



SLOVENSKI STANDARD
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Resilient floor coverings - Floor coverings based upon synthetic thermoplastic polymers -
Specification

Elastische Bodenbeläge - Bodenbeläge auf Basis synthetischer Thermoplaste -
Spezifikation

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Revetements de sol résilients - Revêtements de sol à base de polymères
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Non-textile floor coverings

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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Resilient floor coverings - Floor coverings based upon synthetic thermoplastic polymers - Specification

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This European Standard was approved by CEN on 1 April 2004.

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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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 14565:2004) has been prepared by Technical Committee CEN/TC 134 “Resilients, textile and laminate floor coverings”, 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of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

The annexes A, B and C are normative. The annexes D and E are informative.

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 14565:2004 (E)**1 Scope**

This European Standard specifies the characteristics for resilient floor coverings based upon synthetic thermoplastic polymers, supplied either in roll or tile form.

This specification does not apply to floor coverings specified in the series EN 649 to EN 654.

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 hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 425, *Resilient and laminate floor coverings – Castor chair test.*

EN 426, *Resilient floor coverings – Determination of width, length, straightness and flatness of sheet material.*

EN 427, *Resilient floor coverings – Determination of the side length, squareness and straightness of tiles.*

EN 428, *Resilient floor coverings – Determination of overall thickness.*

EN 429, *Resilient floor coverings - Determination of the thickness of layers.*

EN 430, *Resilient floor coverings – Determination of mass per unit area.*

EN 431, *Resilient floor coverings – Determination of peel resistance.*

EN 433, *Resilient floor coverings – Determination of residual indentation after static loading.*

EN 434, *Resilient floor coverings – Determination of dimensional stability and curling after exposure to heat.*

EN 435, *Resilient floor coverings – Determination of flexibility.*

EN 684, *Resilient floor coverings – Determination of seam strength.*

EN 685, *Resilient, textile and laminate floor coverings – Classification.*

EN 1269, *Textile floor coverings – Assessment of impregnations in needed floor coverings by means of a soiling test.*

EN 1372, *Adhesives – Test method for adhesives for floor and wall coverings – Peel test.*

EN 1373, *Adhesives – Test method for adhesives for floor and wall coverings – Shear test.*

EN 1471, *Textile floor coverings – Assessment of changes in appearance.*

EN 1903, *Adhesives – Test method for adhesives for plastic or rubber floor coverings or wall coverings – Determination of dimensional changes after accelerated ageing.*

EN 12466:1998, *Resilient floor coverings – Vocabulary.*

EN 20105-A02, *Textiles – Tests for colour fastness – Part A02: Grey scale for assessing change in colour (ISO 105-A02:1993)*.

EN ISO 105-B02, *Textiles – Tests for colour fastness – Part B02: Colour fastness to artificial light: Xenon arc fading lamp test (ISO 105-B02:1994)*.

EN ISO 291, *Plastics – Standard atmospheres for conditioning and testing (ISO 291:1997)*.

ISO 10361, *Textile floor coverings – Production of changes in appearance by means of Vettermann drum and hexapod tumbler testers*.

ISO 11378-1, *Textile floor coverings – Laboratory soiling tests – Part 1: Kappasoil test*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in EN 12466:1998 and the following apply.

3.1

product with backing

floor covering consisting of a homogeneous or heterogeneous surface layer and a backing of any material different from the surface layer

NOTE Typical backing materials are cork, foams and jute.

3.2

scratch

permanent surface damage of visible physical nature

4 Requirements

4.1 General requirements

Floor coverings described in this standard shall comply with the appropriate general requirements specified in Table 1, when tested in accordance with the methods given therein.

Table 1 — Requirements

Characteristic	Requirement		Test method
	For product without backing	For product with backing	
Roll form - Length m - Width mm	not less than the nominal value		EN 426
Tiles Side length mm Squareness and straightness	deviation $\pm 0,13$ % of nominal length up to 0,5 mm maximum		EN 427

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Characteristic	Requirement		Test method
	For product without backing	For product with backing	
for side length mm - ≤ 400 mm - > 400 mm - > 400 mm (intended for welding)	deviation at any point ≤ 0,25 ≤ 0,35 ≤ 0,50		
Overall thickness mm - average ^a - individual results	nominal value + 0,13 - 0,10 average value ^b ± 0,15	nominal value + 0,18 - 0,15 average value ^b ± 0,20	EN 428
Thickness of wear layer mm - average ^a - individual results	nominal value + 13 % - 10 % average value ^b ± 0,15	nominal value + 18 % - 15 % average value ^b ± 0,20	EN 429
Total mass per unit area g/m ² (average)	nominal value + 13 % - 10 %		EN 430
Residual indentation mm Recovery after indentation %	≤ 0,10	≥ 80	EN 433 EN 433 ^c
Dimensional stability after exposure to heat Expansion/Shrinkage %	≤ 0,20		Annex C
Curling under exposure to heat Rolls and tiles (intended for welding) mm Tiles (intended for dry joint laying) mm	≤ 8 ≤ 2		EN 434 (6 h, 50 °C)

