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Resilient floor coverings — Heterogeneous poly(vinyl chloride) floor covering — Specifications

Revêtements de sol résilients — Revêtements de sol hétérogènes en poly(chlorure de vinyle) — Spécifications

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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

This second edition cancels and replaces the first edition (ISO 10582:2010), which has been technically revised.

Resilient floor coverings — Heterogeneous poly(vinyl chloride) floor covering — Specifications

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1 Scope

This document specifies the characteristics of non-cushioned, heterogeneous floor coverings, consisting of poly(vinyl chloride) (PVC), supplied in either tile or plank or roll form. Products can contain a transparent, non-PVC factory finish.

To encourage the consumer to make an informed choice, this document includes a classification system (see ISO 10874) based on the intensity of use, which shows where these floor coverings give satisfactory service. It also specifies requirements for marking.

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.

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

ISO 4918, *Textile floor coverings — Determination of wear — Castor chair test*

ISO 16906, *Resilient floor coverings — Determination of seam strength*

ISO 23997, *Resilient floor coverings — Determination of mass per unit area*

ISO 23999, *Resilient floor coverings — Determination of dimensional stability and curling after exposure to heat*

ISO 24340, *Resilient floor coverings — Determination of thickness of layers*

ISO 24341, *Resilient and textile floor coverings — Determination of length, width and straightness of sheet*

ISO 24342, *Resilient and textile floor-coverings — Determination of side length, edge straightness and squareness of tiles*

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

ISO 24344,*Resilient floor coverings — Determination of flexibility and deflection*

ISO 24346, *Resilient floor coverings — Determination of overall thickness*

ASTM F1515, *Standard test method for measuring light stability of resilient flooring by colour change*

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

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
heterogeneous floor covering
floor covering consisting of a wear layer and other layers which differ in composition and/or design and can contain a reinforcement

3.2
poly(vinyl chloride) floor coverings
floor covering with all layers produced using poly(vinyl chloride) as base resin

3.3
wear layer
portion of a resilient floor covering that contains or protects the pattern and design exclusive of factory finishes or maintenance coatings

3.4
factory finish
transparent coating applied during the manufacture, usually not thicker than 0,03 mm not using poly(vinyl chloride) as base resin

3.5
binder content
portion of the flooring composition, consisting of poly(vinyl chloride) (PVC), plasticizers and stabilizers

Note 1 to entry: Binder content can be expressed as a percentage mass fraction of the considered layer when requested.

3.6
plank
tile with a ratio length divided by width superior or equal to 1,3

4 Requirements

4.1 Identification requirements

Products described in this document shall be identified by binder content by mass in the wear layer as shown in Table 1. The binder content is determined by statement of formula (Manufacturer Certificate of Compliance).

Table 1 — Identification requirements

Type	Minimum wear layer binder content
I	80 %
II	30 %

4.2 General requirements

Floor coverings described in this document shall conform to the appropriate general requirements specified in Table 2, when tested in accordance with the methods given therein.

NOTE For optional properties, see Annex A.

Table 2 — General requirements

Characteristic	Requirement	Test method
Roll form: Length [m] Width [mm]	Not less than nominal values	ISO 24341
Tiles/Planks: Side length _____ Width_____ squareness and straightness ≤ 400 mm_____ > 400 mm_____ > 400 mm (intended for heat welding)_____	___Deviation ≤ 0,15 % of nominal length up to 0,5 mm maximum[a]. This requirement has to be applied when considering square panel. ___Deviation ≤ 0,10 % up to 0,5 mm maximum[a] Deviation allowed at any point[a] ≤ 0,25 mm ≤ 0,35 mm ≤ 0,50 mm	ISO 24342[b]
Overall thickness and wear layer thickness: Average of the overall thickness_____ Individual results of the overall thickness____ Average of the wear layer thickness_____ Individual results of the wear layer thickness	_____Nominal value + 0,13 mm - 0,10 mm _____Average value ± 0,15 mm _____Nominal value + 13 % - 10 % and shall not exceed ± 0,1 mm. Individual results shall not differ as follows with regard to the mean value: no more than 0,05 mm or 15 % below the mean value, whichever is greater. Where this requirement is not met by only one individual value, a new single value has to be measured. If it still does not meet the requirement, the test result does not pass.	ISO 24346 ISO 24346 ISO 24340 ISO 24340
Total mass per unit area (average) – [g/m^2]	Nominal value + 13 % - 10 %	ISO 23997
Dimensional stability after exposure to heat: Sheets and tiles intended for welding and glued installation._____ Tiles/planks intended for dry-joint laying and glued installation[c]_____ Tiles/planks intended for loose lay or floating installation[d]._____	_____ ≤ |0,4| % _____ ≤ |0,25| % _____ ≤ |0,15| %	ISO 23999[e]
Curling after exposure to heat: Sheets and tiles (intended for heat welding) and glued installation._____ Tiles/planks intended for dry-joint laying and glued installation[c]_____ Tiles/planks intended for loose lay or floating installation[d]._____	_____ ≤ |8| mm _____ ≤ |2| mm _____ ≤ |1| mm	ISO 23999[f]
Flexibility (only for sheet floorings)	Test using a 20 mm mandrel. For products which show signs of cracking, perform a further test using a 50 mm mandrel. If results show no further cracking, record the use of a 50 mm mandrel.	ISO 24344: 2008, Method A

