INTERNATIONAL STANDARD

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Resilient floor coverings — Homogeneous poly(vinyl chloride) floor covering — Specification

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

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Contents

Page

Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10581 was prepared by Technical Committee ISO/TC 219, *Floor coverings.*

Resilient floor coverings — Homogeneous poly(vinyl chloride) floor covering — Specification

1 Scope

This International Standard specifies the characteristics of homogeneous floor coverings, based on poly(vinyl chloride), supplied in either tile or roll form. Products may contain a transparent, non-PVC factory finish.

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

2 Normative references

The following referenced documents are indispensable for the application 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-BO2:1994, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 4918, *Resilient, textile and laminate floor coverings — Castor chair test*

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

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

ISO 23996, *Resilient floor coverings — Determination of density*

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 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*

ASTM F 1515, *Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change*

EN 684, *Resilient floor coverings — Determination of seam strength*

3 Terms and definitions

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

3.1
poly(vinyl chloride) floor coverings
PVC
floor covering with surface layers which are produced using poly(vinyl chloride) as binder

3.2
homogeneous floor covering
floor covering with one or more layers of the same composition and colour, patterned throughout its thickness

3.3
factory finish
transparent coating applied during the manufacture

NOTE 1 The finish is usually not thicker than 0,03 mm.

NOTE 2 This coating should not be counted as part of the wear layer.

3.4
binder content
portion of the flooring composition, consisting of poly(vinyl chloride) resin, plasticizers and stabilizers

NOTE Binder content is expressed as a percentage mass fraction of the total composition.

4 Requirements

4.1 Identification requirements

Products described in this International Standard shall be identified by binder content by weight as shown in Table 1.

Table 1 — Identification requirements

Type	Minimum Binder Content %	Maximum Binder Content %
I	>55	—
II	35	55
III	25	<35

4.2 General requirements

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

Table 2 — General minimum requirements

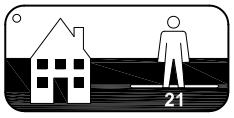
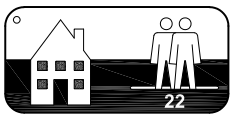
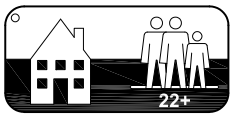
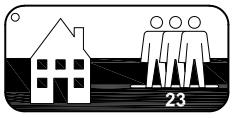
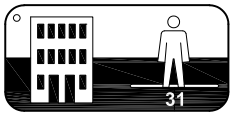
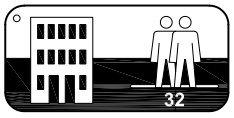
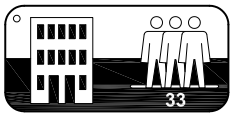
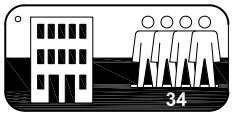
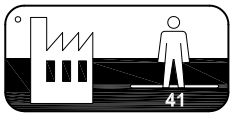
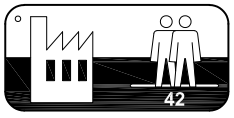
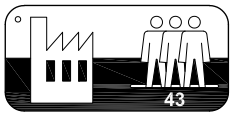
Characteristic		Requirement	Test method
Roll form:		Not less than the nominal values	ISO 24341
length	m		
width	m		
Tiles:			ISO 24342
side length (does not apply to planks)	mm	Deviation ≤ 0,13 % of nominal length up to 0,5 mm maximum	
squareness and straightness for side length	mm	Deviation allowed at any point	
≤ 400 mm		≤0,25	
> 400 mm		≤0,35	
> 400 mm (intended for heat welding)		≤0,50	
Overall thickness:	mm		ISO 24346
average		Nominal value +0,15 −0,10	
individual results		Shall not be more than ±0,15 from the average value	
Mass per unit area	g/m^2		ISO 23997
average		Nominal value + 13 %/−10 %	
Residual indentation (average)	mm	≤ 0,1	ISO 24343-1
Dimensional stability after exposure to heat:	%		ISO 23999
sheets and tiles intended for welding		≤0,40	
tiles (intended for dry-joint laying)		≤0,25	
Flexibility		20 mm mandrel, no cracking. 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 mandrel.	ISO 24344, Method A
Effect of castor chair		After 25 000 cycles, no delamination shall occur. No disturbance to the surface other than slight change in appearance.	ISO 4918
Colour fastness to artificial light		6 minimum	ISO 105-BO2, Method 3[a]
		or	
		ΔE ≤ 8 after 300 hr.	ASTM F 1515

[a] Expose a full size test specimen. Store a further test specimen in the dark, which will constitute the reference standard for assessment of colour change.

