, in collaboration with the Chemical Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUC Commission, IULTCS), in accordance with the Agreement on technical co-operation between ISO and CEN (Vienna Agreement). It is based on IUC 3 originally published in *J. Soc. Leather Trades Chemists*, **49**, pp. 8-10, 1965, and declared an official method of the IULTCS in 1965.

The second edition was a technical revision of the first edition (ISO 4044:1977).

This third edition (ISO 4044:2015) cancels and eplaces the second edition (ISO 4044:2008), which has been technically modified. Experience has shown it can be difficult to find a suitable grinding (or cutter) mills for preparing ground leather samples without considerable heating of the milling chamber or blocking of the sieve. Those mills commercially available require reasonably large leather samples to prepare a representative ground sample. But in many cases where consumer items are being tested, only small pieces of leather are available for testing. For this reason clause 6.3 has been added to allow preparation of test samples by cutting the leather into small pieces with a sharp blade. An informative Annex A has been added to give help with locating suitable grinding mills.

# Leather — Chemical tests — Preparation of chemical test samples

#### 1 Scope

This International Standard specifies how to prepare a test sample of leather for chemical analysis. The test sample can be either ground or cut into small pieces. Unless defined in the Standard, the method to be used depends on the size of leather sample available for testing.

#### 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 2419, Leather — Physical and mechanical tests Sample preparation and conditioning

EN 15987, Leather - Terminology - Key definitions for the leather trade

#### 3 Terms and definitions

**3** Terms and definitions For the purposes of this document, the definitions of EN 15987 shall apply.

#### 4 Principle

The leather sample shall be prepared by either:

- grinding in a mill to form "ground leather", described in clauses 5.1 and 6.2, or
- cutting into small pieces, described in clauses 5.2 and 6.3.

Which sample preparation shall be used depends on the size of the leather sample available or what preparation method is defined in the test method procedure.

#### 5 Apparatus

Grinding mill, having a blade rotational frequency of 300 to 1 000 revolutions per minute and a 5.1 perforated sieving plate with  $(4,0 \pm 0,5)$  mm diameter perforations. The mill blades shall be sharp. To avoid samples heating up during grinding the preferred blade rotation should be towards the lower end of the rotational frequency range. Information about a suitable grinding mill is given in Annex A.

5.2 Knife or other suitable tool with a sharp blade for cutting leather samples into small pieces of 2 mm - 3 mm edge length.

### 6 Preparation of test sample

#### 6.1 Sample preparation

Test pieces that are wet (in excess of approximately 30 % moisture) should be pre-dried at a temperature not exceeding 40 °C. The drying temperature should be selected with consideration of the influence of elevated temperature on the nature of the analyte.

If the samples are dried at elevated temperature, they shall be conditioned according to ISO 2419.

#### 6.2 Grinding

This method of preparation shall be used when a sufficiently large piece of leather is available for grinding in a mill (5.1) to give a representative ground leather sample. For the purposes of this Standard, this leather sample will be 200 mm x 200 mm or larger.

Before grinding, the samples of leather should be reduced to small pieces. The precise size of the small pieces is not detailed here as they will be defined by the design of the cutter mill feed system.

Ensure that the grinding mill and sample collecting device are clean. Water should not be used for cleaning.

If sufficient sample is available, then a few small pieces of test leather should be ground and discarded, with the apparatus being cleaned again before proceeding with grinding the main test sample.

#### 6.3 Cutting

This method of preparation is used when only a small piece of leather is available. Typically this sample will be a part of a consumer item, for example a leather panel or piece from a leather product. For some leather test procedures it may be preferable to use test samples cut into pieces. If this method of sample preparation shall be used, it will be defined in the Standard.

Homogeneous leather samples are cut into small pieces using a suitable device with a sharp blade (5.2). The pieces shall be of 2 mm - 3 mm edge length.

# 6.4 Choice of sample preparation method

When the method for sample preparation is defined in a Standard, then it is mandatory to use this procedure.

If no method of preparation is defined then procedures 6.2 and 6.3 are selected according to the size of the leather sample available. The method of preparation shall be reported in the test report.

### 7 Storage of test sample

After grinding or cutting, the leather test sample shall be mixed thoroughly and placed in a clean, dry, airtight container. The container shall be kept away from localized sources of heat.

# Annex A

### (informative)

### **Commercial sources for apparatus**

Examples of suitable products available commercially are given below. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of these products.

### A.1 Grinding apparatus

A suitable grinding mill (also called cutting mills) is one that efficiently cuts and grinds the leather without blocking and leaving only a small amount of unground leather. The milling chamber should be easy to open to allow cleaning between samples. During the grinding process the speed of the cutter blade should not be excessive, so that the temperature in the milling chamber does not heat-up noticeably. To achieve these requirements, grinding mills with a small, easily accessible milling chamber and a slower blade rotation are preferred. The ground sample should readily pass through a perforated sieving plate with  $(4,0 \pm 0,5)$  mm diameter perforations.

To ensure there is no contamination from heavy metals such as chromium, the metal parts of the grinding mill are made of chromium-free steel and the cutting blade is made with hardened tungsten carbide.

An example of a suitable machine is the universal cutting mill of type Pulverisette 19 (rotation rate of 2800 min<sup>-1</sup>) but with the slower rotating motor of the cutting mill of type Pulverisette 25 (rotation rate of 300 min<sup>-1</sup>). The equipment with this combination is manufactured by Fritsch GmbH, Industriestrasse 8, D-55743 Idar-Oberstein, Germany. Website: www.fritsch-milling.com

Any other grinding mill equipment may be used, provided it gives a ground leather sample as described above and the grinding chamber does not heat-up noticeably during grinding.