



SLOVENSKI STANDARD
oSIST prEN 17142:2017
01-julij-2017

**Modularne večplastne talne obloge - Elementi z vrhnjo plastjo iz lesnega prahu -
Specifikacije, zahteve in preskusne metode**

Modular multilayer floor coverings - Elements with a wood powder based surface layer -
Specifications, requirements and test methods

Modularer mehrschichtiger Bodenbelag - Elemente mit einer auf Holzpulver basierenden
Deckschicht - Spezifikationen, Anforderungen und Prüfverfahren

Revêtement de sol modulaire multicouche - Éléments dont la surface est à base de
poudre de bois - Spécifications, exigences et méthodes d'essai

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97.150 Talne obloge Floor coverings

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Modular multilayer floor coverings - Elements with a wood powder based surface layer - Specifications, requirements and test methods

Revêtement de sol modulaire multicouche - Éléments dont la surface est à base de poudre de bois - Spécifications, exigences et méthodes d'essai

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents	Page
European foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Requirements	7
5 Marking and packaging	10
6 Test report	11
Annex A (normative) Determination of thickness, length, width, squareness, straightness and flatness	13
A.1 Sampling	13
A.2 Conditioning	13
A.3 Apparatus	13
A.4 Procedure	15
A.5 Calculation and expression of results	20
Annex B (normative) Determination of openings and height difference between elements	22
B.1 Sampling	22
B.2 Conditioning	22
B.3 Apparatus	22
B.4 Procedure	22
B.5 Calculation and expression of results	23
Annex C (normative) Determination of dimensional variations after changes in relative humidity	24
C.1 General	24
C.2 Sampling	24
C.3 Conditioning	24
C.4 Calculation and expression of results	25
Annex D (normative) Determination of surface soundness	26
D.1 General	26
D.2 Sampling	26
D.3 Conditioning	26
D.4 Procedure	26
D.5 Calculation and expression of results	27
Annex E (normative) Determination of abrasion resistance and abrasion classification	28

E.1	Sampling	28
E.2	Conditioning	28
E.3	Apparatus	29
E.4	Procedure	32
Annex F (normative)	Calibration and maintenance of abrasion equipment	35
F.1	General	35
F.2	Apparatus	35
F.3	Procedure	35
Annex G (normative)	Measurement of shore A hardness	39
Annex H (normative)	Determination of impact resistance and impact classification	40
H.1	General	40
H.2	Sampling	40
H.3	Apparatus	40
H.4	Procedure	40
Bibliography	43

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prEN 17142:2017 (E)

European foreword

This document (prEN 17142:2017) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

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1 Scope

This European Standard specifies characteristics,; states requirements and gives test methods for modular multilayer floor coverings with an surface layer based on wood powder (as defined in 3.1).

It includes a classification system, based on EN ISO 10874, giving practical requirements for areas of use and levels of use, to indicate where powder based floor coverings will give satisfactory service and to encourage the consumer to make an informed choice. It also specifies requirements for marking and packaging.

Powder based floor coverings are considered for domestic and commercial levels of use.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 311, *Wood-based panels — Surface soundness — Test method*

EN 318, *Wood based panels — Determination of dimensional changes associated with changes in relative humidity*

EN 322, *Wood-based panels — Determination of moisture content*

EN 424, *Resilient floor coverings — Determination of the effect of simulated movement of a furniture leg*

EN 425:2002, *Resilient and laminate floor coverings — Castor chair test*

EN 438-2, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Determination of properties*

EN 16094, *Laminate floor coverings — Test method for the determination of micro-scratch resistance*

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

CEN/TS 16354, *Laminate floor coverings — Underlays — Specification, requirements and test methods*

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

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2)*

EN ISO 10874, *Resilient, textile and laminate floor coverings — Classification (ISO 10874)*

EN ISO 24343-1, *Resilient and laminate floor coverings — Determination of indentation and residual indentation — Part 1: Residual indentation (ISO 24343-1)*

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (Hardness between 10 IRHD and 100 IRHD)*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

prEN 17142:2017 (E)

ISO 7267-2, *Rubber-covered rollers — Determination of apparent hardness — Part 2: Shore-type durometer method*

ISO 24334, *Laminate floor coverings — Determination of locking strength for mechanically assembled panels*

ISO 24336, *Laminate floor coverings — Determination of thickness swelling after partial immersion in water*

ISO 24339, *Laminate and textile floor coverings — Determination of dimensional variations after exposure to humid and dry climate conditions*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**modular multilayer floor covering**

floor covering, typically in a plank or tile format, having a multiple layer product structure: e.g. backer, substrate and surface layer

Note 1 to entry: The planks/tiles have worked edges that allow the product to be joined together to form a larger integral unit. The product may vary in thickness, format, surface texture, gloss level and colour.

