SLOVENSKI STANDARD
SIST EN 1875-3:1999

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Gumirane ali plastificirane tekstilije - Ugotavljanje nadaljnje trgalne trdnosti - 3. del: Trapezoidna metoda

Rubber- or plastics- coated fabrics - Determination of tear strength - Part 3: Trapezoidal method

Mit Kautschuk oder Kunststoff beschichtete Textilien - Bestimmung der Weiterreißfestigkeit - Teil 3: Verfahren mit trapezförmigen Probekörpern

Supports textiles revetus de caoutchouc ou de plastique - Détermination de la résistance au déchirement - Partie 3: Méthode sur éprouvettes trapézoidales

Ta slovenski standard je istoveten z: **EN 1875-3:1997**

ICS:

59.080.40	Površinsko prevlečene tekstilije	Coated fabrics

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English version

Rubber- or plastics- coated fabrics - Determination of tear strength - Part 3: Trapezoidal method

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This European Standard was approved by CEN on 16 October 1997.

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 Central Secretariat 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 Central Secretariat 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard forms Part of a European Standard on tear resistance of coated fabrics as follows

pr EN ISO 4674-1 Rubber- or plastics- coated fabrics - Determination of tear resistance - Part 1: Three tongue and trousers test pieces

pr EN ISO 4674-2 Rubber- or plastics- coated fabrics - Determination of tear resistance - Part 2: Ballistic method

prEN 1875-3 Rubber- or plastics- coated fabrics - Determination of tear resistance - Part 3: Trapezoidal method

The first Part describes two methods using a tensile testing machine at a constant rate of elongation. The second Part describes a dynamic method using the kinetic energy of a falling pendulum. For these two Parts, tearing propagates in a direction parallel to the applied force. The third Part uses a trapezoidal test piece, where tearing propagates in a direction perpendicular to the applied force.

NOTE: Trapezoidal method should logically be classified with the constant speed methods but is generally considered apart owing to the direction of propagation.

Attention is drawn to the fact that the results of the different methods cannot be compared, owing to the differences of principle.

Other methods are under consideration as possible further Parts, for example the "wounded burst test".

Introduction

Tearing is amongst the more usual ways of destruction for many thin materials. Knowledge of the resistance of these materials to this type of behaviour is therefore very important. In practice, tearing can result from very different circumstances : hence the large number of test methods that have been developed in order to predict the behaviour of the materials in various situations.

NOTE: Persons using this standard should be familiar with normal laboratory practice.This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This standard specifies test conditions and the procedure to be followed for determining the tear strength of a trapezoidal specimen of a rubber- or plastics-coated fabric, using a tensile testing machine. This test may be carried out :

- either on test specimens conditioned in reference atmospheres; or

- on test specimens which have been subjected to any necessary treatment for the application considered, for example dipping.

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 hereunder. For dated references, further amendments or revisions apply to the present European Standard only if they have been incorporated by amendment or revision. For undated references the most recent edition of the cited publication apply.

EN ISO 2231	Rubber- or plastics-coated fabrics - Standard atmospheres for conditioning and testing
EN 22286	Rubber- or plastics- coated fabrics - Determination of roll characteristics
ISO 7500-1	Metallic materials - Verification of static uniaxal testing machines - Part 1 Tensile testing machines

3 Definitions

For the purposes of this standard the following definitions apply :

3.1 tearing : Tearing action.

3.2 tear : The result of tearing.

3.3 tear strength of coated fabrics : The property of a coated fabric to resist a force tending to separate the threads or fibers making up the coated fabric before tearing, by breaking some of these threads or fibers.

4 Principle

The threads or fibres forming a coated fabric are subjected successively to a force designed to break them. The values of the breaking forces are recorded as the mobile jaw moves.

5 Apparatus

5.1 Constant rate of extension(CRE) tensile testing machine, fitted with parallel jaws, having the following general characteristics.

The tensile testing machine shall be provided with means for reading and recording both the force applied to the test specimen in stretching it to rupture and the corresponding extension of the test specimen. It will be provided with a strength indicator having several scales in order to ensure that the rupture of each test specimen shall be obtained with a strength of 15 % to 85 % of the maximum of the scale used. Under conditions of use, the accuracy of the apparatus should be of class 1 in accordance with ISO 7500-1. The error of the indicated or recorded maximum force at any point in the range in which the machine is used shall not exceed ± 1 %, and the error of the indicated or recorded jaw separation shall not exceed 1 mm.

After the first 2 s of the test, the rate of increase in the distance between the clamps shall be uniform to within 5 %.

6 Test specimens

6.1 Atmosphere for conditioning and testing

Samples shall be conditioned in one of the atmospheres as specified in EN ISO 2231. The test shall be carried out in the same atmosphere.

These requirements need not be applied to samples that have been subjected to some treatments such as dipping.

6.2 Sampling

Specimens shall be taken from the sample at a position with no visible or functional flaw and shall be located within the useful width of the part as defined in EN 22286.

6.3 Dimensions

Each test specimen shall have the following dimensions:

(75 ± 1) mm x (150 ± 1) mm (see figure 1)

6.4 Number

For each measurement series, take five test specimens in the longitudinal direction and five test specimens in the transverse direction.

