
**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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Talne obloge

Floor coverings

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EUROPEAN STANDARD

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

Revêtements de sol modulaires multicouches -
Éléments comportant une couche de surface à base de
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einer auf Holzpulver basierenden Deckschicht -
Spezifikationen, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 6 August 2018.

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EN 17142:2018 (E)**European foreword**

This document (EN 17142:2018) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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1 Scope

This document 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 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) — Part 2: Determination of properties*

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

EN 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 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

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 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 48-7, *Rubber-covered rollers — Determination of apparent hardness — Part 2: Shore-type durometer method*

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

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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*

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 can vary in thickness, format, surface texture, gloss level and colour.

3.2**modular multilayer floor covering with wood powder based surface layer**

upper decorative layer consisting of one or more wood powder based layers which consists of a minimum 20% w/w of wood particles, together with aminoplast, thermosetting resins (usually melamine), additives, pigments and any corundum and these components are dry mixed and scattered in layers on the substrate

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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 can be fitted on substrates by, for example, a gluing operation.

3.3**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 $\geq 800 \text{ kg/m}^3$.

3.4**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.

3.5**underlay**

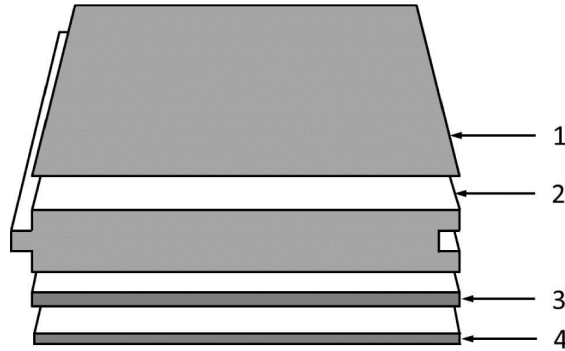
layer placed between the powder based floor covering and the subfloor to impart specific properties

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

3.6**powder based floor-covering element**

piece of the floor covering with profiled edges to facilitate assembly at installation

Note 1 to entry: 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
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4 Requirements

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4.1 General requirements

<https://standards.iteh.ai/catalog/standards/sist/1bd94060-1977-48f6-98cd-587df028a6c2/sist-en-17142-2019>

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, (<i>t</i>) without underlay	$\Delta t_{\text{average}} \leq 0,50$ mm, relative to nominal value $t_{\text{max.}} - t_{\text{min.}} \leq 0,50$ mm	Annex A
with pre-attached underlay	$\Delta t_{\text{average}} \leq 0,50$ mm, relative to nominal value $t_{\text{max.}} - t_{\text{min.}} \leq 0,80$ mm	Annex A
Length of the surface layer, (<i>l</i>)	For the nominal values given, no measured 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	Annex A
Width of the surface layer, (<i>w</i>)	$\Delta w_{\text{average}} \leq 0,10$ mm, relative to nominal value $w_{\text{max.}} - w_{\text{min.}} \leq 0,20$ mm	Annex A
Length and width of squared elements, (<i>l</i> = <i>w</i>)	$\Delta l_{\text{average}} \leq 0,10$ 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, (<i>q</i>)	$q_{\text{max.}} \leq 0,20$ mm	Annex A
Straightness of the surface layer, (<i>s</i>)	$s_{\text{max.}} \leq 0,30$ mm/m	Annex A
Flatness of the element, (<i>f</i>)	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, (<i>o</i>)	$o_{\text{average}} \leq 0,15$ mm $o_{\text{max.}} \leq 0,20$ mm	Annex B
Height difference between elements, (<i>h</i>)	$h_{\text{average}} \leq 0,10$ mm $h_{\text{max.}} \leq 0,15$ mm	Annex B
Dimensional variations after changes in relative humidity, (δl , δw)	$\delta l_{\text{average}} \leq 0,9$ 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: 2013 method B – cycle 2 or 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 31–33 a standard EPS foam of (1,8 ± 0,2) mm thickness, with a CS value of (60 ± 10) kPa¹ and with PC-value of (0,9 ± 0,1) mm shall be used. CS, and PC are to be determined according to EN 16354.

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	≥ 8 N ≥ 500 mm			≥ 12 N ≥ 750 mm		≥ 15 N ≥ 1 000 m m	≥ 20 N ≥ 1 600 mm	Annex H
Small ball								
Big ball								
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					EN 425:2002 b
Thickness swelling	≤ 20 %		≤ 18 %			≤ 15 %	≤ 8 %	ISO 24336
Locking strength	-				f _{0,2} ≥ 1 kN/m (length) f _{s0,2} ≥ 2 kN/m (width)		f _{0,2} ≥ 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/mm 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.								

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 document 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.

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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

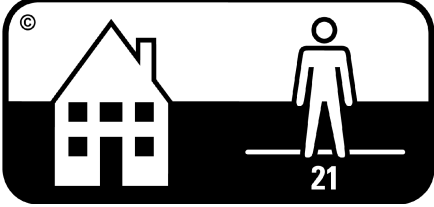
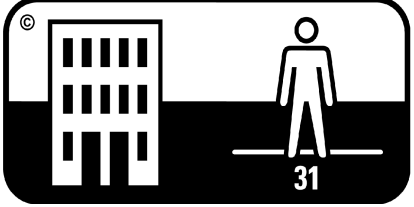

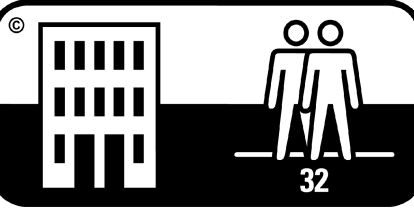

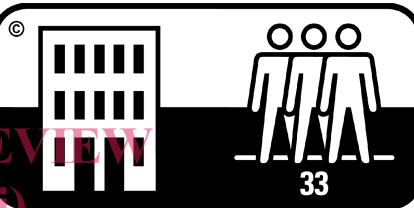
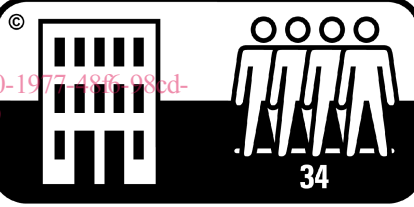
5.1 Marking

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 reference to this document;
- manufacturer's and/or supplier's identification;
- product name;
- colour/pattern and batch number;
- level of use symbols appropriate to EN ISO 10874 and in accordance with Table 4;
- 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;
- number of elements contained in a package;
- area contained in a package measured in square metre.

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 and number of test report;
- a reference to this document;
- full description of the product tested;
- sampling information;
- test results;
- all deviations from this document.