Table 2 *(continued)*

Characteristic	Requirement	Test method
Residual indentation (average) – [mm]	≤0,1 mm	ISO 24343-1
Effect of castor chair (only for class ≥32) Note that effect of the castor chair can be impacted by an installation on an underlay. The product shall be tested with the prescribed underlay by manufacturer if underlay is recommended.	After 25 000 cycles, no delamination shall occur. No disturbance to the surface other than a slight change in appearance. Record any damage caused by detachment of layers, opening of joints, or crazing. Ignore any flattening or change in appearance, e.g. change in gloss. For tiles/planks intended for loose laid or floating installation[d], test should be performed with floor specimens fixed only in their perimeter for products aimed to be installed without any fixation to the subfloor. For products aimed to be installed with an adhesive, test should be performed with floor specimens fixed with an adequate adhesive (see footnote c). Take a representative sample from the available material. The test area shall include at least one short side joint in the path of the castor when the specimens are assembled according to the manufacturer's instructions. An example of an assembled test area for planks is shown in Figure 1. The dimension *l* shall be at least 300 mm. For rolls, the test should include at least one side joint in the path of the castor. For tiles, the test should include at least two joints crossed in the path of the castor. In any case, the sample should allow mounting according to Figure 2. The diameter of the test area shall be at least 750 mm.	ISO 4918
Colour fastness to artificial light	6 minimum or ΔE ≤ 8 after 300 h, where ΔE is the colour change.	ISO 105-BO2:2014, Method 3[g] ASTM F 1515
Flatness of tiles/planks with a locking system on the edges and self-supporting[h] Length Concave/convex [% of the length]_____ Width Concave/convex [% of the width]_____	 _____ ≤ 0,50/≤1,0 _____ ≤ 0,10/≤0,15	 Annex B
Openings between tiles/planks with a locking system on the edges. Average [mm] _____ Individual values [mm]_____	 _____ ≤ 0,15 mm _____ ≤ 0,20 mm	 Annex C

Table 2 *(continued)*

Characteristic	Requirement	Test method
Height difference between tiles/planks with a locking system on the edges		
Average [mm]_____	_____ ≤ 0,10 mm	Annex C
Individual values [mm]_____	_____ ≤ 0,15 mm	

[a] For systems with locking system on the edges, the visible area of the tile/plank is considered.

[b] For length > 0,5 m, a metal ruler or calipers may be used.

[c] Provided that manufacturer-specified installation procedures are strictly followed to ensure an adhesive strength of more than 50 N/50 mm at 90°, when pulled and measured at a speed of 100 mm/min complying with EN 1372.

[d] Floating installation: without any fixation to the subfloor. Loose lay (e.g. Pressure-Sensitive Adhesives, ….): installed with an adhesive strength less than 50 N/50 mm at 90°, when pulled and measured at a speed of 100 mm/min complying with EN 1372.

[e] For tiles or plank with a side less than 240 mm, make the scores approximately 20 mm from the edges (ISO 23999, 7.1). For plank with a longitudinal length higher than 610 mm, take a specimen of longitudinal dimension between 605 mm and 615 mm (edges parallel to the direction of manufacture).

[f] Support plates have dimensions larger than the test specimen and not less than 1,5 mm in thickness. For plank with a longitudinal length higher than 610 mm, take a specimen of longitudinal dimension between 605 mm and 615 mm (edges parallel to the direction of manufacture).

[g] Test until blue wool scale No. 6 according to ISO 105-B02. Compare this sample with a reference sample which was storage in the dark.

[h] No deformation under its own weight in the direction of the length.

Dimensions in millimetres

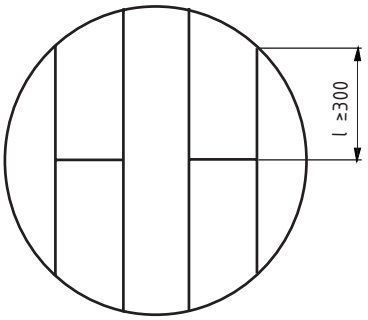


Figure 1 — Example of an assembled test area for a castor chair test (planks)

Dimensions in millimetres

Key

1 first joint for rolls and tiles

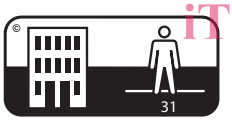
2 second joint for tiles

Figure 2 — Example of an assembled test area for a castor chair test (rolls and tiles)

5 Classification

The classification scheme for resilient floor coverings is described in ISO 10874. The requirements for the use of heterogeneous poly(vinyl chloride) floor covering in accordance with this scheme are specified in Table 3.

Table 3 — Classification requirement for level of use (minimal)

Class	Symbol	Level of use	Thickness of wear layer, nominal value mm		Nominal overall thickness mm	Seam strength[a] [N/50 mm]	Locking strength (when applicable) [kN/m]
		Domestic	**Type I**	**Type II**	**All types**		
21		Moderate/ Light	0,15	0,40	1,0		
22		General/ Medium	0,20	0,50	1,5	No requirement	No requirement
22+		General	0,20	0,50	1,5		
23		Heavy	0,30	0,65	1,5		
		Commercial					
31		Moderate	0,30	0,65	2,0		1,5 kN/m
32		General	0,40	0,80	2,0	When welded in accordance with the manufacturer's instructions:	1,5 kN/m
33		Heavy	0,55	1,00	2,0	Average value ≥ 240 Individual values ≥ 180	1,5 kN/m
34		Very heavy	0,70	1,50	2,0		2 kN/m
		Light industrial					
41		Moderate	0,40	0,80	2,0	When welded in accordance with the manufacturer's instructions:	Not applicable[b]

a Seam strength is not required for products which are intended for gluing with dry-joint laying, for loose lay or floating installation and for tiles/planks with a locking system on the edges.

b Tiles and planks with mechanical locking for floating installation are currently not suitable for use in classes 41,42 and 43