INTERNATIONAL STANDARD

ISO 20433

IULTCS/IUF 452

Second edition
2012-10-01

Leather — Tests for colour fastness — Colour fastness to crocking

Cuir — Essais de solidité des coloris — Solidité des coloris au dégorgement par frottement

Reference number
ISO 20433:2012(E)
IULTCS/IUF 452:2012(E)

COPYRIGHT PROTECTED DOCUMENT

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

Published in Switzerland

Contents

Page

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 20433 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, in collaboration with the Fastness Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUF Commission, IULTCS), in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

The first edition was based on IUF 452 published in *J. Soc. Leather Tech. Chem*., **86**, pp. 333-335, (2002), and declared an official method of the IULTCS in May 2003.

This second edition of ISO 20433 cancels and replaces the first edition (ISO 20433:2005). This new version provides an update of the procedures, specifies the rubbing cloth (4.2) and includes precision information (Clause 8).

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.

Leather — Tests for colour fastness — Colour fastness to crocking

1 Scope

This International Standard specifies a method for determining the amount of colour transferred from the surface of coloured leather to other surfaces by rubbing with a white cotton cloth.

Two tests are carried out, one with a dry rubbing cloth and one with a wet rubbing cloth.

The method is applicable to all types of coloured leather. Since after treatments of the leather as well as surface finishes can affect the degree of colour transfer, the test can be made before and/or after such treatments.

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 105-A01, *Textiles — Tests for colour fastness — Part A01: General principles of testing*

ISO 105-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 105-A04, *Textiles — Tests for colour fastness — Part A04: Method for the instrumental assessment of the degree of staining of adjacent fabrics*

ISO 105-F09, *Textiles — Tests for colour fastness — Part F09: Specification for cotton rubbing cloth*

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

Specimens of leather are rubbed with a dry or wet rubbing cloth attached to a cylindrical finger that is moved to and fro under controlled conditions. Colour transferred to the white rubbing cloth is assessed with the grey scale for staining.

The general colour fastness testing principles shall be in accordance with those described in ISO 105-A01, taking into account that the substrate is leather.

4 Apparatus and materials

4.1 Suitable test device, for determining the colour fastness to crocking. The device shall have a rubbing finger consisting of a cylinder of 16 mm ± 0,1 mm diameter which is driven to carry out a linear reciprocating motion along a 100 mm ± 5 mm track on the specimen, exerting a downward force of 9 ± 0,2 N.

NOTE An example of a suitable apparatus available commercially is given in Annex A.

4.2 White cotton rubbing cloth, desized, bleached, without finish, complying with ISO 105-F09. The cloth is cut into squares measuring approximately 50 mm × 50 mm, for the rubbing finger in 4.1.

NOTE An example of a suitable commercial source is given in Annex A.

4.3 Grey scale for assessing staining, complying with ISO 105-A03.

4.4 Spectrophotometer or colorimeter for assessing staining, complying with ISO 105-A04.

5 Test specimens

If the piece of leather available for testing is a whole hide or skin, then first take a sample in accordance with ISO 2418.

Two representative leather specimens, each measuring not less than 140 mm × 50 mm, are required. One specimen is required for dry rubbing and the other for wet rubbing. Prior to testing, condition the specimens and dry rubbing cloth for at least 24 h under standard conditions in accordance with ISO 2419.

6 Procedure

6.1 Fasten each test specimen securely to the baseboard of the test device so that the surface to be tested is uppermost and the long direction of the specimen follows the track of the device.

Test the specimen by the procedures in 6.2 and 6.3.

6.2 Dry rubbing: Fix the dry rubbing cloth (4.2) in place over the end of the cylindrical finger of the test device (4.1). At a rate of one turn per second, complete 10 turns of the crank to slide the rubbing finger to and fro (10 times to and 10 times fro) in a straight line along a track 100 mm long on a dry specimen, exerting a downward force of 9 N. After rubbing, remove the cloth.

6.3 Wet rubbing: Establish a technique for preparing a wet rubbing cloth by weighing a conditioned piece of cloth, thoroughly wetting it out in distilled water, squeezing or wringing it, then reweighing it until the water pick-up is 100 % ± 5 %.

Follow the directions for rubbing given in 6.2 with a fresh leather specimen. After rubbing, remove the cloth and dry it at room temperature.

7 Evaluation

Remove dust and fibrous matter retained on the surface of both cotton rubbing cloths by light brushing or by careful use of the sticky side of clear adhesive tape. Consider only the coloration due to staining by the dye.

Back each of the rubbing cloths used in the test with three layers of unused white rubbing cloth and, under suitable illumination, according to ISO 105-A01, visually assess the staining of the rubbing cloths using the grey scale for staining in accordance with ISO 105-A03 (4.3).

Alternatively, provided the staining on the rubbing cloth is even, the grey scale colour difference can be assessed instrumentally (4.4) in accordance with ISO 105-A04.

8 Precision

For the visual grey scale evaluations, an inter-person precision of ± 0,5 grey scale units is normal.

9 Test report

The test report shall include the following information:

a) a reference to this International Standard;

b) a description of the type of leather tested;

c) the numerical grey scale ratings obtained for the staining of the dry rubbing cloth and the wet rubbing cloth;

d) details of any deviations from the procedure specified;

e) the date of the test.

Annex A
(informative)

Apparatus and materials

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 Crockmeter

A suitable test apparatus (4.1), the AATCC Crockmeter, is described in the *Technical Manual of the American Association of Textile Chemists and Colorists,* Test Method 8-2007.

A Crockmeter can be obtained, for example, from

— James H. Heal & Co. Ltd, Richmond Works, Halifax, West Yorkshire HX3 6EP, England. Website: www.james-heal.co.uk

— PFI Germany, Test and Research Institute, Marie-Curie-Strasse 19, D-66953 Pirmasens, Germany. Website: www.pfi-germany.de

Other crocking devices can be used, provided that the same results are obtained as with the apparatus described in 4.1.

A.2 Rubbing cloth

A suitable white cotton rubbing cloth (4.2) can be obtained, for example, from:

— EMPA Testmaterialien AG, Mövenstrasse 12, CH-9015 St. Gallen-Winkeln, Switzerland. Website: www.empa-testmaterials.ch.

— SDC Enterprises Limited, Pitcliffe Way, Upper Castle Street, Bradford, BD5 7SG, UK. Website: www.sdcenterprises.co.uk

A.3 Abnormal crock images

If the crocking apparatus is not correctly maintained, circular images of the rubbing finger outer edges can be obtained. Details on possible causes and corrective actions are contained in AATCC Test Method 8-2007.

Bibliography

Other, related, test methods:

[1] ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

[2] AATCC Test Method 8-2007, *Colorfastness to Crocking: AATCC Crockmeter Method*

[3] ASTM D 5053, *Standard Test Method for Colorfastness of Crocking of Leather*

[4] ISO 11640, *Leather — Tests for colour fastness — Colour fastness to cycles of to-and-fro rubbing*

ICS 59.140.30

Price based on 5 pages