



SLOVENSKI STANDARD

SIST EN 13335:2002

01-september-2002

Usnje - Fizikalno in mehansko preskušanje - Ugotavljanje odpornosti proti upogibanju z metodo upogibanja gornjega usnja

Leather - Physical and mechanical tests - Determination of flex resistance by the vamp flex method

Leder - Physikalische und mechanische Prüfungen - Bestimmung der Dauerbiegefestigkeit nach dem Blattbiege-Verfahren

Cuir - Essais physiques et mécaniques - Détermination de la résistance a la flexion a l'aide de la méthode de flexion d'empeigne

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>

Ta slovenski standard je istoveten z: EN 13335:2002

ICS:

59.140.30 Usnje in krzno Leather and furs

SIST EN 13335:2002 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13335:2002

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>

EUROPEAN STANDARD

EN 13335

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2002

ICS 59.140.30

English version

Leather - Physical and mechanical tests - Determination of flex resistance by the vamp flex method

Cuir - Essais physiques et mécaniques - Détermination de la résistance à la flexion à l'aide de la méthode de flexion d'empeigne

Leder - Physikalische und mechanische Prüfungen - Bestimmung der Dauerbiegefestigkeit nach dem Blattbiege-Verfahren

This European Standard was approved by CEN on 24 January 2002.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 13335:2002](https://standards.iteh.ai/catalog/standards/sist/en-13335-2002)

<https://standards.iteh.ai/catalog/standards/sist/en-13335-2002>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Principle	4
4 Apparatus	4
5 Sampling and sample preparation	5
6 Procedure	5
7 Test report	6
Annex A (informative) Sources of apparatus	8

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13335:2002](#)

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>

Foreword

This document (EN 13335:2002) 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 September 2002, and conflicting national standards shall be withdrawn at the latest by September 2002.

It is based on Method IUP/39 of the International Union of Leather Technologists and Chemists Societies.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13335:2002](https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002)

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>

EN 13335:2002 (E)**1 Scope**

This European Standard specifies a method for determining the wet or dry flex resistance of leather and finishes applied to leather. It is applicable to all types of leather below 3,0 mm in thickness.

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).

prEN ISO 2418	<i>Leather - Chemical, physical and mechanical and fastness tests - Sampling location (ISO/FDIS 2418:2001)</i>
prEN ISO 2419	<i>Leather - Physical and mechanical tests - Sample preparation and conditioning (ISO/FDIS 2419:2001)</i>
EN ISO 3696	<i>Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)</i>

3 Principle**iTeh STANDARD PREVIEW**

A test piece is folded grain outwards over two inverted "V" shaped clamps. Relative movement of the clamps flexes the sample producing one downward crease surrounded by four upward creases. The test piece is examined periodically for damage.

[SIST EN 13335:2002](https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002)

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>

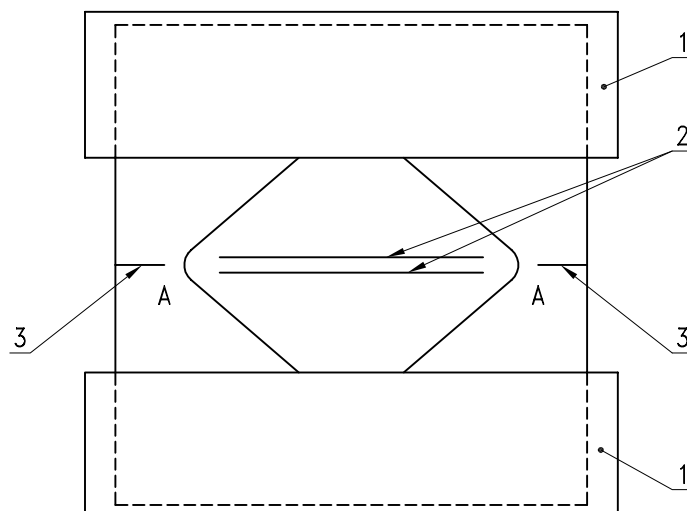
4 Apparatus

4.1 Test machine, including the parts described in 4.1.1 to 4.1.3 and the crease patterns formed by flexing as shown in Figure 1.

4.1.1 A pair of inverted "V" shaped blocks and clamps, with the axis mounted in a straight line with an angle of $40^\circ \pm 1^\circ$ and a tip radius of $6,4 \text{ mm} \pm 0,5 \text{ mm}$ and with a minimum distance between the clamps of $9,5 \text{ mm} \pm 1,0 \text{ mm}$.

