International Standard

ISO
11641

IULTCS
IUF 426

Leather — Tests for colour fastness — Colour fastness to perspiration

Cuir — Essais de solidité des coloris — Solidité des coloris à la sueur

Third edition
2025-11

Reference numbers
ISO 11641:2025(en)
IULTCS/IUF 426:2025(en)

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Published in Switzerland

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Foreword

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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.

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

This third edition cancels and replaces the second edition (ISO 11641:2012), which has been technically revised.

The main changes are as follows:

— update of normative references, in particular to ISO 2418 and to ISO 7906.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Leather — Tests for colour fastness — Colour fastness to perspiration

1 Scope

This document specifies a method for determining the colour fastness to perspiration of leather of all kinds at all stages of processing. It applies particularly to gloving, clothing and lining leathers, as well as leather for the uppers of unlined shoes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

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

ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

ISO 105-F01, *Textiles — Tests for colour fastness — Part F01: Specification for wool adjacent fabric*

ISO 105-F02, *Textiles — Tests for colour fastness — Part F02: Specification for cotton and viscose adjacent fabrics*

ISO 105-F03, *Textiles — Tests for colour fastness — Part F03: Specification for polyamide adjacent fabric*

ISO 105-F04, *Textiles — Tests for colour fastness — Part F04: Specification for polyester adjacent fabric*

ISO 105-F05, *Textiles — Tests for colour fastness — Part F05: Specification for acrylic adjacent fabric*

ISO 105-F06, *Textiles — Tests for colour fastness — Part F06: Specification for silk adjacent fabric*

ISO 105-F07, *Textiles — Tests for colour fastness — Part F07: Specification for secondary acetate adjacent fabric*

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

ISO 2418, *Leather — Chemical, physical, mechanical and fastness tests — Position and preparation of specimens for testing*

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

ISO 7906, *Leather — Tests for colour fastness — General principles of testing*

3 Terms and definitions

No terms and definitions are listed in this document.

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ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

The method uses an artificial perspiration solution to simulate human perspiration. Since perspiration varies widely from one individual to the next, it is not possible to design a method with universal validity, but the alkaline artificial perspiration solution specified in this document will give results corresponding to those with natural perspiration in most cases.

In general, human perspiration is weakly acidic when freshly produced. Microorganisms then cause it to change, the pH usually becoming weakly alkaline (pH 7,5 to 8,5). Alkaline perspiration has a considerably greater effect on the colour of leather than has acid perspiration. Therefore, for coloured leather, an alkaline perspiration solution is used to simulate the most demanding conditions encountered in practice.

A leather test piece is soaked in artificial perspiration solution and a piece of adjacent fabric, also soaked in artificial perspiration solution, is laid against each side to be tested. The composite test piece is left under pressure for a specified time in a suitable apparatus. The leather test piece and adjacent fabric are then dried, and the change in colour of the test piece and the staining of the adjacent fabric assessed with the grey scales.

Leathers with a finish may be tested intact or with the finish broken.

The general colour fastness testing principles shall be in accordance with those described in ISO 7906.

5 Apparatus

Ordinary laboratory apparatus and the following apparatus are used.

5.1 Test apparatus, consisting of a stainless-steel frame, into which a rectangular weight-piece approximately 5 kg in mass and approximately 115 mm × 60 mm in cross-section fits accurately, so that a uniform pressure of (12,5 ± 1,0 kPa) can be applied on the composite test piece placed between rectangular plates of an inert material, e.g. glass or acrylic-resin, of the same length and width as the weight-piece and approximately 1,5 mm thick.

The test apparatus shall be constructed so that if the weight-piece is removed during the tests, the pressure of 12,5 kPa remains unchanged.

Other devices may be used provided that equivalent results are obtained.

NOTE Examples of suitable apparatus available commercially are given in Annex A.

5.2 Oven, maintained at 37 °C ± 2 °C.

5.3 Adjacent fabrics (see ISO 7906). Either

a) a multifibre adjacent fabric, conforming to ISO 105-F10, measuring approximately 100 mm × 40 mm, or

b) two single-fibre adjacent fabrics, conforming to the relevant specification in ISO 105-F01, ISO 105-F02, ISO 105-F03, ISO 105-F04, ISO 105-F05, ISO 105-F06 or ISO 105-F07.

NOTE Examples of suitable commercial sources are given in Annex A.

5.4 Demineralized water, grade 3 in accordance with ISO 3696.

5.5 Alkaline artificial perspiration solution, containing, per litre of solution:

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