BS EN 651:2011

BSI Standards Publication

Resilient floor coverings — Polyvinyl chloride floor coverings with foam layer — Specification

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National foreword

This British Standard is the UK implementation of EN 651:2011. It supersedes BS EN 651:1997, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/60, Resilient floor coverings.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Resilient floor coverings - Polyvinyl chloride floor coverings with foam layer - Specification

Revêtements de sol résilients - Revêtements de sol à base de polychlorure de vinyle sur mousse - Spécifications

Elastische Bodenbeläge - Polvinylchlorid-Bodenbeläge mit einer Schaumstoffschicht - Spezifikation

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Foreword

This document (EN 651:2011) has been prepared by Technical Committee CEN/TC 134 “Floor coverings”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

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1 Scope

This European Standard specifies the characteristics of floor coverings based on polyvinyl chloride with polyvinyl chloride foam layer, supplied in either tile or roll form.

To encourage the consumer to make an informed choice, the standard includes a classification system (see EN 685) 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.

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

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

EN 426*, Resilient floor coverings — Determination of width, length, straightness and flatness of sheet material*

EN 427*, Resilient floor coverings — Determination of the side length, squareness and straightness of tiles*

EN 428*, Resilient floor coverings — Determination of overall thickness*

EN 429*, Resilient floor coverings — Determination of the thickness of layers*

EN 430*, Resilient floor coverings — Determination of mass per unit area*

EN 431*, Resilient floor coverings — Determination of peel resistance*

EN 433*, Resilient floor coverings — Determination of residual indentation after static loading*

EN 434*, Resilient floor coverings — Determination of dimensional stability and curling after exposure to heat*

EN 436*, Resilient floor coverings — Determination of density*

EN 660-2*, Resilient floor coverings — Determination of wear resistance — Part 2: Frick-Taber test*

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

EN 685*, Resilient, textile and laminate floor coverings — Classification*

EN ISO 105-B02*, Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test (ISO 105-B02:1994, including amendment 1:1998)*

3 Terms and definitions

For the purposes of this document, the following term and definition applies.

3.1
polyvinyl chloride floor covering
floor covering with surface layers which are produced using polyvinyl chloride (and modifications thereof) as binder

4 Requirements

4.1 General requirements

Floor coverings described in this standard shall conform to the appropriate general requirements specified in Table 1, when tested in accordance with the methods given therein.

4.2 Classification requirements

4.2.1 Wear group classification

Polyvinyl chloride floor coverings are classified in the appropriate wear group specified in Table 2, when tested in accordance with EN 660-2.

Floor coverings described in this standard shall be classified in wear group T, P or M.

Floor coverings with a transparent wear layer are *a priori* group T and need not be tested.

4.2.2 Homogeneous wear layers

A wear layer shall retain its wear group classification throughout its thickness if tested.

4.2.3 Level of use classification

Floor coverings described in this standard shall be classified as suitable for different levels of intensity of use in accordance with the performance requirements specified in Table 3, when tested with the methods given therein. Classification shall comply with the scheme specified in EN 685.

Table 1 — General requirements

Characteristic	Requirement	Test method
Roll form: length m width mm	Not less than the nominal values	EN 426
Tiles: side length mm squareness and straightness for side length: mm ≤ 400 mm > 400 mm > 400 mm (intended for welding)	 Deviation ≤ 0,13% of nominal length up to 0,5 mm maximum Deviation allowed at any point ≤ 0,25 ≤ 0,35 ≤ 0,50	EN 427
Overall thickness: mm average individual results	 Nominal value + 0,18 - 0,15 Average value ± 0,20	EN 428
Thickness of foam layer mm	Nominal thickness shall be stated	EN 429
Total mass per unit area g/m² (average)	Nominal value + 13% - 10%	EN 430
Density of the wear layer (average) kg/m³	Nominal value ± 0,50	EN 436
Dimensional stability after exposure to heat: %		EN 434
sheets and tiles intended for welding tiles intended for dry-joint laying	≤ 0,4 ≤ 0,25	
Curling after exposure to heat: mm		EN 434
sheets and tiles intended for welding tiles intended for dry-joint laying	≤ 8 ≤ 2	
Colour fastness to artificial light	6 minimum	EN ISO 105-B02 Method 3[a]
Peel resistance N/50mm		EN 431
average individual results	≥ 50 ≥ 40	