3.2**wood powder based surface layer**

upper decorative layer consisting of one or more powder based layers, comprising resins such as amino plastic, thermosetting resins (usually melamine)

Note 1 to entry: By the simultaneous action of heat and pressure, these powder layers are either pressed as such or are directly pressed on a substrate (usually wood-based panels). The product is usually fitted with a backer (powder backer or Impregnated papers), primarily used as a balancing material. In case of individually pressed layers, such layers may be fitted on substrates by for example a gluing operation.

3.3**powder based layer**

wood powder particles, aminoplastic powder binder, additives; pigments and any corundum is mixed together as a dry powder composite and scattered in layers

3.4**substrate**

core material of the powder based floor covering

Note 1 to entry: It is generally a particleboard, as defined in EN 309, or a Plywood board or an OSB board or a Medium Density Fibreboard (MDF) as defined in EN 316 or a so called High Density Fibreboard (HDF) which is a MDF-board with a density $\geq 800 \text{ kg/m}^3$.

3.5**backer**

layer opposite to the surface layer used to balance and stabilise the product

Note 1 to entry: The backer is generally made of wood powder or impregnated papers.

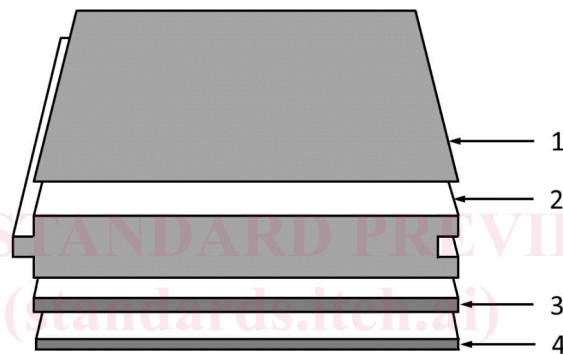
3.6**underlay**

layer placed between the powder based floor covering and the subfloor to impart specific properties

Note 1 to entry: Some powder based floor covering products have the underlay pre-attached directly to the backer.

3.7**powder based floor covering element**

piece of the floor covering with profiled edges to facilitate assembly at installation (see Figure 1)

**Key**

- 1 surface layer
- 2 substrate
- 3 backer
- 4 underlay (optional)

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Figure 1— Powder based floor-covering element

4 Requirements**4.1 General requirements**

All powder based floor coverings shall conform to the general requirements given in Table 1, when tested by the methods specified therein.

Table 1 — General requirements

Characteristic	Requirement	Test method
Thickness of the element, (t) without underlay	$\Delta t_{\text{average}} \leq 0,50 \text{ mm}$, relative to nominal value $t_{\text{max.}} - t_{\text{min.}} \leq 0,50 \text{ mm}$	Annex A
With pre-attached underlay	$\Delta t_{\text{average}} \leq 0,50 \text{ mm}$, relative to nominal value $t_{\text{max.}} - t_{\text{min.}} \leq 0,80 \text{ mm}$	Annex A
Length of the surface layer, (l)	For the nominal values given, no measured	Annex A

