



**SLOVENSKI STANDARD**  
**SIST-TS CEN/TS 16611:2014**  
**01-maj-2014**

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**Pohištvo - Ocenjevanje odpornosti površine proti mikrorazenju**

Furniture - Assessment of the surface resistance to microscratching

Möbel - Bestimmung der Mikrokratzt-Beständigkeit von Möbel-Oberflächen

Ameublement - Évaluation de la résistance des surfaces aux micro-rayures

**Ta slovenski standard je istoveten z: CEN/TS 16611:2014**

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**ICS:**

97.140          Pohištvo                                  Furniture

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TECHNICAL SPECIFICATION  
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**CEN/TS 16611**

March 2014

ICS 97.140

English Version

**Furniture - Assessment of the surface resistance to  
microscratching**

Ameublement - Évaluation de la résistance des surfaces  
aux micro-rayures

Möbel - Bestimmung der Mikrokratzbeständigkeit von  
Möbeloberflächen

This Technical Specification (CEN/TS) was approved by CEN on 14 October 2013 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (CEN/TS 16611:2014) has been prepared by Technical Committee CEN/TC 207 "Furniture", the secretariat of which is held by UNI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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**CEN/TS 16611:2014 (E)****1 Scope**

This Technical Specification specifies a method for the assessment of the surface resistance to microscratching and relates to rigid surfaces of all finished products regardless of materials.

Method A is suitable for all types of surface coatings and coverings except for lacquers with pearly or metallic effects.

Method B is suitable for all types of surface.

It does not apply to finishes on leather and fabrics.

The test is intended to be carried out on a part of finished furniture, but can be carried out on test panels of the same material, finished in an identical manner to the finished product, and of a size sufficient to meet the requirements of the test.

It is essential that the test shall be carried out on unused surfaces.

**2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 2813, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20°, 60° and 85° (ISO 2813)*

EN ISO 12945-2, *Textiles — Determination of fabric propensity to surface fuzzing and to pilling — Part 2: Modified Martindale method (ISO 12945-2)*

<https://standards.iteh.ai/catalog/standards/sist/d4bc41ff-d0fb-42b0-9f5c->

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

**3 Terms and definitions**

For the purposes of this Technical Specification, the following terms and definitions apply.

**3.1****test surface**

part of the test panel

**3.2****test panel**

panel including the test surface

Note 1 to entry: It may be cut from a finished item of furniture or it may be a separate panel produced in the same manner as the finished item of furniture.

**3.3****test area**

part of the test surface effected by the scrub material (5.6)

**3.4****rub**

one revolution of the two outer drives of the Martindale tester



**3.5****cycle**

completion of all the translational movements tracing a Lissajous figure comprising 16 rubs

Note 1 to entry: This comprises of 16 revolutions of the two outer drives and 15 revolutions of the inner drive of the Martindale tester.

**3.6****lissajous figure**

figure created by movement which ranges changes from a circle gradually narrowing ellipses, until it becomes a straight line, from which progressively widening ellipses develop, in a diagonally opposite direction before the pattern is repeated

**4 Principle**

The test surface shall be fixed on a horizontal table. A circular scrub material fixed on a holder impacts on the test surface with a defined load. Table and holder shall be moved perpendicular to each other, in a translational movement, with defined frequencies, tracing a Lissajous figure. The holder is additionally freely rotatable around its own axis perpendicular to the horizontal plane.

The test surface is exposed to the scrub material for a predetermined number of rubs. The changes of the surface are determined by gloss measurement or visual assessment.

**5 Apparatus and materials****5.1 Martindale tester**

The Martindale tester shall be as described in EN ISO 12947-1 with the following exceptions:

- the “Abrading table” is the table for the test surface;
- the “clamping ring and mechanism” is not necessary;
- the “specimen holder” is the holder for the scrub material;
- the “loading pieces” are not necessary.

**5.2 Holder for scrub material**

The holder for scrub material shall be as described in EN ISO 12945-2, with the following exceptions:

- consists of a guide plate with an inner diameter of  $(90 \pm 0,5)$  mm, a large ring weight and a spindle with an overall weight  $(612 \pm 2)$  g (nominally called 6 N).

**5.3 Diffuse light source**

Light source providing evenly diffused light giving an illumination on the test surface of  $(1200 \pm 400)$  lx. This may either be diffuse daylight or be diffuse artificial daylight.

The daylight should be unaffected by surrounding trees, buildings, etc. When artificial light is used it is recommended that it should have a correlated colour temperature of  $(6500 \pm 50)$  K and an  $R_a$  greater than 92, by using a colour matching booth in accordance with EN ISO 3668:2001<sup>[1]</sup>

**5.4 Reflectometer**

For gloss measurement with 3 angle measurement geometry as described in EN ISO 2813.