

Leather - Determination of water resistance of flexible leather - Part 1: Repeated linear compression (penetrometer) (ISO 5403-1:2025)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>See Eesti standard EVS-EN ISO 5403-1:2025 sisaldab Euroopa standardi EN ISO 5403-1:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.11.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN ISO 5403-1:2025 consists of the English text of the European standard EN ISO 5403-1:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 19.11.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 59.140.30, 61.060

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EUROPEAN STANDARD

EN ISO 5403-1

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English Version

## Leather - Determination of water resistance of flexible leather - Part 1: Repeated linear compression (penetrometer) (ISO 5403-1:2025)

Cuir - Détermination de l'imperméabilité à l'eau des cuirs souples - Partie 1: Compression linéaire répétée (pénétrömètre) (ISO 5403-1:2025)

Leder - Bestimmung der Wasserbeständigkeit von flexiblem Leder - Teil 1: Penetrometerverfahren (ISO 5403-1:2025)

This European Standard was approved by CEN on 10 November 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## European foreword

This document (EN ISO 5403-1:2025) has been prepared by Technical Committee ISO/IULTCS "International Union of Leather Technologists and Chemists Societies" in collaboration with Technical Committee CEN/TC 289 "Leather" the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2026, and conflicting national standards shall be withdrawn at the latest by May 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 5403-1:2011.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## Endorsement notice

The text of ISO 5403-1:2025 has been approved by CEN as EN ISO 5403-1:2025 without any modification.

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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)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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 Physical Test Commission of the International Union of Leather Technologists and Chemists Societies (IUP 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 second edition cancels and replaces the first edition (ISO 5403-1:2011), which has been technically revised.

The main changes are as follows:

- alignment with the changes and revised terminology in ISO 2418 and ISO 2419;
- addition of [Clause 3](#);
- modification of the testing conditions ([5.3](#)).

A list of all parts in the ISO 5403 series can be found on the ISO website.

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](http://www.iso.org/members.html).

# Leather — Determination of water resistance of flexible leather —

## Part 1: Repeated linear compression (penetrometer)

### 1 Scope

This document specifies a method for determining the dynamic water resistance of leather by means of repeated linear compression. It is applicable to all flexible leathers but is particularly suitable for leathers intended for footwear applications.

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

ISO 2419, *Leather — Physical and mechanical tests — Specimen and test piece conditioning*

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

ISO 15115, *Leather — Vocabulary*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15115 apply.

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

A test piece is formed into the shape of a trough and flexed while partially immersed in water. The time taken for water to penetrate through the test piece is measured. The method also allows to determine the percentage mass of the water absorbed and the mass of the water transmitted through the test piece.

NOTE This test method uses compression-type flexing, whereas the test method of ISO 5403-2 for water resistance imparts folding-type flexing on the leather specimens. Given the two completely different flexing actions, it is not possible to compare the results obtained from the two test methods.

### 5 Apparatus, reagents and materials

Usual laboratory apparatus is required and, in particular, the following.