भारतीय मानक
Indian Standard

IS 16257 : 2014
ISO 23910 : 2007

चमड़ा — भौतिक एवं यांत्रिक परीक्षण — सीवन विवरण प्रतिरोधिता का मापन

Leather — Physical and Mechanical Tests — Measurement of Stitch Tear Resistance

ICS 59.140.30

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
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December 2014 **Price Group 2**

Leather, Tanning Materials and Allied Products Sectional Committee, CHD 17

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 23910 : 2007 ‘Leather — Physical and mechanical tests — Measurement of stitch tear resistance’ issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Leather, Tanning Materials and Allied Products Sectional Committee and approval of the Chemical Division Council.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words ‘International Standard’ appear referring to this standard, they should be read as ‘Indian Standard’.
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards where the standard atmospheric conditions to be observed are stipulated which are not applicable to tropical/subtropical countries. The applicable standard atmospheric conditions for Indian conditions are 27 ± 2°C and 65 ± 5 percent, relative humidity and shall be observed while using this standard.

The technical committee has reviewed the provisions of the following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 2418	Leather — Chemical, physical and mechanical and fastness tests — Sampling location
ISO 2419	Leather — Physical and mechanical tests — Sample preparation and conditioning
ISO 2589	Leather — Physical and mechanical tests — Determination of thickness
ISO 7500-1 : 2004	Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system

In reporting the result of a test or analysis made in accordance with this standard, is to be rounded off, it shall be done in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’.

Indian Standard

LEATHER — PHYSICAL AND MECHANICAL TESTS — MEASUREMENT OF STITCH TEAR RESISTANCE

1 Scope

This International Standard specifies a method for determining the stitch tear resistance of leather. It can be used on all leathers, but is particularly suitable for leathers over 1,2 mm in thickness.

2 Normative references

The following referenced documents are indispensable for the application 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 and mechanical and fastness tests — Sampling location*

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

ISO 2589, *Leather — Physical and mechanical tests — Determination of thickness*

ISO 7500-1:2004, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

3 Principle

A leather test piece is pulled against a mandrel of specified shape and dimensions inserted through a slit in the leather and the force required to tear the leather is recorded.

4 Apparatus

4.1 Tensile testing machine, with:

— a force range appropriate to the specimen under test;

— a means of recording the force as specified by Class 2 of ISO 7500-1:2004;

— a uniform speed of separation of the jaws of 100 mm/min ± 20 mm/min;

— jaws, with a minimum length of 30 mm in the direction of the applied load, designed to apply constant clamping by mechanical or pneumatic means. The texture and design of the inside faces of the jaws shall be such that, at the maximum load attained in the test, the specimen does not slip at either jaw.

4.1.1 Metal test piece holder, of the shape shown in Figure 1.

NOTE Figure 1 shows the test piece holder with the mandrel (4.1.2) in place.

4.1.2 **Metal mandrel**, of the shape and dimensions shown in Figure 2.

4.2 **Thickness gauge**, as specified in ISO 2589.

4.3 **Press knife**, the inner wall of which is a rectangle 20 mm ± 1mm × 50 mm ± 1 mm, conforming to the requirements of ISO 2419.

