



BSI Standards Publication

Wallcoverings in roll form — Specification for finished wallpapers, wall vinyls and plastics wallcoverings

National foreword

This British Standard is the UK implementation of EN 233:2016. It supersedes BS EN 233:1999 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CW/35, Wallcoverings.

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

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English Version

Wallcoverings in roll form - Specification for finished wallpapers, wall vinyls and plastics wallcoverings

Revêtements muraux en rouleaux - Spécification des papiers peints finis, des revêtements muraux vinyles et des revêtements muraux en plastique

Wandbekleidungen in Rollen - Festlegungen für fertige Papier-, Vinyl- und Kunststoffwandbekleidungen

This European Standard was approved by CEN on 26 May 2016.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 233:2016) has been prepared by Technical Committee CEN/TC 99 "Wallcoverings", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

This document supersedes EN 233:1999.

EN 233:2016 includes the following significant technical changes with respect to EN 233:1999:

- Marking, labelling and packaging: Simplified to avoid duplication;
- Classification and designation: Withdrawn as system is obsolete;
- Annex A, Sampling for testing: Changed from "not more than 14 days";
- Annex B, A-deviation: Withdrawn as requirement is obsolete.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

A finished wallcovering is one that is not intended to be decorated after hanging.

There are many types of wallcovering and varied processes used in their manufacture. To ensure satisfactory performance, it is important that the installers follow the manufacturer's recommended hanging instructions for each particular product.

Various grades of washability and colour fastness to light of finished wallcoverings are permitted. These grades will facilitate the selection by the consumer or specifier of an appropriate wallcovering.

Other European Standards on the vocabulary used in the wallcovering industry, wallcoverings for subsequent decoration, textile wallcoverings and heavy duty wallcoverings are also published:

- EN 235, *Wallcoverings in roll form – Vocabulary and symbols*
- EN 234, *Wallcoverings in roll form – Specification for wallcoverings for subsequent decoration*
- EN 259, *Wall coverings in roll form – Specification for heavy duty wall coverings*
- EN 266, *Wall coverings in roll form – Specification for textile wall coverings*
- EN 12956, *Wallcoverings in roll form – Determination of dimensions, straightness, spongeability and washability*
- EN 15102, *Decorative wallcoverings – Roll and panel form*

1 Scope

This European Standard:

- specifies requirements for finished wallpapers, wall vinyls and plastics wallcoverings;
- specifies requirements for marking;
- gives the designation system.

The marking requirements of this standard are primarily for the consumer's information to enable optimum selection of the product.

This standard applies to finished wallpapers, wall vinyls and plastics wallcoverings not intended for subsequent decoration supplied in rolls for hanging on indoor walls and ceilings by means of an adhesive covering the whole of the interface between the wallcovering and the support surface.

Excluded from this standard are rigid materials, materials not attached or not wholly attached by adhesive, wallcoverings for subsequent decoration, textile wallcoverings and non-decorative wallcoverings such as wall linings or those with special properties, e.g. thermal or acoustic insulation.

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.

EN 235, *Wallcoverings — Vocabulary and symbols*

EN 12149, *Wallcoverings in roll form — Determination of migration of heavy metals and certain other elements, of vinyl chloride monomer and of formaldehyde release*

EN 12956, *Wallcoverings in roll form — Determination of dimensions, straightness, spongeability and washability*

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

EN ISO 186, *Paper and board — Sampling to determine average quality (ISO 186)*

3 Terms and definitions

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

3.1

frieze

decorative element in roll form, of width not less than 32 mm and not greater than 500 mm

3.2

reference sample

sample used for reference purposes to evaluate the changes that have occurred after the various tests carried out on the specimens

4 Categories

For the purposes of this standard:

Category 1 designates the wallcoverings covered by this standard and characterized by a specific width and area

Category 2 designates the wallcoverings covered by this standard and characterized by a minimum nominal width threshold

Category 3 designates friezes

5 Specifications

5.1 General

The dimensions specified for the three categories of covering shall be measured in accordance with the requirements of EN 12956. See Annex A.

5.2 Dimensions

5.2.1 General

This applies to the usable dimensions of the product.

5.2.2 Category 1

The area of the roll shall be $5,326 \text{ m}^2 \pm 3 \%$.

The nominal width and length of a roll shall be marked. The actual width and length shall not deviate from the nominal values by more than 1,5 %.

The nominal width shall be not less than 500 mm and not greater than 530 mm.

5.2.3 Category 2

The nominal width and length of a roll shall be marked. The tolerance on the actual width and length shall be $\pm 1,5 \%$.

The nominal width shall be not less than 600 mm.

5.2.4 Category 3 (friezes)

The nominal length of a roll shall be marked. The tolerance on the actual length shall be $\pm 1,5 \%$ in the case of roll of length not less than 10 m, otherwise $\pm 3 \%$.

The nominal width shall be not less than 32 mm and not greater than 500 mm

5.3 Straightness and parallelity of the edges

The straightness and parallelity of the edges shall be measured in accordance with the requirements of EN 12956.

The edges of the roll shall be straight and parallel over its entire length, with the following tolerances:

- straightness: over any 1 m length, the edges shall not deviate more than 1 mm from straight;
- parallelity: the 3 width measurements taken in accordance with the requirements of EN 12956 shall not differ by more than 1 mm.

5.4 Spongeability

For a wallcovering claimed to be spongeable, it shall be possible to wipe off the hanging adhesive while it is still damp from the front face of the wallcovering with a damp cloth or sponge without causing visible damage.

Accordingly, a wallcovering subjected to the spongeability test described in EN 12956 shall exhibit no damage or change likely to alter its appearance as a wallcovering.

This symbol indicating this 'spongeable' level shall be as given in EN 235.