Characteristic	Requirement	Test method
	value shall exceed: $l \leq 1\,500$ mm: $\Delta l \leq 0,5$ mm $l > 1\,500$ mm: $\Delta l \leq 0,3$ mm/m	
Width of the surface layer, (w)	$\Delta w_{\text{average}} \leq 0,10$ mm, relative to nominal value $w_{\text{max.}} - w_{\text{min.}} \leq 0,20$ mm	Annex A
Length and width of squared elements, ($l = w$)	$\Delta l_{\text{average}} \leq 0,10$ mm relative to nominal value $\Delta w_{\text{average}} \leq 0,10$ mm, relative to nominal value $l_{\text{max.}} - l_{\text{min.}} \leq 0,20$ mm $w_{\text{max.}} - w_{\text{min.}} \leq 0,20$ mm	Annex A
Squareness of the element, (q)	$q_{\text{max.}} \leq 0,20$ mm	Annex A
Straightness of the surface layer, (s)	$s_{\text{max.}} \leq 0,30$ mm/m	Annex A
Flatness of the element, (f)	Maximum single values: $f_{w, \text{concave}} \leq 0,15$ % $f_{w, \text{convex}} \leq 0,20$ % $f_{l, \text{concave}} \leq 0,50$ % $f_{l, \text{convex}} \leq 1,00$ %	Annex A
Openings between elements, (o)	$o_{\text{average}} \leq 0,15$ mm $o_{\text{max.}} \leq 0,20$ mm	Annex B
Height difference between elements, (h)	$h_{\text{average}} \leq 0,10$ mm $h_{\text{max.}} \leq 0,15$ mm	Annex B
Dimensional variations after changes in relative humidity, ($\delta l, \delta w$)	$\delta l_{\text{average}} \leq 0,9$ mm $\delta w_{\text{average}} \leq 0,9$ mm	Annex C
Light fastness	Colour contrast between unexposed and exposed sample part ≥ 4 of grey scale according to EN 20105-A02	EN ISO 4892-2 procedure B – cycle 5 (50 % rel. hum.) ^{a b}
Static indentation	residual indentation $\leq 0,05$ mm	EN ISO 24343-1
<p>^a Test until blue wool scale No. 6 according to EN ISO 105-B02 (= colour contrast 4 on the grey scale according to EN 20105-A02 between exposed and unexposed part of blue wool scale).</p> <p>^b Allow sample (24 ± 1) h recovery time without light exposure at 23 °C and 50 % rel. humidity before taking final assessment.</p>		

4.2 Classification requirements

All powder based floor coverings shall be classified as suitable for different levels of use according to the requirements specified in Table 2, when tested by the methods given therein. Classification shall conform to the scheme specified in EN ISO 10874.

For the large ball impact test of products of the classes 21 – 23 and 31 – 34 a standard EPS foam of ($1,8 \pm 0,2$) mm thickness, with a CS value of (60 ± 10) kPa¹ and with PC-value of ($0,9 \pm 0,1$) mm shall be used. The three parameters of the foam are to be determined according to CEN/TS 16354.

¹ The product “Selitflex 1,6 mm” made by Selit GmbH is an example of a suitable product available commercially. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of this product. Equivalent products may be used if they can be shown to lead to the same results.

Table 2 — Classification requirements and levels of use

Class:	Levels of use							Test method
	Domestic			Commercial				
	Moderate	General	Heavy	Moderate	General	Heavy	Very Heavy	
	21	22	23	31	32	33	34	
Abrasion resistance	AC1	AC2	AC3		AC4	AC5	AC6	Annex E
Impact resistance Small ball Big ball	≥ 8 N ≥ 500 mm				≥ 12 N ≥ 750 mm	≥ 15 N ≥ 1 000 mm	≥ 20 N ≥ 1 600 mm	Annex H
Resistance to staining	4, (groups 1 and 2) 3, (group 3)		4, (groups 1, 2 and 3)					EN 438-2
Effect of a furniture leg	-		No damage shall be visible, when tested with foot type 0					EN 424
Effect of a castor chair ^a	-		25 000 cycles, No damage ^a	25 000 cycles No damage ^a				EN 425:2002 ^b
Thickness swelling	≤ 20 %		≤ 18 %		≤ 15 %	≤ 8 %		ISO 24336
Locking strength	-				f _{10,2} ≥ 1 kN/m (length) f _{s0,2} ≥ 2 kN/m (width)		f _{10,2} ≥ 3,5 kN/m (length) F _{s0,2} ≥ 3,5 kN/m (width)	ISO 24334
Surface soundness	≥ 1,0 N/mm ²			≥ 1,25 N/mm ²		≥ 1,50 N/m ²		Annex D

^a No visible damage on the surface of the assembled test area caused by detachment of layers, opening of joints, or crazing. Ignore any flattening or change in appearance, e.g. change in gloss.

