SRI LANKA STANDARD 1078:1995
(ISO 11646:1993)

SRI LANKA STANDARD

LEATHER – MEASUREMENT AREA

SRI LANKA STANDARDS INSTITUTION

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SLS 1078: 1995

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SLS 1078:1995
ISO 11646:1993

Sri Lanka standard
LEATHER – MEASUREMENT OF AREA

NATIONAL FOREWORD

This standard was finalised by the Sectoral Committee on Textiles, Clothing and Leather and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 1995-10-26.

This Sri Lanka Standard is identical with ISO 11646 : 1993 Leather – Tests for measurement of area, published by the International Organization for Standardization. (ISO).

Terminology and Conventions

The text of the International Standard has been accepted as suitable for publication, without deviation, as a Sri Lanka Standard. However, certain terminology and conventions are not identical with those used in Sri Lanka Standards, attention is therefore drawn to the following :

a). Wherever the words " International standard/Publication" appear, referring to this Standard they should be interpreted as "Sri Lanka Standard".

b). Wherever page numbers are quoted, they are ISO page numbers.

INTERNATIONAL STANDARD

ISO 11646

IULTCS/IUP 32

First edition
1993-12-15

Leather — Measurement of area

Cuir — Mesure de la surface

Reference number
ISO 11646:1993 (E)
IULTCS/IUP
32, 1993 Edition

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11646 was prepared by the Physical Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUP Commission, IULTCS). It is based on IUP 32 published in *J. Soc. Leather Tech. Chem.*, **73**, pp. 23-24 (1989), and declared an official method of the IULTCS in October 1989.

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International Organization for Standardization
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Leather — Measurement of area

1 Scope

This International Standard specifies a method of measuring the area of pieces of leather. It is intended only for the measurement of dressed and other dry flexible leathers[1].

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2419:1972, *Leather — Conditioning of test pieces for physical tests.*

3 Principle

The area of the conditioned leather is measured with a mechanical pin-wheel machine.

4 Apparatus

4.1 Mechanical pin-wheel area-measurement machine

The machine used should preferably have a feed-roller speed of 20 m/min ± 2 m/min. The distance between the centres of the pins on two adjacent pin-wheels should preferably be 25,4 mm ± 2,5 mm, measured parallel to the axis of the pin-wheel roller. Pin-wheel machines which do not conform to these recommendations may also be used, but the actual design values shall be stated in the test report.

4.2 Circular calibration templet

The templet shall be made of flexible reinforced material, for calibrating the pin-wheel machine immediately before the machine is used. The area of the templet shall not be less than 5 % of the pin-wheel machine capacity, and the width of the templet shall not be greater than 50 % of the machine's working width.

The area of the templet shall, if possible, be within ± 50 % of the anticipated area of the piece of leather to be measured. If this is not possible, feed the same templet through the machine a number of times N without resetting the machine to zero until the total reading is within ± 50 % of the anticipated test-specimen area, and treat this total as a single measurement.

When not in use, the templet(s) shall be kept flat in the standard atmosphere defined in ISO 2419.

The area of the templet(s) shall be verified at least once a year by an independent body using measurement instruments traceable to a national standard calibration procedure. The templet is acceptable if its measured area is within ± 0,5 % of its nominal area.

NOTE 1 Users of this International Standard are recommended to keep a record book of the measurements obtained during the daily calibration procedure. It should be inspected at regular intervals to detect any consistent trends towards inaccurate readings, e.g. left side of the machine always reads low, right side tends to read high. This gives advance warning of faults, which can be of use to the maintenance engineer when servicing the machine.

1) This International Standard is written in SI units, in accordance with ISO directives. The use of the square foot, still common in the leather trade in some countries, is discouraged. If, for commercial reasons, the use of the square foot may seem necessary, it is obtained by the conversion: 1 sq ft = 0,092 9 m^2.

4.3 Calibration procedure

Before each series of tests, carry out the following procedure:

Stage 1: Switch on and run the machine for at least 2 min, then pass an "old" (i.e. uncertified) templet through the machine approximately 25 times in a random manner to ensure that all wheels are engaged. Some of the passes shall be cumulative, without resetting the machine to zero, in order to ensure that all moving parts of the machine are running freely.