5.5 Washability

If a wallcovering is claimed to be washable during its life after hanging, it shall be qualified as 'washable', 'extra-washable' or 'scrubbable' according to its grade of washability.

When tested under the test conditions specified for each level of washability by EN 12956, a wallcovering shall exhibit no damage or change likely to alter its appearance as a wallcovering compared with the reference sample.

The symbols indicating the washability levels shall be as given in EN 235.

5.6 Colour fastness to light

The numerical rating for colour fastness to light shall be determined in accordance with the requirements of EN ISO 105-B02 at a relative humidity of 60 % to 70 % and a maximum black panel temperature of 45 °C.

A wallcovering conforming to this standard shall have a rating of not less than 4.

The symbols illustrating the levels of colour fastness to light shall be as given in EN 235.

5.7 Maximum migration of heavy metals and certain other elements

5.7.1 Test method

The test method shall be method A of EN 12149.

5.7.2 Requirements

The migration of heavy metals and specific elements, expressed as mg/kg of wallcovering, shall not exceed the values in Table 1.

5.7.3 Interpretation of results

The analytical results obtained from the tests specified in EN 12149 shall be corrected by subtracting the value of the analytical correction factors given in Table 2 in order to obtain a corrected analytical result.

Wallcoverings shall be considered to meet the requirements of this European Standard if the corrected analytical result does not exceed the limits indicated in Table 1.

NOTE Given the precision of the methods specified in this European Standard, it is necessary to use the corrected analytical result to take into account the results of interlaboratory tests.

EXAMPLE Analytical result for lead: 120 mg/kg. Corresponding analytical correction in Table 2: 30 %.

Corrected analytical result = $120 - (120 \times 30) / 100 = 120 - 36 = 84$ mg/kg. This is regarded as satisfying the requirements of the standard (lead: 90 mg/kg).

Table 1 — Maximum migration of heavy metals and other elements

Heavy metal or element	Symbol	Maximum migration in mg/kg of wallcovering
Antimony ^a	Sb	20
Arsenic ^b	As	8
Barium	Ba	1 000
Cadmium	Cd	25
Chromium	Cr	60
Lead	Pb	90
Mercury	Hg	20
Selenium	Se	165
<p>^a The limit for Sb is not applicable to wallcoverings that have fire reaction properties that appear in an evaluation test report.</p> <p>^b The limit for As is not applicable to wallcoverings that claim to have undergone anti-fungal or anti-bacterial treatment.</p>		

Table 2 — Analytical correction factor

Element	As	Ba	Cd	Cr	Pb	Hg	Se	Sb
Analytical correction factor (in percentage)	60	30	30	30	30	50	60	60

5.8 Maximum vinyl chloride monomer (VCM) content

5.8.1 Test method

The test method shall be method B of EN 12149.

5.8.2 Requirements

The maximum vinyl chloride monomer (VCM) content, measured as mg/kg of wallcovering, shall not exceed 0,2.

5.9 Maximum formaldehyde release

5.9.1 Test method

The test method shall be method C of EN 12149.

5.9.2 Requirements

The maximum formaldehyde release, measured as mg/kg of wallcovering, shall not exceed 120.

6 Matching, application of adhesive, removal and miscellaneous symbols

The symbols indicating pattern matching shall be as given in EN 235.

The symbols indicating means of application of the adhesive shall be as given in EN 235.

The symbols indicating the method of removal shall be as given in EN 235.

A symbol indicating overlapping joins and double cutting and a symbol indicating a duplex embossed wallcovering shall be as given in EN 235.

7 Marking, labelling, packaging

7.1 Visible marking

When compliance with this standard is claimed, the roll, its packaging or a label inside the packaging of the roll shall state the specific characteristics of the wallcovering in such a way that the information below can be read by the purchaser without removing the roll from the packaging.

- a) The number of this European Standard, i.e. EN 233.
- b) The name or identification mark of the manufacturer, supplier or distributor.
- c) The product description, using where appropriate, the terms from EN 235.
- d) The product identification, i.e. pattern identifier and batch identifier.
- e) The nominal width and length of the roll for categories 1 and 2.
- f) The nominal length for category 3 (friezes).
- g) The symbol from EN 235 corresponding to the performance level of spongeability, washability or scrubbability should be used.
- h) The symbol from EN 235 corresponding to its grade of colour fastness to light.
- i) The symbol(s) from EN 235 corresponding to the means of applying the adhesive.
- j) The symbol from EN 235 indicating the need for hanging in reverse alternate lengths if this is essential to give a satisfactory appearance.
- k) The symbol from EN 235 for design repeat dimensions.

7.2 Additional marking

If appropriate, the following information shall be given on the roll, on a label or on an information sheet inside the packaging of the roll:

- a) the symbol from EN 235 giving additional hanging instructions;
- b) the type of adhesive to be used;
- c) the symbol from EN 235 for method of removal;
- d) the symbol from EN 235 indicating whether the wallcovering is duplex embossed.

Annex A (normative)

Sampling for testing

Samples for testing shall be taken from wallcoverings not less than 14 days after manufacture, in accordance with EN ISO 186, except that:

- a) for the purposes of this standard, a making is regarded as equivalent to a lot, and a roll is a unit. Each lot making up part of a consignment consisting of more than one shall be sampled separately;
- b) the rolls selected for sampling may be chosen at random or if the manufacturer, in marking, indicates the order of packing, the selection may be made with reference to this order of packing;
- c) unless otherwise specified, the method of cutting the samples shall be modified so that each test piece is cut from at least 1 m from the end of the roll and the test pieces are distributed over the whole width of the roll and extending at least 500 mm along the length;
- d) the total area of the material taken from each roll shall be at least twice the area required for the tests in order to permit repeat tests without resampling.

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