



SLOVENSKI STANDARD

SIST EN 14289:2004

01-maj-2004

Usnje – Fizikalno in mehansko preskušanje – Ugotavljanje pritiska penetracije vode

Leather - Physical and mechanical tests - Determination of water penetration pressure

Leder - Physikalische und mechanische Prüfungen - Bestimmung des Wasserdurchlässigkeitsdruckes

Cuir - Essais physiques et mécaniques - Détermination de la pression de la pénétration de l'eau

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Ta slovenski standard je istoveten z: **EN 14289:2003**

ICS:

59.140.30 Usnje in krzno Leather and furs

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EUROPEAN STANDARD

EN 14289

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2003

ICS 59.140.30

English version

Leather - Physical and mechanical tests - Determination of water penetration pressure

Cuir - Essais physiques et mécaniques - Détermination de la pression pour obtenir la traversée d'un cuir par de l'eau

Leder - Physikalische und mechanische Prüfungen - Bestimmung des Wasserdurchlässigkeitsdruckes

This European Standard was approved by CEN on 1 October 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 14289:2003) has been prepared by 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 June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 14289:2003 (E)

1 Scope

This European Standard specifies a method for determining the water penetration pressure of leather.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 2418, *Leather - Chemical, physical and mechanical and fastness tests - Sampling location (ISO 2418:2002)*.

EN ISO 2419, *Leather - Physical and mechanical tests - Sample preparation and conditioning (ISO 2419:2002)*.

EN ISO 3696:1995, *Water for analytical laboratory use - Specifications and test methods (ISO 3696:1987)*.

3 Principle

A sample of leather is clamped over a container of water with the surface of the leather in contact with the water. The water pressure is raised at a specified rate and the pressure required to force droplets of water through the leather is measured.

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4 Apparatus

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4.1 Cup, in the form of a short non-corrosive metal circular cylinder, internal diameter 40,0 mm \pm 0,2 mm with the open end uppermost.

4.2 Annular clamp, internal diameter 40,0 mm \pm 0,2 mm, capable of clamping the leather test piece across the cup (4.1) without slippage when a pressure of 65 kPa is applied.

4.3 Stiff wire gauze, with 8 holes per 25 mm. Circular in shape and held in place around the circumference by the annular clamp (4.2), or welded into position.

4.4 Means of increasing pressure, such that the water in the cup is subjected to a uniform increase in pressure of 3 kPa/min \pm 0,3 kPa/min to a maximum pressure of 65 kPa.

4.5 Distilled or deionized water, conforming to the requirements of grade 3 of EN ISO 3696:1995.

4.6 Press knife, the inner surface of which is a right angled circular cylinder, capable of cutting a circular test piece which can be clamped between the cup (4.1) and annular clamp (4.2) and conforming to EN ISO 2419.

NOTE To preserve the area of a test skin or hide, the whole skin or hide can be placed on the test apparatus and the press knife becomes optional.

5 Sampling and sample preparation

5.1 Sample in accordance with EN ISO 2418. Cut 3 test pieces by applying the press knife (4.6) to the grain surface.

NOTE If there is a requirement for more than two hides or skins to be tested in one batch, then only one sample need be taken from each hide or skin, provided that the overall total is not less than three test pieces.

5.2 Carry out all further steps at $20\text{ °C} \pm 2\text{ °C}$ or $23\text{ °C} \pm 2\text{ °C}$. There is no need to condition test pieces nor is there any need for humidity control.

6 Procedure

6.1 Fill the cup (4.1) with distilled or deionized water (4.5) at the controlled temperature (5.2).

6.2 Place the leather over the cup with the surface which would be wetted in wear in contact with the water. Place a stiff gauze over the leather and clamp in position.

NOTE The stiff gauze prevents the leather from becoming distended during the test.

6.3 Apply pressure to the water, increasing the pressure at a uniform rate of $3,0\text{ kPa/min} \pm 0,3\text{ kPa/min}$ until completion of the test.

6.4 Observe the surface of the leather for the appearance of globules of water which have been forced through the leather and note the pressure when three such globules are visible. This is the water penetration pressure.

NOTE 1 The appearance of the third droplet is taken as the end point rather than the first so that the result will not be duly influenced by the presence of a few capillaries of slightly greater dimensions than the remainder.

NOTE 2 If the leather is not sufficiently waterproof to be assessed by this test then failure will be as damp patches rather than discrete droplets. These results are less reliable. If the leather fails at a pressure of less than 2,5 kPa then these low pressures are of little value in discriminating between samples.

6.5 If the third droplet has not appeared when a pressure of 65 kPa is reached, terminate the test.

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7 Expression of results

7.1 Express the water penetration pressure to the nearest 0,1 kPa. If the leather has not failed at a pressure of 65 kPa report the water penetration pressure as greater than 65 kPa.

7.2 If the leather fails because the water penetrates as damp patches include this as a comment on the test report.

NOTE Penetration pressures are sometimes expressed as mm or cm Hg. If the results are to be expressed in these units then $1\text{ kPa} = 7,5\text{ mm Hg} = 0,75\text{ cm Hg}$.

8 Test report

The test report shall include the following for each test piece:

- a) reference to this European Standard; i.e. EN 14289:2003
- b) the water penetration pressure in kPa;
- c) the mode of failure if this is by formation of damp patches;
- d) the temperature at which the test was carried out (i.e., $20\text{ °C} \pm 2\text{ °C}$ or $23\text{ °C} \pm 2\text{ °C}$);
- e) any deviations from the method specified in this European Standard;
- f) full details for identification of the sample and any deviation from EN ISO 2418 with respect to sampling.

Annex A **(informative)**

Sources of apparatus

Examples of suitable products available commercially are given below. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of these products.

One suitable apparatus is the R & B Hydrostatic Triple Head Tester manufactured by:

R & B Instruments, Unit 3a, Farnley Low Mills, Bangor Terrace, Leeds LS12 5PS, UK.

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