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Resilient floor coverings — Specification for rubber floor covering — Tile/Plank

Revêtements de sol résilients — Spécifications pour un revêtement de sol en caoutchouc — Tuile/Planche

Reference number
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Foreword

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 219, *Floor coverings*.

Resilient floor coverings — Specification for rubber floor covering — Tile/Plank

1 Scope

This International Standard specifies the characteristics of rubber floor tile/planks.

This International Standard includes a classification system based on intensity of use, which shows where resilient floor coverings should provide satisfactory service.

This International Standard specifies rubber floor tile/planks for applications involving the use of normal footwear and does not cover applications where special footwear, such as spiked shoes, may be involved.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4649-1, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4918, *Resilient, textile and laminate floor coverings — Castor chair test*[1)]

ISO 7619-1, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness)*

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

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

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 D3389, *Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)*

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

3 Terms and definitions

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

3.1
rubber materials
polymeric binder in the *rubber* (3.2) floor covering satisfying the definition of rubber in ASTM D1566, and having been vulcanized such that it became *thermoset* (3.3) as defined in ASTM D883

1) To be published. (Revision of ISO 4918:2009)

3.2
rubber
material that is capable of recovering from large deformations quickly and forcibly, and can be, or already is, modified to a state in which it is essentially insoluble (but can swell) in boiling solvent, such as benzene, methyl ethyl ketone, or ethanol-toluene azeotrope

Note 1 to entry: A rubber in its modified state, free of diluents, and retracts within 1 min to less than 1,5 times its original length after being stretched at room temperature (18 °C to 29 °C) to twice its length and held for 1 min before release.

3.3
thermoset
plastic that, after having been cured by heat or other means, is substantially infusible and insoluble

4 Categories of rubber floor coverings

Category A — Homogeneous rubber floor covering without backing — Floor covering based on natural and/or synthetic rubber with one or more layers of the same composition and colour, patterned throughout its thickness.

Category B — Heterogeneous rubber floor covering without backing — Floor covering based on natural and/or synthetic rubber consisting of a wear layer and other compact layers which differ in composition and/or design and can contain a reinforcement.

Category C — Floor covering with or without backing; with a decorative layer —Floor covering based on natural and/or synthetic rubber consisting of a decorative layer and other compact layers which differ in composition and/or design and can contain a reinforcement.

The thickness of the decorative layer shall at least reach the values given in the classification in Table 2. These values are based on the relationship of the appearance retained after removing a specified thickness and measuring the abrasion value.

The floor covering may have smooth, embossed, or reliefed pattern-wearing surfaces.

5 Requirements

All rubber floors shall conform to the appropriate general requirements specified in Table 1 when tested in accordance with the test methods given therein.

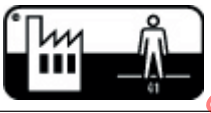
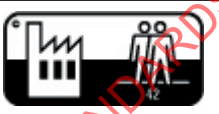
Table 1 — General requirements

Characteristic	Requirements		Test method
Tile or plank side length, mm Up to and including 305 mm × 305 mm For >305 mm but <610 mm For >610 mm	±0,4 mm ±0,45 mm ±0,5 mm		ISO 24342
Overall thickness; Tolerance on nominal total gauge	Average	Individual Results	Average
reliefed	Nominal value ±0,20 mm	Nominal value ± 0,25 mm	ISO 24346
smooth or embossed	Nominal value ±0,20 mm	Nominal value ± 0,25 mm	
Dimensional stability	**Tolerance allowed ±0,15 %**		ISO 23999

Table 1 *(continued)*

Characteristic		Requirements	Test method
Flexibility:	Diameter of mandrel	no cracking	ISO 24344, Method A
<3,0 mm:	20 mm		
≥3,0 mm:	40 mm		
Residual indentation (after static loading) Nominal thickness:			ISO 24343-1
<2,5 mm ≥2,5 mm ≥3,0 mm		≤0,15 mm ≤0,20 mm ≤0,25 mm	
Abrasion resistance		≤250 mm^3 or <1 g	ISO 4649, Method A, vertical load (5±0,1) N ASTM D3389 H18/500 g
Edge Straightness and Squareness for tiles/ planks: ≤400 mm ≥400 mm		≤0,25 mm ≤0,35 mm	ISO 24342

Table 2 — Classification minimal requirements

Class ISO 10874	Symbol	Level of use	Overall thickness, Nominal value, mm Cat. A, B, C		Minimum thickness of wear layer Cat. B	Relation PD/TL[a] Cat. C	Hardness ISO 7619-1 Shore A	Resistance to castor chair for smooth or embossed pattern ISO 4918
			Reliefed pattern	Smooth or embossed				
21		domestic moderate	2,5	1,8	1,0	≥0,6	≥75	No requirement
22		domestic general/ medium						
23		domestic heavy		2,0				
31		commercial moderate						
32		commercial general				≥0,8	≥75	No disturbance to the surface other than slight change in appearance and no delamination shall occur after 25 000 cycles
33		commercial heavy						
34		commercial very heavy				≥1,0		
41		light industrial moderate						
42		light industrial general	3,5					
43		light industrial heavy		2,5		≥1,5		

[a] With

PD = pattern depth, as defined in EN 663

and

$$TL = \frac{m_L}{\rho \cdot A_a}$$

where TL is the thickness loss in mm, m_L is weight loss in mg, ρ is density in mg/mm^3 (refer to ISO 23996), A_a is abraded area in mm^2, A_a = 3 200 mm^2 (refer to Taber-Test ASTM D3389).

6 Marking, labelling, and packaging

Rubber floor covering and/or their packaging shall be marked as follows:

a) number and date of this International Standard, i.e. ISO 16905:2015;

b) manufacturer's or supplier's identification;

c) product name;

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

e) classes/symbols appropriate for the product.