INTERNATIONAL STANDARD

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IULTCS
IUF 423

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Leather — Tests for colour fastness — Colour fastness to mild washing

Cuir — Essais de solidité des teintures — Solidité des teintures au lavage doux

Reference number
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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.

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.

International Standard ISO 15703 was prepared by the Fastness Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUF Commission, IULTCS). It is based on IUF 423 published in *J. Soc. Leather Tech. Chem.*, **76**, pp. 179-180 (1992), and declared an official method of the IULTCS in October 1993.

Annexes A and B of this International Standard are for information only.

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Leather — Tests for colour fastness — Colour fastness to mild washing

1 Scope

This International Standard specifies a method for determining the resistance of leather to mild washing under specified conditions.

The method is suitable for assessing the change in colour of the leather, the staining of an adjacent textile fabric and any change in the finish of the leather.

This method can also be used leather preparation for assessing the change in any other physical or chemical property during mild washing.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 105-A01:1994, *Textiles — Tests for colour fastness — Part A01: General principles of testing.*

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour.*

ISO 105-A03:1993, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining.*

ISO 105-A04:1989, *Textiles — Tests for colour fastness — Part A04: Method for the instrumental assessment of the degree of staining of adjacent fabrics.*

ISO 105-A05:1996, *Textiles — Tests for colour fastness — Part A05: Instrumental assessment of the change in colour for determination of grey scale rating.*

ISO 105-F10:1989, *Textiles — Tests for colour fastness — Part F10: Specification for adjacent fabric: Multifibre.*

ISO 2419:1972, *Leather — Conditioning of test pieces for physical tests.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

IUP 2, *Sampling*

3 Principle

A composite specimen of the leather and an adjacent textile fabric is agitated together with PTFE rods in a washing liquor, rinsed and then squeezed and dried. The change in colour of the leather and the adjacent textile fabric are assessed with the standard grey scales and, if applicable, any changes in the finish are noted.

The general colour fastness testing principles used are in accordance with those described in ISO 105-A01, taking into account the differences between textile substrates and leather.

4 Apparatus and materials

Ordinary laboratory apparatus and

4.1 Test apparatus[1], consisting of a rotating drum of capacity approximately 500 ml made typically of glass or stainless steel and sealed using solvent-resistant rubber gaskets, for example.

4.2 PTFE rods[2], 20 mm ± 2 mm long, 7 mm to 9 mm in diameter.

4.3 Plain-weave fabric, measuring 100 mm x 36 mm, for use as adjacent fabric.

NOTE 1 Type DW multifibre fabric[2] conforming with ISO 105-F10 is normally used.

4.4 Detergent[2], usually sodium lauryl sulfate, PH EUR II quality or equivalent.

4.5 Water, grade 3 as defined in ISO 3696.

4.6 Grey scale for assessing staining, in accordance with ISO 105-A03, and **grey scale for assessing change in colour**, in accordance with ISO 105-A02.

NOTE 2 If a suitable instrumental system is available for measuring the change in colour in accordance with ISO 105-A04 and ISO 105-A05, this may be used instead of the visual assessment method.

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[1] Examples of suitable apparatus available commercially are given in annex A.

[2] Examples of commercial sources are given in annex A.

5 Test specimen

If the piece of leather available for testing is a whole hide or skin, then first take a sample in accordance with IUP 2.

Take a specimen of leather measuring 100 mm x 36 mm which is representative of the piece of leather available for testing.

NOTE 3 If the same specimen of leather is required for other chemical or physical tests after the mild washing treatment, for example to assess the dimensional stability after mild washing, then a larger specimen will be more appropriate.

Assemble the composite specimen by placing the piece of adjacent fabric (4.3) over the leather specimen and attaching them together, for example by inserting two steel staples or stitching them together with a thread, at the narrow ends. Attach the adjacent fabric to the flesh side of grain leathers and to the side worn inside for other leathers.

6 Procedure

6.1 Prepare a suitable quantity of washing liquor by adding 5,0 g of detergent (4.4) to every litre of water (4.5) and stirring vigorously until no solids are visible.

6.2 Place 100 ml of the washing liquor and 20 PFTE rods (4.2) in the drum (see 4.1), and warm to 30 °C ± 2 °C. Place the composite specimen in the drum and rotate at 40 rpm ± 5 rpm for 30 min, maintaining the temperature at 30 °C ± 2 °C.

6.3 Remove the washing liquor and replace it with 100 ml of water (4.5) at 30 °C ± 2 °C (rinsing water). Rotate the drum at 40 rpm ± 5 rpm for 10 min, maintaining the temperature at 30 °C ± 2 °C. Repeat that rinsing procedure once more with fresh rinsing water.

6.4 Remove the composite specimen from the drum, place it between sheets of blotting paper, and the blotting paper between glass plates. Place a weight of 4,5 kg on the upper glass plate and maintain the pressure for 1 min. Take the composite specimen out, unfasten one narrow end and place the composite specimen, opened out, on a horizontal grille so that the leather and adjacent fabric are not touching. Let the composite specimen dry in air under standard conditions as specified in ISO 2419 (20 °C ± 2 °C and 65 % ± 2 % RH). Stake the leather lightly.

6.5 Assess the change of colour of the grain side (or side worn outside) of the leather either visually in accordance with ISO 105-A02 or instrumentally in accordance with ISO 105-A05.

6.6 Assess the staining of the adjacent fabric either visually in accordance with ISO 105-A03 or instrumentally in accordance with ISO 105-A04.

6.7 Note any changes in the leather finish, if applicable.

7 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) an indication as to which surface of the leather was tested;

d) the detergent used;

e) the adjacent fabric used;

f) a description of the apparatus used;

g) the grey scale method and the grey scale rating obtained for the change in colour of the leather specimen;

h) the grey scale method and the grey scale ratings obtained for the staining of the adjacent fabric, giving a separate rating for each of the different types of fibre;

i) details of any changes in the leather finish, if applicable;

j) details of any deviations from the procedure;

k) the date of the test.

Annex A
(informative)

Commercial sources for 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 A suitable apparatus

1. Wacker apparatus, made by Dose Maschinenbau GmbH, Industriestr. 5, D-77839 Lichtenau, Germany.

   NOTE 4 The glass containers in the Wacker apparatus have a total volume of approximately 2 litres. However, they are considered to have a working capacity of 500 ml.

2. Launder-Ometer, as referred to in various AATCC (American Association of Textile Chemists and Colorists) methods, supplied by Atlas Electric Devices Co., 4114 Ravenswood Ave., Chicago IL 60613, USA.

3. Linitest, supplied by Heraeus Industrietechnik GmbH, Original Hanau-Materialprüftechnik, Postfach 1565, D-63405 Hanau, Germany.

A.2 Adjacent fabric

SDC type DW multifibre fabric which conforms with ISO 105-F10, is normally used. Supplier: Society of Dyers and Colourists, P.O. Box 244, Bradford, West Yorkshire BD1 2JB, England.

A.3 Detergent and PTFE rods

Small quantities of detergent suitable for laboratory use and PTFE rods are obtainable from EMPA Testmaterials, Mövenstrasse 12, CH-9015 St. Gallen-Winkeln, Switzerland.

Annex B
(informative)

Bibliography

[1] IUF 120, *General principles of colour fastness testing of leather*.

ICS 59.140.30

Descriptors: leather, colour fastness, tests, colour-fastness tests, washing tests.

Price based on 6 pages