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**Leather — Guide to the selection of  
leather for apparel (excluding furs)**

*Cuir — Guide pour la sélection des cuirs pour vêtements (à  
l'exclusion des fourrures)*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 120, *Leather*, Subcommittee SC 2, *Tanned leather*.

This second edition cancels and replaces the first edition (ISO 14931:2004), which has been technically revised.

# Leather — Guide to the selection of leather for apparel (excluding furs)

## 1 Scope

This International Standard gives recommended values and related test methods for apparel leather excluding furs. It also specifies the sampling and conditioning procedures of laboratory samples.

## 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 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 2418, *Leather — Chemical, physical and mechanical and fastness tests — Sampling location*

ISO 2419, *Leather — Physical and mechanical tests — Sample preparation and conditioning*

ISO 2588, *Leather — Sampling — Number of items for a gross sample*

ISO 3377-1, *Leather — Physical and mechanical tests — Determination of tear load — Part 1: Single edge tear*

ISO 4044, *Leather — Chemical tests — Preparation of chemical test samples*

ISO 4045, *Leather — Chemical tests — Determination of pH*

ISO 5402-1, *Leather — Determination of flex resistance — Part 1: Flexometer method*

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

ISO 11641, *Leather — Tests for colour fastness — Colour fastness to perspiration*

ISO 11642, *Leather — Tests for colour fastness — Colour fastness to water*

ISO 11643, *Leather — Tests for colour fastness — Colour fastness of small samples to solvents*

ISO 11644, *Leather — Test for adhesion of finish*

ISO 15700, *Leather — Tests for colour fastness — Colour fastness to water spotting*

ISO 17070, *Leather — Chemical tests — Determination of pentachlorophenol content*

ISO 17075, *Leather — Chemical tests — Determination of chromium(VI) content*

ISO 17186, *Leather — Physical and mechanical tests — Determination of surface coating thickness*

ISO 17226-1, *Leather — Chemical determination of formaldehyde content — Part 1: Method using high performance liquid chromatography*

ISO 17233, *Leather — Physical and mechanical tests — Determination of cold crack temperature of surface coatings*

ISO 17234-1, *Leather — Chemical tests for the determination of certain azo colorants in dyed leathers — Part 1: Determination of certain aromatic amines derived from azo colorants*

### 3 Sampling

3.1 When possible, the location and identification of laboratory samples shall be in accordance with ISO 2418.

3.2 The number of samples shall be by agreement between the interested parties except in cases of dispute when the number of samples shall be in accordance with ISO 2588. In case the lot size of the leathers is high, the maximum number of samples shall be five.

### 4 Sample conditioning and preparation

4.1 Laboratory samples for physical, mechanical, and fastness tests shall be conditioned and prepared in accordance with ISO 2419.

4.2 Laboratory samples for chemical tests shall be conditioned and prepared in accordance with ISO 4044.

### 5 Characteristics, test methods and recommended values

5.1 [Table 1](#) and [Table 2](#) show the characteristics, test methods, and recommended values for different types of leather intended for apparel. The essential characteristics ([Table 1](#)) shall be taken all into account, even if they can have different relative weight in the process of evaluation relative to use. The subsidiary characteristics ([Table 2](#)) shall be agreed by the parties concerned according to the intended use of the leather.

5.2 The coating thickness of leather shall be measured according to ISO 17186.

### 6 Test report

The test report shall contain at least the following information:

- a) reference to this International Standard, i.e. ISO 14931;
- b) identification of test sample and if required, sampling procedure;
- c) date and place of the tests;
- d) test results and number of test specimens;
- e) conditioning and test atmosphere used;
- f) any deviation from this document.

**Table 1 — Essential characteristics, recommended values, and test methods for apparel leather**

Leather characteristics	Recommended value	Test methods
Coating thickness	0,15 mm (max)	ISO 17186
Colour fastness to light	aniline $\geq 3$ blue scale nubuck $\geq 3$ blue scale suede $\geq 3$ blue scale other finishing $\geq 4$ blue scale	ISO 105-B02
Colour fastness to to-and-fro rubbing	Change of colour and staining of the felt pad to be assessed For aniline, nubuck, or suede: — dry felt 20 cycles $\geq 3$ grey scale — wet felt 10 cycles $\geq 3$ grey scale — wet with perspiration solution <sup>a</sup> — 10 cycles $\geq 3$ grey scale Other finishing: — dry felt 50 cycles $\geq 3$ grey scale — wet felt 20 cycles $\geq 3$ grey scale — wet with perspiration solution <sup>a</sup> — 20 cycles $\geq 3$ grey scale	ISO 11640
Colour fastness to water spotting referring to the residual halo after 24 h	$\geq 3$ grey scale (no blistering of the leather surface or other permanent physical effects and no salt spew formation)	ISO 15700
Colour fastness to dry cleaning	$\geq 3$ grey scale no finish lost (no refatting)	ISO 11643
Flexing resistance	aniline (non-pigmented finish) $\geq 20\,000$ cycles leather (pigmented finish) $\geq 50\,000$ cycles	ISO 5402-1
Tear strength	$\geq 20$ N	ISO 3377-1
Azo colourant	Absent <sup>b</sup>	ISO 17234-1 ISO 17234-2
Chromium VI content	$\leq 3$ mg/kg	ISO 17075
Formaldehyde content	$\leq 150$ mg/kg	ISO 17226-1
Pentachlorophenol content	$\leq 5$ mg/kg	ISO 17070
pH and $\Delta$ pH	$\geq 3,2$ If the pH value is below 4, $\Delta$ pH shall be $\leq 0,7$	ISO 4045
<sup>a</sup> Alkaline artificial perspiration solution is defined in ISO 11641. <sup>b</sup> Each amine indicated in ISO 17234-1 and ISO 17234-2 is considered "absent" if $\leq 30$ mg/kg.		

**Table 2 — Subsidiary characteristics, recommended values and test methods for apparel leather**

Leather characteristics	Recommended value	Test methods
Colour fastness to water	≥ 3 grey scale	ISO 11642
Finish adhesion (only for pigmented leathers)	≥ 2 N per 10 mm dry adhesion	ISO 11644
Cold crack resistance (only for pigmented leathers)	-10 °C (no damage)	ISO 17233

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