Stage 2: Zero the machine and pass a certified templet through the machine N times without cancelling the individual readings. Ensure that all pin-wheels which will be actuated by the subsequent pass of the leather test specimen have also been actuated by the templet. If the recorded total area is within $\pm$ 0,01 m^2 of the theoretical total area, proceed to the next stage. If it is outside this range, adjust the machine and repeat the N passes until the recorded area is within the prescribed tolerance.

Stage 3: Once the machine measures to within the prescribed tolerance, zero the measurement gauge and repeat twice the procedure described in stage 2. Record all three total areas to the nearest 0,01 m^2.

Stage 4: If all three total areas are higher or lower than N times the theoretical templet area, or if the difference between the maximum and minimum total areas is greater than 0,02 m^2, repeat the calibration procedure from the start of stage 2 after making appropriate adjustments to the machine.

5 Procedure

5.1 Conditioning of the leather

5.1.1 Unless otherwise agreed (see 5.1.2), expose the leather test specimen to the standard atmosphere defined in ISO 2419 (20 °C and 65 % R.H.) for at least 48 h.

5.1.2 For some purposes, it is unnecessary to subject test specimens to a strict conditioning procedure, and measurements may be carried out on leather which has not been conditioned, or has been conditioned in a way other than that specified in ISO 2419. Whenever conditions other than those specified in 5.1.1 are used, however, the conditioning regime shall be stated in the test report as a deviation from the method.

NOTE 2 Generally speaking, relative humidity is more important than atmospheric temperature in determining the moisture content and hence the surface area of pieces of leather. Leather which has a moisture content below that which would be obtained by conditioning in accordance with ISO 2419 will have a lower measured area. Some leathers, e.g. chamois, exhibit considerable hysteresis in their regain of moisture from a standard atmosphere. For this reason, and to minimize disputes, it is recommended that in arbitration such leather is conditioned on the descending side of the hysteresis loop, i.e. from a moisture content corresponding to a higher relative humidity down to 65 % R.H.

5.1.3 Support the leather if possible along the backbone in such a way that air has free access to both surfaces, and keep the air in continuous motion by means of a suitably placed fan.

5.1.4 Note the time of conditioning, in hours.

5.2 Start of measurement

Carry out the test either in the same atmosphere as used for conditioning or in ambient conditions, but within 30 min of removing the test specimen from the conditioning atmosphere. Before each measurement, set the pointer of the measurement gauge to zero.

5.3 Method of measurement

Feed the test specimen into the machine with the higher-friction surface in contact with the pin-wheels. The specimen shall be absolutely flat and without creases at the moment when it passes between the pin-wheels and the top of the feed-roller. In the case of soft leathers, this smoothing may involve pulling the hide from edge to edge with sufficient force to prevent the pins pushing the leather into the transport feed-roller slots, the specimen being held in such a manner that it remains flat as it passes through the machine. To ensure this, more than one operator may be needed to feed the specimen into the machine.

5.4 Direction of feed

If the specimen has a linear or nearly linear edge, e.g. along the sides, it shall be fed through the machine so that the straight edge forms an angle of about 30° to the direction of movement. In any other case, the line of the backbone shall be perpendicular, or almost so, to the axis of the rollers.

5.5 Number of measurements

If the area of the test specimen is more than 5 % of the measurement-machine capacity, measure the area twice. If the readings differ, repeat the minimum number of times required to obtain two equal readings after rounding to the nearest 0,01 m^2. If the pointer is exactly in the middle between two scale divisions, round the reading up to the higher of the two divisions.

If the area of the test specimen is less than 5 % of the measurement-machine capacity, feed the specimen through the machine repeatedly, without zeroing in between, until the total measured area exceeds 5 % of the measurement-machine capacity. Repeat the sequence of measurements to obtain a second reading. If the first reading differs from the second after rounding to the nearest 0,01 m^2, repeat the sequence the minimum number of times required to obtain two equal readings. Calculate the area of the specimen as the total measured area divided by the number of times the specimen was fed through the machine and then round to the nearest 0,01 m^2.

6 Expression of results

Report as the area of the test specimen the average of two valid measurements, in square metres, rounded to two places of decimals.

7 Test report

The test report shall include the following information:

a) a description of the type of leather tested;

b) a reference to this International Standard;

c) the time of conditioning, in hours;

d) the result of the area measurement, in square metres, rounded to two places of decimals;

e) details of any deviations from the procedure.

UDC 675.025.55

Descriptors: leather, dimensional measurements, area measurement.

Price based on 3 pages

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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