^b Using soft castor wheels W PU (95 ± 5) Shore A except for class 34 wheels H PA (95 ± 5) Shore A.

4.3 Optional technical characteristics

When any of the characteristics given in Table 3 are requested for specific applications, the powder based floor coverings can be tested by the methods given therein. The properties stated in Table 3 are considered important for some specific products or applications.

Table 3 — Optional technical characteristics (informative)

Characteristic	Comment	Test method
Humidity at dispatch from the manufacturer	The elements shall have a moisture content of 4 % to 10 %. Any single batch shall be homogeneous with $H_{\max} - H_{\min} \leq 3 \%$	EN 322
Appearance, surface defects	Minor surface defects as defined in EN 438 are permitted	EN 438-2
Micro-scratch resistance ^a	Can be declared as micro-scratch resistance classes according to procedure A and/or B	EN 16094
Dimensional stability	$\Delta_{w \text{ avg}},$ $\Delta_{l \text{ avg}}: \leq 0,15 \%$ $- \quad 0,20 \% \leq C_{\text{avg}} \quad b \leq 0,25 \% \quad J_{L \text{ avg}},$ $J_{S \text{ avg}}: \leq 0,15 \text{ mm}$ $h_{L \text{ avg}}, h_{S \text{ avg}}: \leq 0,15 \text{ mm}$	ISO 24339
^a Should not be tested on samples with texture deeper than 150 μm . ^b Take the maximum of C_{avg} from wet climate (23 °C, 85 % rel. humidity) and the minimum of C_{avg} from dry climate (23 °C, 30 % rel. hum.) for the evaluation.		

5 Marking and packaging


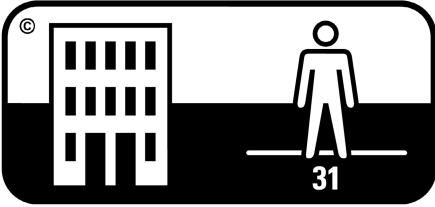
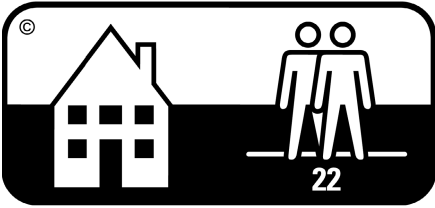
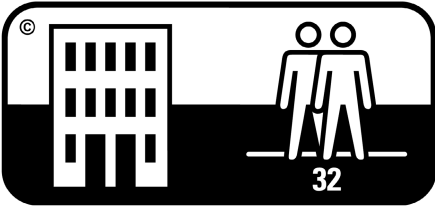


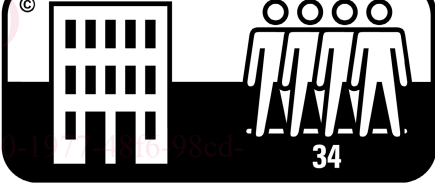
5.1 Marking

NOTE For CE-Marking see EN 14041.

Powder based floor coverings which comply with the requirements of this standard shall have the following information clearly marked by the manufacturer, either on their packaging, or on a label or information sheet included in the packaging:

- a) a reference to this European Standard;
- b) manufacturer's and/or supplier's identification;
- c) product name;
- d) colour/pattern and batch number;
- e) level of use symbols appropriate to EN ISO 10874 and in accordance with Table 4;
- f) nominal dimensions of one floor covering element in millimetres; if relevant: nominal thickness of pre-attached underlay, nominal thickness of products with pre-attached underlay e.g. 10 (8 + 2) mm;
- g) number of elements contained in a package;
- h) area contained in a package in square metres.

Table 4 — Classification symbols

Intensity of use according to EN ISO 10874	Domestic	Commercial
Moderate		
General		
Heavy		
Very Heavy	-	

5.2 Packaging

Powder based floor coverings shall be delivered in packages designed to protect the corners, edges and surfaces of the product, under normal conditions of transport and handling. Installation, cleaning and maintenance instructions shall be delivered together with the product.

6 Test report

The test report shall include at least the following information:

- the name and address of the test laboratory;
- date of test report;
- a reference to this European standard;
- full description of the product tested;