5 Classification

The classification scheme for resilient floor coverings is described in ISO 10874. The requirements for homogeneous PVC floor covering in accordance with this scheme are specified in Table 3.

Table 3 — Classification of minimum requirements for level of use

Class	Symbol	Level of use	Overall thickness, nominal value mm			Seam strength N/50 mm
			Type I	Type II	Type III	
Domestic						
21		Moderate/Light	1.0	1.0	1.0	No requirement
22		General/Medium	1.5	1.5	1.5	
22+		General	1.5	1.5	1.5	
23		Heavy	1.5	1.5	1.5	
Commercial						When welded in accordance with the manufacturer's instructions: average value ≥240 Individual values ≥180
31		Moderate	1.5	1.5	1.5	
32		General	1.5	1.5	2.0	
33		Heavy	2.0	2.0	2.0	
34		Very heavy	2.0	2.0	2.5	
Light Industrial						
41		Moderate	1.5	1.5	2.0	
42		General	2.0	2.0	2.0	
43		Heavy	2.0	2.0	2.5	
Test Method			ISO 24346	ISO 24346	ISO 24346	EN 684

6 Marking, labelling and packaging

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

a) number and date of this document, i.e. ISO 10581:2011;

b) manufacturer or suppliers identification;

c) product name;

d) colour/pattern, batch number and, if applicable, roll number;

e) classes/symbols appropriate for the product;

f) for rolls: the length, width and thickness; and

g) for tiles: the dimensions of a tile and the area in square metres contained in the package.

Annex A
(informative)

Optional properties

Where the following properties are required for specific applications, the floor covering should be tested in accordance with the appropriate methods:

— Electrical resistance (ASTM F 150, EN 1081, ANSI/ESD S7.1, ANSI/ESD STM 97.1);

— Electrical propensity (EN 1815, ANSI/ESD STM97.2);

— Effects of stains (ASTM F 925, EN 423, ISO 26987);

— Reaction to fire; determination of the burning behaviour using a radiant heat source (EN ISO 9239-1:2002, ASTM E 648);

— Reaction to fire; Ignitability when subject to direct impingement of flame (EN ISO 11925-2:2002);

— Reaction to fire, specific optical density of smoke generated (ASTM E 662);

— Resistance to heat (ASTM F 1514).

Bibliography

[1] ANSI/ESD S7.1, *Resistive characterization of materials — Floor materials*

[2] ANSI/ESD STM97.1, *Floor materials and footwear — Resistance measurement in combination with a person*

[3] ANSI/ESD STM97.2, *Floor materials and footwear — Voltage measurement in combination with a person*

[4] ASTM F 150, *Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring*

[5] ASTM F 925, *Standard Test Method for Resistance to Chemicals of Resilient Flooring*

[6] ASTM E 648, *Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*

[7] ASTM E 662, *Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*

[8] ASTM F 1514, *Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change*

[9] ASTM F 1913, *Standard Specification for Vinyl Sheet Floor Covering Without Backing*

[10] EN 423, *Resilient floor coverings — Determination of the effect of stains*

[11] EN 649, *Resilient floor coverings — Homogeneous and heterogeneous poly(vinyl chloride) floor coverings — Specification*

[12] EN 1081, *Resilient floor coverings — Determination of the electrical resistance*

[13] EN 1815, *Resilient and textile floor coverings — Assessment of static electrical propensity*

[14] EN ISO 9239-1:2002, *Reaction to fire tests for floorings — Part 1: Determination of the burning behaviour using a radiant heat source*

[15] EN ISO 11925-2:2002, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test*

[16] ISO 26987, *Resilient floor coverings — Determination of staining and resistance to chemicals*

[17] JIS A 1454, *Test Methods — Resilient Floorcoverings*

[18] JIS A 5705, *Floorcovering — PVC*

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