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

Table 2 — Classification requirements for wear groups

Characteristic	Requirements for wear group				Test method
	T	P	M	F	
volume loss *Fv* mm³	*Fv* ≤ 2,0[a]	2,0 < *Fv* ≤ 4,0	4,0 < *Fv* ≤ 7,5	7,5 < *Fv* ≤ 15,0	EN 660-2
[a] If tested for verification					

Table 3 — Classification requirements for level of use

Class	Symbol	Level of use	Thickness of wear layer. Nominal value[a], mm			Effect of castor chair	Simulated movement of a furniture leg		Seam strength when welded in accordance with manufacturer's instructions N/50mm	Underfoot comfort	Residual intention after static loading mm
			T	P	M						
21		domestic moderate	0,15	0,20	0,30	No requirement	-	No requirement	No requirement	Indentation under static loading (measured after 15 s under load) ≥ 0,40 mm	≤ 0,35
22		domestic general	0,20	0,30	0,45		No damage shall be visible after testing with a type 3 foot				
22+		domestic general	0,20	0,30	0,45						
23		domestic heavy	0,25	0,40	0,60						
31		commercial moderate								No requirement	
32		commercial	0,35	0,50	0,75	No disturbance to the surface	No damage shall be visible	When welded in accordance with	Average value ≥ 240		≤ 0,20

		general				other than slight change in appearance and no delamination shall occur	after testing with a type 2 foot	manufacturer's instructions: no damage shall be visible to the seams, when tested with a type 0 foot	Individual values ≥ 180		
41		light industrial moderate							Average value ≥ 240 Individual values ≥ 180		
33		commercial heavy	0,50	0,65	1,00						
42		light industrial general									
34		commercial very heavy	0,65	1,00	1,50						
Test method			EN 429			EN 425	EN 424	EN 684		EN 433	

[a] The average value shall be the nominal value with a tolerance of + 13 % but not more than 0,1 mm.
- 10 %

Individual values shall not vary more than 0,05 mm or 15 % below the average, whichever is the greater.

Where this requirement is not met by only one individual value, however, the test shall be repeated once more.

5 Marking

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

a) number and date of this European Standard, i.e. EN 651:2011;

b) manufacturer's or supplier's identification;

c) product name;

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

e) classes/symbols appropriate for the product;

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

g) for tiles: the dimensions of a tile and the area in square metres contained in a 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 (EN 1081);

— electrostatic propensity (EN 1815);

— effect of stains (EN 423).

Annex B
(informative)

Additional methods of test

The following test methods are also available for this type of product but do not form part of the specification:

— shear force (EN 432);

— spreading of water (EN 661);

— curling on exposure to moisture (EN 662);

— conventional pattern depth (EN 663);

— volatile loss (EN 664);

— exudation of plasticizers (EN 665);

— gelling (EN 666).

Bibliography

[1] EN 423, *Resilient floor coverings — Determination of resistance to staining*

[2] EN 432, *Resilient floor coverings — Determination of shear force*

[3] EN 661, *Resilient floor coverings — Determination of the spreading of water*

[4] EN 662, *Resilient floor coverings — Determination of curling exposure to moisture*

[5] EN 663, *Resilient floor coverings — Determination of conventional pattern depth*

[6] EN 664, *Resilient floor coverings — Determination of volatile loss*

[7] EN 665, *Resilient floor coverings — Determination of exudation of plasticizers*

[8] EN 666, *Resilient floor coverings — Determination of gelling*

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

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

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