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Laminatne talne obloge - Specifikacije, zahteve in preskusne metode

Laminate floor coverings - Specifications, requirements and test methods

Laminatböden - Spezifikationen, Anforderungen und Prüfverfahren

Revêtements de sol stratifiés - Spécifications, exigences et méthodes d'essai

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English Version

Laminate floor coverings - Specifications, requirements and test methods

Revêtements de sol stratifiés - Éléments dont la surface
est à base de résines aminoplastes thermodurcissables
- Spécifications, exigences et méthodes d'essai

Laminatböden - Spezifikationen, Anforderungen und
Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 134.

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

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European foreword

This document (prEN 13329:2023) 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.

This document will supersede EN 13329:2016+A2:2021, EN 14978:2016+A1:2021 and EN 15468:2016+A1:2021.

The main changes compared to EN 13329:2016+A2:2021, EN 14978:2016+A1:2021 and EN 15468:2016+A1:2021 are listed below:

- EN 13329, EN 14978 and EN 15468 merged;
- Annex A and Annex B on determination of geometrical characteristics replaced by reference to EN 17539 in Table 1;
- Annex E, Annex F and Annex G on determination of abrasion resistance replaced by reference to ISO 24338 in Table 2;
- specification of underlay in 4.2 modified;
- in Table 2 requirements for impact resistance with large ball reduced due to modified underlay;
- in Table 2 castor chair test according to EN 425 replaced by test according to EN ISO 4918 with adjusted requirements;
- in Table 3 water resistance according to ISO 4760 introduced as additional technical characteristic;
- information on recycling added as 4.4 and Annex D.

1 Scope

This document specifies characteristics, requirements and test methods for laminate floor coverings with a surface layer as defined in 3.2 to 3.5. It also specifies requirements for marking and packaging.

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

Laminate floor coverings are generally designed for floating installations and are considered for domestic and commercial levels of use, including domestic kitchens. This document does not specify requirements relating to the use in areas which are subjected to frequent wetting, such as bathrooms, laundry rooms or saunas. In general, laminate floor coverings can only be used in those areas when authorized by the manufacturer and under conditions described in the manufacturer's installation guidelines.

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

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

EN 16354, *Laminate floor coverings - Underlays - Specification, requirements and test methods*

EN 17368, *Laminate floor coverings - Determination of impact resistance with small ball*

EN 17539, *Modular mechanical locked floor coverings (MMF) - Determination of geometrical characteristics*

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

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 2813, *Paints and varnishes - Determination of gloss value at 20°, 60° and 85° (ISO 2813)*

EN ISO 4892-2:2006/A1:2009, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2006/Amd1:2009)*

EN ISO 4918, *Resilient, textile and laminate floor coverings - Castor chair test (ISO 4918)*

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

EN ISO 16581, *Resilient and laminate floor coverings - Determination of the effect of simulated movement of a furniture leg (ISO 16581)*

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

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 24338, *Laminate floor coverings - Determination of abrasion resistance*

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 terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp/>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1

laminate floor covering

rigid floor covering, typically in a plank or tile format, with a multiple layer structure: e.g. backer, substrate, décor and worked edges that allow the product to be joined together to form a larger integral unit

Note 1 to entry: Laminate flooring does not include products having a resilient, stone, textile, wood, leather or metal top surfacing material(s).

3.2

surface layer based on aminoplastic thermosetting resins

upper decorative layer, which may vary in surface texture and gloss level, consisting of one or more thin sheets of a fibrous material (usually paper), impregnated with aminoplastic, thermosetting resins (usually melamine)

Note 1 to entry: By the simultaneous action of heat and pressure, these sheets are either pressed as such (HPL, CPL, Compact), and in the case of HPL and CPL bonded on a substrate (usually wood-based panels), or in the case of DPL directly pressed on a substrate (usually wood-based panels). The product is usually finished with a backer (e.g. HPL, CPL, impregnated papers), primarily used as a balancing material.

3.3

resin based surface layer

upper decorative layer intended to be the visible side when the floor is installed, consisting of resins (usually acrylate, methacrylate or similar) which are cured using UV radiation or other curing methods

Note 1 to entry: It can exhibit impregnated and coated materials (generally décor paper), or at least one paint or varnish layer applied direct on the board using indirect printing, direct printing or digital printing. The combination of the multi-layered surface produced with this technique is called Printed Décor Laminate (PDL).

prEN 13329:2023 (E)**3.4****acrylic based surface layer**

upper decorative layer intended to be the visible side when the floor is installed consisting of resins which are hardened using beams (normally acrylate, methacrylate or similar) and impregnated and surfaced decorative materials (normally paper), which all together are hardened through the application of a sufficient dose of electron beams and constant pressure

Note 1 to entry: The surface layer produced with this technique is called Electron-beam Pressed Laminate (EPL). The surface layer is bonded to a substrate.

3.5**acrylic based surface layer with a high gloss level**

upper decorative layer as defined in 3.4 with a specular gloss level ≥ 85 units with a detection angle of 60°

Note 1 to entry: Determined in accordance with EN ISO 2813.

3.6**substrate**

core material of the laminate floor covering containing wood for at least 65 % in mass

Note 1 to entry: It is generally a particleboard, as defined in EN 309, or a dry process fibreboard (MDF) as defined in EN 316 or a so-called High-Density Fibreboard (HDF), which is an MDF-board with a density ≥ 800 kg/m³.