4.1.2 A means of applying a simple harmonic reciprocating motion to the clamps, to move them apart by $19,0 \text{ mm} \pm 1,5 \text{ mm}$ and return them to the minimum separation at a rate of oscillation of $300 \text{ cycles/minute} \pm 30 \text{ cycles/minute}$.

4.1.3 Counter, to indicate the number of cycles.



Key

- 1 Clamp
- 2 Folds with outer surface inwards
- 3 Folds with outer surface outwards

iTeh STANDARD PREVIEW
Figure 1 — Plan view - Crease pattern formed by flexing
 (standards.iteh.ai)

4.2 Press knife, conforming to the requirements of prEN ISO 2419, the inner wall of which is a square of side 64 mm \pm 1 mm.

[SIST EN 13335:2002](https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-556c10d605/sist-en-13335-2002)

4.3 Magnifier, with a magnification of 4 to 6 times.

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-556c10d605/sist-en-13335-2002>

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

5 Sampling and sample preparation

5.1 Sample in accordance with prEN ISO 2418. Cut four test pieces parallel to the backbone and four test pieces perpendicular to the backbone by applying the press knife (4.2) to the grain surface. Use two test pieces parallel to and two test pieces perpendicular to the backbone for dry tests and two test pieces parallel to and two test pieces perpendicular to the backbone for wet tests.

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

5.2 For dry flex testing condition the test pieces in accordance with prEN ISO 2419 and perform the test in the conditioned atmosphere.

5.3 For wet flex testing the test pieces can be wetted by rubbing 1 ml of distilled or deionized water into the flesh surface of the leather. The wetting should be repeated every 25,000 flexes during the test. Carry out wet flexing without delay.

6 Procedure

6.1 Remove the upper parts of the clamps (4.1.1) and adjust the test machine so that the clamps are at their maximum separation.

EN 13335:2002 (E)

6.2 Fold the test piece evenly over the "V" shaped clamps and hold in place by replacing the upper parts of the clamps, ensuring that there is no slack in the test piece. Position two test pieces so that the direction of the backbone is along the axis of movement of the clamps and two so that it is perpendicular to the axis.

6.3 Slowly move the clamps together and observe the test pieces to ensure that the centre of each test piece folds downwards. If this is not the case, apply gentle pressure to the centre of the ridge as the clamps move together to make a downward fold form.

6.4 Run the machine for the required number of flex cycles selected from the following list:

Dry flex: 50 000; 100 000; 250 000; 500 000; 1 000 000 cycles.

Wet flex: 50 000; 100 000 cycles.

In addition to the above inspection points remove the wet test pieces from the machine every 25,000 cycles and examine them for spue before re-wetting and replacing in the test machine.

6.5 Stop the test machine and remove the test piece. Examine visually in good light using the naked eye and with the magnifier (4.3). Examine the test piece with it both lying flat and folded. Record any damage in the flexed area, ignoring damage in the clamped area. Cut through the flexed area if required to assist identification of loose leather structure.

NOTE Cutting through the test piece damages it too severely to allow further testing and may only be carried out after the final inspection.

The damage may include the following:

- ITC STANDARD PREVIEW**
(standards.iteh.ai)
- a) creasing in the central inward fold;
- b) cracking in the central inward fold, (the number of cracks and the depth may be reported if it is feasible);
- c) cracking in the outward folds, (the number of cracks and the depth may be reported if it is feasible);
- d) delamination or flaking of the surface finish;
- e) cracking extending to the edge of the test piece;
- f) salt spue (wet flex only), judging as 'light', 'medium' or 'heavy' by eye.

6.6 If required replace the test piece in the clamps using the marks produced by the clamps as a guide to ensure that the test piece is returned to its original position in the clamps.

6.7 Restart the machine and continue to the next required number of cycles. Repeat the inspection given in 6.5.

6.8 Repeat steps 6.6 and 6.7 if required for other numbers of flex cycles.

NOTE The actual number of cycles chosen will depend on the specification, the end use of the leather and the expected performance.

7 Test report

The test report shall include the following:

- a) reference to this European Standard; i.e. EN ISO 13335:2001
- b) whether the leather was tested wet or dry;
- c) the number of flex cycles and damage at each inspection stage;
- d) the standard atmosphere used for conditioning and testing as given in prEN ISO 2419 (i.e., 20 °C/65 % rh or 23 °C/50 % rh);

- e) any deviations from the method specified in this European standard;
- f) full details for identification of the sample and any deviation from prEN ISO 2418 with respect to sampling.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 13335:2002](https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002)

<https://standards.iteh.ai/catalog/standards/sist/fe467662-64da-46b5-b038-535eef0daeb5/sist-en-13335-2002>