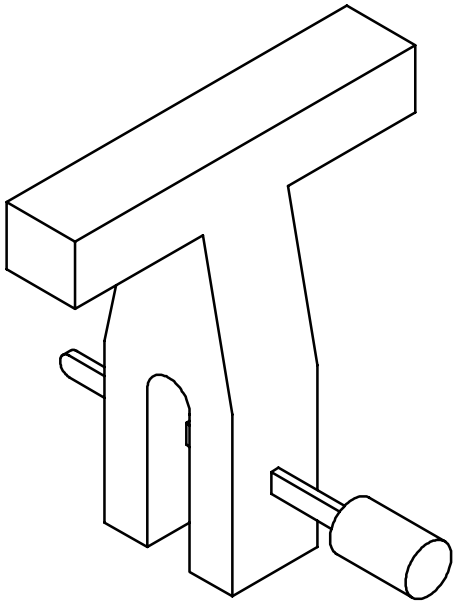

Figure 1 — Test piece holder

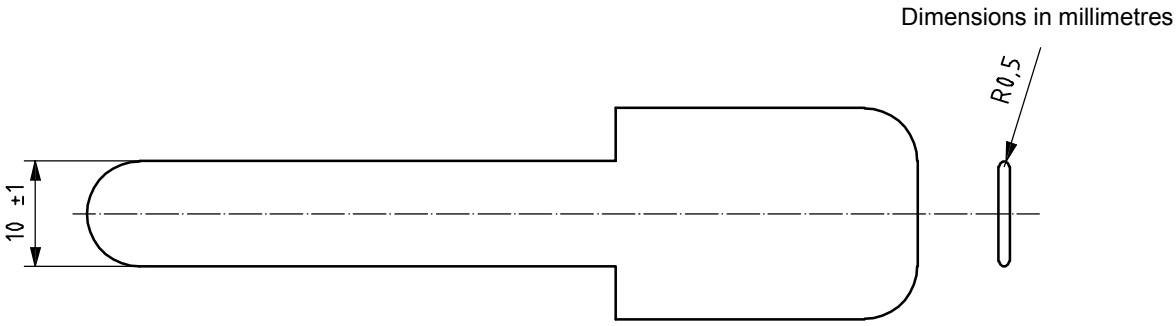

Figure 2 — Metal mandrel

5 Sampling and sample preparation

5.1 After conditioning in accordance with ISO 2419, sample in accordance with ISO 2418. Cut six test pieces by applying the press knife (4.3) to the grain surface. Cut three test pieces with the longer edge parallel to the backbone and three with the longer edge perpendicular to the backbone.

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

5.2 Condition the test pieces in accordance with ISO 2419.

6 Procedure

6.1 Measure the thickness of the test piece in accordance with ISO 2589 at a single point on each of the test pieces. This measurement should be taken at a point approximately 10 mm from the cut end of the slit. (See Figure 3.)

6.2 Grip the upper end of the metal test piece holder (4.1.1) in the upper jaws of the tensile testing machine.

6.3 Place the perforated end of the test piece between the arms of the test piece holder and pass the mandrel (4.1.2) through both the holes in the test piece holder and the slit in the test piece.

6.4 Clamp the free end of the test piece in the lower jaws of the tensile testing machine.

6.5 Run the tensile test machine until the test piece is torn apart and record the force, in newtons, required to initiate tearing and the maximum force, in newtons, recorded during the tearing.

Dimensions in millimetres

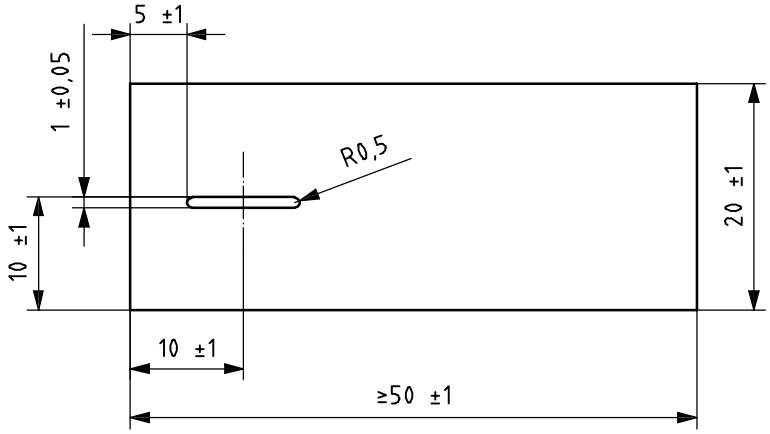

Figure 3 — Test piece for stitch tear

7 Test report

The test report shall include the following:

a) a reference to this International Standard;

b) the thickness of the leather, in millimetres;

c) the maximum force recorded, in newtons;

d) the standard atmosphere used for conditioning and testing as given in ISO 2419 (i.e. 20 °C/65 % RH or 23 °C/50 % RH);

e) any deviations from the method specified in this International Standard;

f) full details for identification of the sample and any deviation from ISO 2418 with respect to sampling.

Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: CHD 17 (1735).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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