BS ISO 10577:2012

BSI Standards Publication

Resilient floor coverings — Specification for rubber sheet floor coverings without backing

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of ISO 10577:2012.

The UK participation in its preparation was entrusted to Technical Committee PRI/3/60, Textile & Resilient Floor Coverings.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 61743 0

ICS 97.150

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2012.

Amendments issued since publication

Date	Text affected

BS ISO 10577:2012

INTERNATIONAL STANDARD

ISO 10577

First edition
2012-08-01

Resilient floor coverings — Specification for rubber sheet floor coverings without backing

Revêtements de sol résilients — Spécifications pour les revêtements de sol en caoutchouc sans dossier

Reference number
ISO 10577:2012(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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.

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 10577 was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

INTERNATIONAL STANDARD ISO 10577:2012(E)

Resilient floor coverings — Specification for rubber sheet floor coverings without backing

1 Scope

This International Standard specifies the characteristics of rubber sheet floor coverings without backing.

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

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

ISO 4649:2010, *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*

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

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 D883, *Standard Terminology Relating to Plastics*

ASTM D1566, *Standard Terminology Relating to Rubber*

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

ASTM F1515, *Standard Test Method for Measuring Light Stability of Resilient Flooring by Colour Change*

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

3 Terms and definitions

3.1
rubber material
polymeric binder in the rubber sheet floor covering without backing satisfying the definition of rubber in ASTM D1566, and having been vulcanized such that it became thermoset as defined in ASTM D883

3.2
reliefed
having a permanent multi-level surface produced by mechanical means, with a minimal differential in height of 0,25 mm

4 Categories of rubber floor coverings without backing

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: Heterogeneous rubber floor covering 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 Table 2 These values are based on the relationship of the appearance retaining after removing a specified thickness and the abrasion value measured.

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

5 Requirements

All rubber floors without backing 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
Roll form: Length m Width m	not less than the nominal values		ISO 24341
Overall thickness; Tolerance on nominal total gauge mm	average	individual results	ISO 24346
reliefed	Nominal value ± 0,20 mm	Nominal ± 0,25 mm	
smooth or embossed	Nominal value ± 0,20 mm	Nominal ± 0,25 mm	
Dimensional stability	Tolerance allowed	± 0,4 %	ISO 23999
Flexibility: diameter of mandrel < 3,0 mm: 20 mm ≥ 3,0 mm: 40 mm	no cracking		ISO 24344 Method A
Residual indentation (after static loading) Nominal thickness < 2,5 mm ≥ 2,5 mm ≥ 3,0 mm	≤ 0,15 mm ≤ 0,20 mm ≤ 0,25 mm		ISO 24343-1
Abrasion resistance of wear layer	≤ 250 mm^3		ISO 4649:2010 Method A, vertical load (5 ± 0,1) N
or	< 1 g		ASTM D3389 H18/500 g
Colour fastness to artificial light [a]	6 minimum on blue wool scale ≥ 3 on grey scale		ISO 105-B02 Method 3
or	ΔE not greater than 8,0 after 300 h exposure		ASTM F1515

[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.

6 Classification

The classification scheme for resilient floor coverings is described in ISO 10874. The requirements for rubber sheet floor coverings without backing in accordance with this scheme are specified in Table 2.

Table 2 — Classification minimum requirements

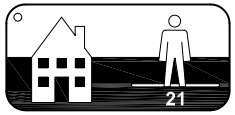
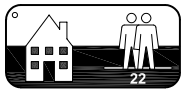
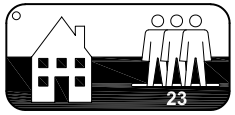
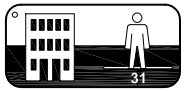
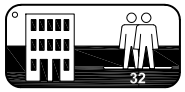
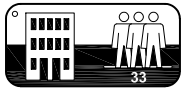
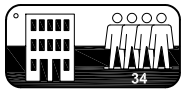
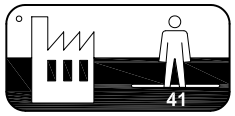
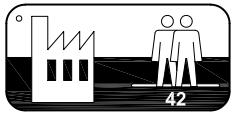
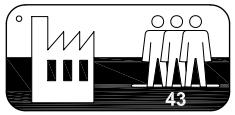
Class	Symbol	Level of use	Overall thickness nominal value (mm)		Minimum thickness of wear layer	Relation PD[a]/TL[b]	Resistance to castor chair for smooth or embossed pattern	Hardness of wear layer
			Category A, B, C					
			Reliefed pattern	Smooth or embossed	Category B, C	Category C	ISO 4918	ISO 7619-1 Shore A
						EN 663		
21		domestic moderate	2,5	1,8	1,0	≥ 0,6	No requirement	≥ 60
22		domestic general/medium						
23		domestic heavy		2,0				
31		commercial moderate						
32		commercial general				≥ 0,8	No disturbance to the surface other than slight change in appearance and no delamination shall occur after 25 000 cycles	≥ 75
33		commercial heavy						
34		commercial very heavy				≥ 1,0		
41		light industrial moderate						

Table 2 *(continued)*

Class	Symbol	Level of use	Overall thickness nominal value (mm)		Minimum thickness of wear layer	Relation PD[a]/TL[b]	Resistance to castor chair for smooth or embossed pattern	Hardness of wear layer
			Category A, B, C		Category B, C	Category C	ISO 4918	ISO 7619-1 Shore A
			Reliefed pattern	Smooth or embossed		EN 663		
42		light industrial general	3,5	2,0	1,0	≥ 1,0	No disturbance to the surface other than slight change in appearance and no delamination shall occur after 25 000 cycles	≥ 75
43		light industrial heavy		2,5		≥ 1,5		

[a] PD = Pattern depth in mm.

[b] TL = Thickness loss in mm, calculated according to the formula below (EN 663).

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

where:

TL is thickness loss in mm;

m_L is weight loss in mg;

ρ is density in mg/mm^3 (ISO 23996);

A_a is abraded area in mm^2 (A_a = 3 200 mm^2, Taber-Test ASTM D3389).

7 Marking, labelling and packaging

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

a) number and date of this International Standard, i.e. ISO 10577:2012;

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.

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 (see EN 1081 and ASTM F150);

— electrostatic propensity/static dissipation (see EN 1815);

— effect of stains/resistance to chemicals (see ISO 26987);

— cigarette resistance (see EN 1399): In general use, a rubber floor covering, depending on the colour and/or pattern, is expected to have the following rating when tested in accordance with EN 1399: Method A, stubbed cigarettes: rating 4 or higher; Method B, burning cigarettes: rating 3 or higher;

— reaction to fire; determination of the burning behaviour using a radiant heat source (see ISO 9239-1 and ASTM E648);

— reaction to fire; ignitability when subject to direct impingement of flame (ISO 11925-2);

— reaction to fire; specific optical density of smoke generated (ASTM E662).

Bibliography

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

[2] ISO 11925-2, *Reaction to fire tests for building products — Part 2: Ignitability when subject to direct impingement of flame*

[3] ISO 23996, *Resilient floor coverings — Determination of density*

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

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

[6] ASTM E648, *Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*

[7] ASTM E662, *Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*

[8] ASTM F150, *Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring*

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

[10] EN 1399, *Resilient floor coverings — Determination of resistance to stubbed and burning cigarettes*

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

ICS 97.150

Price based on 8 pages

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™