3.7**backer**

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

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

3.8**pre-attached underlay**

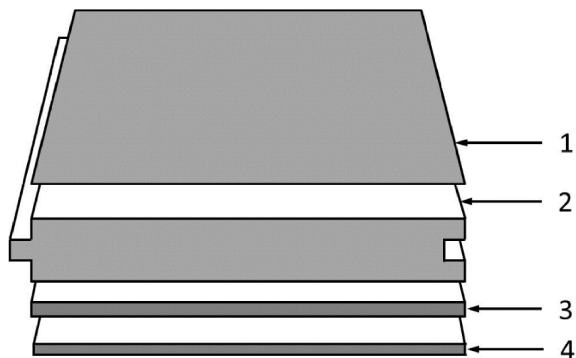
layer of resilient material pre-attached directly to the backer (3.7) to impart specific properties

Note 1 to entry: For laminate floor coverings without a pre-attached underlay, a separate underlay is generally laid between the laminate flooring and the subfloor during installation. For reasons of realistic system testing, separate underlays can be required for some tests according to this document.

3.9**laminate 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 pre-attached underlay (optional)

Figure 1— Laminate floorcovering element

4 Requirements

4.1 General requirements

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

[oSIST prEN 13329:2023](https://standards.iteh.ai/catalog/standards/sist/9f4a90dc-0bef-44a5-a274-dc795bd31504/osist-pren-13329-2023)

<https://standards.iteh.ai/catalog/standards/sist/9f4a90dc-0bef-44a5-a274-dc795bd31504/osist-pren-13329-2023>

Table 1 — General requirements

Characteristic	Requirement	Test method
Thickness of the element, (<i>t</i>) without pre-attached underlay	$\Delta t_{\text{average}} \leq 0,50$ mm, relative to nominal value $t_{\text{max.}} - t_{\text{min.}} \leq 0,50$ mm	EN 17539
Thickness of the element, (<i>t</i>) 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	EN 17539
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	EN 17539
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	EN 17539
Length and width of squared elements, (<i>l = 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	EN 17539
Squareness of the element, (<i>q</i>)	$q_{\text{max.}} \leq 0,20$ mm	EN 17539
Straightness of the surface layer, (<i>s</i>)	$s_{\text{max.}} \leq 0,30$ mm/m	EN 17539
Flatness of the element, (<i>f</i>)	Maximum single values: $f_{w, \text{concave}} \leq 0,15$ % $f_{w, \text{convex}} \leq 0,20$ % $f_{l, \text{concave}} \leq 0,50$ % $f_{l, \text{convex}} \leq 1,00$ %	EN 17539
Openings between elements, (<i>o</i>)	$o_{\text{average}} \leq 0,15$ mm $o_{\text{max.}} \leq 0,20$ mm	EN 17539
Height difference between elements, (<i>h</i>)	$h_{\text{average}} \leq 0,10$ mm $h_{\text{max.}} \leq 0,15$ mm	EN 17539
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 (A)
Light fastness	Colour contrast between unexposed and exposed sample part ≥ 4 of grey scale according to EN 20105-A02	EN ISO 4892-2: 2006/A1:2009 procedure B – cycle 5 (50 % rel. hum.) ^{a b}
Static indentation	residual indentation $\leq 0,05$ mm	EN ISO 24343-1

^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).

^b Allow sample (24 ± 1 h) recovery time without light exposure at 23 °C and 50 % rel. humidity before taking final assessment.

4.2 Classification requirements

All laminate 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.

The large ball impact test and the castor chair test of products of all classes shall be carried out with the pre-attached underlays or with an underlay specified by the manufacturer.

If no underlay is pre-attached or specified by the manufacturer, for the classes 21 – 23 and 31 – 33 a standard EPS foam of $(1,6 \pm 0,2)$ mm thickness, with a CS value of at least 60 kPa^1 and with PC-value of $(0,9 \pm 0,1)$ mm shall be used. The three parameters of the foam shall be determined according to EN 16354.

The large ball impact test and the castor chair test shall be carried out with the same underlay. If the underlay is not pre-attached for every test series a new underlay shall be used.

Table 2 — Classification requirements and level of use

Class:	Level of use							Test method
	Domestic			Commercial				
	Moderate	General	Heavy	Moderate	General	Heavy	Very Heavy ^d	
	21	22	23	31	32	33	34	
Abrasion resistance	≥ 500 rev	≥ 1000 rev	≥ 2000 rev		≥ 4000 rev	≥ 6000 rev	> 8500 rev.	ISO 24338 Procedure A ^f
Abrasion resistance ^e	≥ 1000 rev	≥ 1000	≥ 2000		≥ 4000	≥ 6000	Not applicable	ISO 24338 Procedure B
Impact resistance	≥ 10 mm				≥ 35 mm	≥ 70 mm	≥ 120 mm	EN 17368 ^c
	Small ball	≥ 350 mm				≥ 600 mm	≥ 750 mm	≥ 1600 mm
Resistance to staining	4, (groups 1 and 2)	5, (groups 1 and 2)		5, (groups 1, 2 and 3)				EN 438-2
Effect of a furniture leg	_g	No damage shall be visible, when tested with foot type 0						EN ISO 16581
Effect of a castor chair	_g	5 000 cycles, No damage ^a with type W wheels	10 000 cycles No damage ^a with type W wheels	15 000 cycles No damage ^a with type W wheels	20 000 cycles No damage ^a with type W wheels	25 000 cycles No damage ^a with type H wheels		EN ISO 4918
Thickness swelling	≤ 20 %	≤ 18 %			≤ 15 %	≤ 8 %		ISO 24336

¹ Selitflex 1,6 mm by Selit Dämmtechnik 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.