Characteristic	Requirement		Test method
	For product without backing	For product with backing	
Flexibility	Test using a 20 mm mandrel. For products which show signs of cracking, perform a further test using a 40 mm mandrel. If results show no further cracking, record the use of a 40 mm diameter mandrel. Cracking when using a 40 mm mandrel is to be recorded. The test shall be repeated with method B. If no cracking occurs the material is semi flexible.		EN 435 Method A Method B
Colour fastness to artificial light	6 minimum		EN ISO 105 B02 Method 3 ^d
Peel resistance N/50 mm Average Individual results		≥ 50 ≥ 40	EN 431
Soiling Ease of cleaning	> 2 big grey scale ≥ 4 big grey scale		Annex B
Scratch Appearance Assessment	Record the load which causes the first uninterrupted scratch on the surface (visible with the naked eye)		Annex A
Adhesion and gluing ^e Peel strength N/mm Shear strength N/mm ²		> 1,0 > 0,30	EN 1372 EN 1373
Castor chair suitability	For classes 32 and higher – no delamination		EN 425
Seam strength N/50 mm	For classes 31 and higher, if welding is required: average ≥ 240 individual values ≥ 180		EN 684
^a Average of the batch. ^b Average of the results of one sample. ^c Carrying out the test under EN 433 the recovery is calculated as shown in 4.2. ^d Expose a full size test sample. Store a further test sample in the dark, which will constitute the reference standard for assessment of colour change. ^e The requirements given are minimum values. For individual products higher forces may be required and shall be specified by the manufacturer of the floor covering.			

EN 14565:2004 (E)**4.2 Calculation of recovery after indentation**

The recovery after indentation is calculated from the following expression:

$$\text{recovery} = \frac{t_1}{t_0} \times 100$$

where

t_0 is the thickness of the floor covering before applying the load;

t_1 is the thickness after recovery for 150 minutes.

5 Wear and performance specification

The manufacturers shall provide a statement regarding the wear performance of the floor coverings, conforming to the classification scheme established in EN 685 and based on their knowledge of the formulation, physical test results, and extended wear trials carried out on floor coverings.

NOTE It is well established that there is little or no correlation, if test results from an abrasion test are used to assess how different polymer based floor coverings wear in service. This is particularly true if the floor coverings under test are significantly different in formulation, and product construction.

Only floor coverings of similar composition can be compared for wear and durability using abrasion test equipment.

Since floor coverings covered by this specification can vary significantly in formulation, and can be based upon many different polymers, for floor coverings covered by this standard it is not possible to use the results from laboratory abrasion tests for wear classification purposes.

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Therefore, the customer shall rely upon the integrity and legal responsibility of manufacturers for meaningful wear performance.

6 Marking

Floor coverings covered by this standard and/or their packaging shall bear the following marking:

- a) number and date of this European Standard, i.e. EN 14565:2004;
- b) manufacturer's or supplier's identification;
- c) product name;
- d) colour/pattern and batch and roll / package number if applicable;
- e) classes/symbols appropriate for the product;
- f) for rolls: the length, width and thickness;
- g) for tiles: the dimensions of a tile and the area in square meters contained in a package.

Annex A (normative)

Method of test for resistance to scratching

A.1 Introduction

This method of test specifies a procedure to assess the appearance of scratches on resilient floor covering surfaces under laboratory conditions.

A.2 Principle

A test piece mounted on a horizontal rotating plate is scratched by a defined steel pin. The pin can be loaded with different weights. The load at which the pin causes an uninterrupted scratch of defined characteristics is used for the ranking of the product.

A.3 Apparatus and materials

A.3.1 General

NOTE The item numbers in parentheses in A.3.2.1 to A.3.2.6 refer to Figure A.1.

A.3.2 Scratch tester (Figure A.1), consisting of A.3.2.1 to A.3.2.6.

A.3.2.1 Stand, with a device to indicate the horizontal, e.g. a spirit level.

A.3.2.2 Turntable (4), freely rotating, motor-driven, for supporting the test piece, rotating around its vertical axis at (35 ± 5) mm per second at the position where the scratch is made.

A.3.2.3 Clamping disc (6), to keep the test specimen flat.

A.3.2.4 Arm (5), with a holder for the steel pin (3), mounted on a ball bearing, with horizontal axis.

This arm is engraved with a scale (1) and is made adjustable in order to ensure that it is always horizontal, independent of the thickness of the test piece, when the steel pin touches the surface of the specimen.

A.3.2.5 Movable weight (2), that can be moved along the arm (5). The mass of the weight together with the effective mass of the arm presses the steel pin onto the surface to be tested.

The force exerted on the steel pin shall be accurate to 0,01 N, when measured at the mounting device for the pin.

A.3.2.6 Steel pin (3) (also shown in Figure A.2), made from tungsten carbide–cobalt (WC–Co) hard metal, HIP treated (hot isostatic pressed).