



**SLOVENSKI STANDARD**  
**SIST EN 14882:2006**

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Rubber or plastic coated fabrics - Determination of the static and dynamic coefficient of friction

Mit Kautschuk oder Kunststoff beschichtete Textilien - Bestimmung der Koeffizienten von Haftreibung und Bewegungsreibung (standards.iteh.ai)

Supports textiles revetus de caoutchouc ou de plastique - Détermination des coefficients de frottement statique et dynamique (SIST EN 14882:2006, <https://standards.iteh.ai/catalog/standards/sist/769d8322-461b-4128-9910-6016c2d1ddfa/sist-en-14882-2006>)

**Ta slovenski standard je istoveten z: EN 14882:2005**

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EUROPEAN STANDARD

EN 14882

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2005

ICS 59.080.40

English Version

## Rubber or plastic coated fabrics - Determination of the static and dynamic coefficient of friction

Supports textiles revêtus de caoutchouc ou de plastique -  
Détermination des coefficients de frottement statique et  
dynamique

Mit Kautschuk oder Kunststoff beschichtete Textilien -  
Bestimmung der Koeffizienten von Haftreibung und  
Bewegungsreibung

This European Standard was approved by CEN on 1 July 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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<b>Contents</b>		page
Foreword .....		3
1 Scope .....		4
2 Normative references .....		4
3 Terms and definitions .....		4
4 Principle.....		4
5 Apparatus .....		5
6 Preparation of the test specimens.....		7
7 Conditioning.....		7
8 Procedure .....		8
9 Calculation and expression of results.....		8
10 Test report .....		9
Annex A (informative) Principle of the test method .....		10

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## Foreword

This European Standard (EN 14882:2005) 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 February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

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

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**EN 14882:2005 (E)****1 Scope**

This test method details a method of assessing the frictional property of coated fabrics. The test consists of measuring the force necessary to move a sled on the surface of coated fabric test specimen and determining the static and dynamic coefficient of friction.

**2 Normative references**

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 845, *Cellular plastics and rubbers - Determination of apparent (bulk) density (ISO 845:1988)*

EN ISO 1302, *Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation (ISO 1302:2002)*

EN ISO 2231, *Rubber- or plastics-coated fabrics - Standard atmospheres for conditioning and testing (ISO 2231:1989)*

EN ISO 2286-1, *Rubber- or plastics-coated fabrics - Determination of roll characteristics - Part 1: Methods for determination of length, width and net mass (ISO 2286-1:1998)*

EN ISO 5084, *Textiles - Determination of thickness of textiles and textile products (ISO 5084:1996)*

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

EN ISO 12947-1:1998, *Textiles - Determination of the abrasion resistance of fabrics by the Martindale method - Part 1: Martindale abrasion testing apparatus (ISO 12947-1:1998)*

**3 Terms and definitions**

For the purposes of this European Standard, the following terms and definitions apply.

**3.1****coefficient of static friction ( $\mu_s$ )**

coefficient calculated from the ratio of the force necessary to cause the tangential separation of two stationary surfaces to the perpendicular force acting upon the two surfaces

**3.2****coefficient of dynamic friction ( $\mu_d$ )**

coefficient calculated from the ratio of the force necessary to maintain a constant velocity between two surfaces in contact to the perpendicular force acting upon the two surfaces

**4 Principle**

A sled is attached to a strain gauge and is linked to an autographic recording device. The sled is caused to move against the test specimen which is either rigidly mounted on a horizontal bed or the base of the sled. The force to initiate the movement of the sled and thereafter maintain a constant velocity is measured.

From specific forces, the coefficients of friction (static and dynamic) are calculated.

## 5 Apparatus

### 5.1 Constant rate of extension tensile testing machine

Testing machine of class I as specified in EN ISO 7500-1. The tensile testing machine shall be provided with means for reading and recording both the force necessary to initiate movement and the force necessary to maintain a constant velocity thereafter. The relative movement is maintained at a constant velocity of  $(500 \pm 50)$  mm/min.

NOTE 1 The recording device could be controlled by computer and a data acquisition frequency of at least 8 data per second has proved suitable.

NOTE 2 A load cell of maximum 50 N is recommended.

### 5.2 Steel sled

#### 5.2.1 General

The sled is directly linked to the force measuring device with a thin and light string that does not elongate.

#### 5.2.2 Type A sled

Sled of  $(150 \pm 1)$  mm long  $\times$   $(100 \pm 1)$  mm wide having a mass of  $(700 \pm 15)$  g – see Figure 1. The surface of the sled is flat, smooth and polished (Roughness  $R_a = 0,2 \mu\text{m}$  in accordance with EN ISO 1302). The edges of the sled do not contain any burrs or roughness.



#### Key

- 1 Orientation of the test

**Figure 1 — Type A sled**

The edges relative to the surface in contact with the test specimen present a chamfer profile of  $(1,0 \pm 0,1)$  mm, see Figure 2.

Dimensions in millimetres

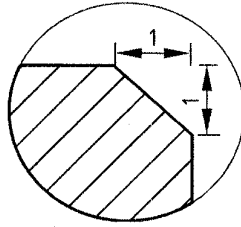


Figure 2 — Chamfer of the type A sled (detail)

### 5.2.3 Type B sled

Type A sled to which is attached the test specimen. Between the sled and the test specimen is placed a polyurethane cellular rubber described in Table 1. The test specimen is mounted with the coating outermost on the sled.



#### Key

- 1 Test specimen
- 2 Polyurethane cellular rubber
- 3 Type A sled

The dimensions of the polyurethane cellular rubber shall be  $(230 \pm 5)$  mm x  $(100 \pm 1)$  mm.

Figure 3 — Type B sled



Table 1 — Polyurethane cellular rubber description

Properties	Requirements	Test method
Thickness	$(3 \pm 1)$ mm	EN ISO 5084
Density	$(30 \pm 3)$ kg.m <sup>3</sup>	EN ISO 845
indentation hardness	$(5,8 \pm 0,8)$ kPa	Annex B in EN ISO 12947-1:1998

#### 5.2.4 Pulley

A pulley shall rotate freely and have a U profile – see Figure 4. The pulley is positioned to maintain the sled in a horizontal position and to keep the string in the direction of force axis on the tensile machine.



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Figure 4 — Profile of the pulley  
(standards.iteh.ai)

#### 5.2.5 Flat steel plate

A flat steel plate of rigid construction, having a smooth surface. The flat steel plate shall be in a horizontal position with the bottom of the pulley. The flat steel plate is of a length to permit a relative surface travel during the test of at least 400 mm and of a width to permit at least 50 mm of clearance between the edge of the sled and any edge obstructions.

## 6 Preparation of the test specimens

Cut two test specimens of approximately 600 mm × 200 mm in the longitudinal direction and two test specimens of approximately 600 mm × 200 mm in the transversal direction.

If the width of the product doesn't allow to have the defined dimension, note the transversal dimensions in the test report.

Test specimens shall be cut in the usable width of the roll (defined in EN ISO 2286-1).

For method with sled B, cut two additional coated fabric specimens each measuring  $(250 \pm 5)$  mm x  $(100 \pm 1)$  mm, one in the longitudinal direction of the coated fabric and one in the transverse direction of the coated fabric.

## 7 Conditioning

Place the test specimens in a conditioned atmosphere as specified in EN ISO 2231 for at least 16 h prior to testing and carry out the test in this environment.