6.5 Preparation

For the measurements of the longitudinal tearing force (for a woven fabric, breakage of the warp threads), the length of the test specimen shall be parallel to the edge of the coated part.

For the measurements of the transverse tearing force (for a woven fabric, breakage of the weft threads), the length of the test specimen shall be perpendicular to the edge of the coated part.

Mark the position of the attachments on the test specimen, then make the initiating incision, as shown in figure 1.

7 Procedure

Place a test specimen in the attachments such that the lower edge of the upper attachment and the upper edge of the lower attachment coincide with the marks on the test specimen. The specimen is then stretched on the side of the incision and forms a fold on the other side.

Start the tensile testing machine at a rate of (100 ± 10) mm/min. Tearing will propagate in a direction almost perpendicular to the length of the test specimen.

Continue the test until rupture, recording the load-deformation curve. This curve will normally contain peaks.

Tear the specimen completely.

Repeat this operation for each test specimen.

8 Expression of results

For each test specimen, the trace is divided in four equal parts. The average of the five highest peaks of the two central parts is taken as the tear strength.

For each direction, longitudinal and transverse, the result is the average of the five test results, rounded to three digits.

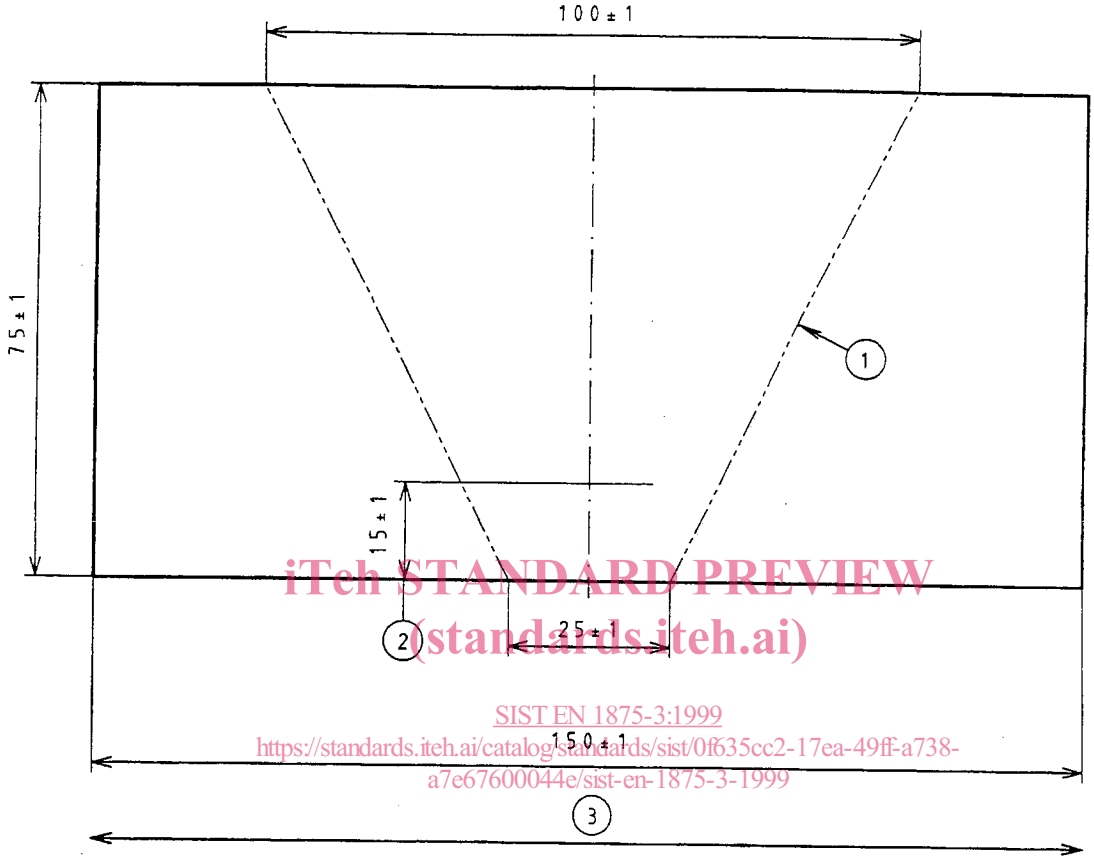
When an anomaly occurs (direction of tearing, recording curve not containing any peaks, coated fabric support separation, etc.), this anomaly shall be noted on the test report and results interpreted with caution.

9 Test report

The test report shall mention:

a) the test date;
b) a reference to this standard;
c) conditioning and test atmospheres used;
d) the material reference and thickness;
e) values of each specimen;
f) average values in the longitudinal and transverse tearing forces;
g) if applicable, any special specimen treatment;
h) any anomalies; and
i) operational details not described in this European Standard and incidents which may have an influence on the results.

Dimensions in millimetres



1 Mark for the attachments
2 Incision 15 to begin the tearing
3 Moving

Figure 1: Mark for the positioning of attachments