BRITISH STANDARD

BS EN
1813 : 1998

Textile floor coverings — Determination of wool fibre integrity using an abrasion machine

The European Standard EN 1813 : 1997 has the status of a British Standard

ICS 59.080.60

National foreword

This British Standard is the English language version of EN 1813 : 1997.

The UK participation in its preparation was entrusted to Technical Committee PRI/3, Textile floor coverings, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled 'International Standards Correspondence Index', or by using the 'Find' facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 4, an inside back cover and a back cover.

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English version

Textile floor coverings — Determination of wool fibre integrity using an abrasion machine

Revêtements de sol textiles — Détermination de l'intégrité des fibres de laine à l'aide d'un abrasimètre

Textile Bodenbeläge — Bestimmung der Widerstandsfähigkeit von Wolle gegen Scheuerbeanspruchung

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 1813 : 1997 E

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 134, Resilient and textile 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of an identical text or by endorsement, at the latest by April 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for the determination of fibre damage in the pile of textile floor coverings having a pile material of at least 80 % wool.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 20139	*Textiles — Standard atmospheres for conditioning and testing* (ISO 139 : 1973)
ISO 1957	*Machine-made textile floor coverings — Sampling and cutting specimens for physical tests*

3 Principle

Circular specimens are abraded against a specified fabric for a set number of revolutions and the mass loss determined.

The abradant is mounted in a large head and the specimen to be abraded in a smaller head. The heads are offset from each other and rotated at the same speed. This method gives a constant relative velocity over the surface of the specimen and thus relatively even wear.

4 Apparatus

4.1 *Carpet abrasion machine*[1)], consisting of a circular specimen holder rotating at approximately the same speed and in the same direction as the circular abradant, but with the axes of rotation offset and having the following characteristics:

– rotational speed of specimen holder and abradant holder: 156 rpm $\pm$ 3 rpm;

– exposed area of specimen: approximately 645 mm^2;

– exposed area of abradant: approximately 11000 mm^2;

– distance between axes of specimen holder and abradant: 25,4 mm $\pm$ 0,2 mm;

– abrading pressure: 5,4 N/m^2 $\pm$ 0,1 N/m^2.

4.2 *Standard abradant fabric*[2)], a plainweave filter fabric having the following characteristics:

– material: polyester monofilament;

– thread diameter: 150 μm $\pm$ 10 μm;

– mesh count: (23,3 $\pm$ 1) threads per centimetre (warp and weft);

– fabric thickness: 260 μm $\pm$ 10 μm;

– mass per unit area: 118 g/m^2 $\pm$ 5 g/m^2.

The standard abradant is mounted in the abradant holder over a piece of wool felt. The felt used is of mass 750 g/m^2 $\pm$ 50 g/m^2 and 2,5 mm $\pm$ 0,3 mm thick[3)].

4.3 *Weighing balance*, capable of measuring masses approximately of 350 g with an accuracy of $\pm$ 10 mg.

4.4 *Soft bristle brush*, for removal of loosened fibre prior to weighings.

5 Sampling and preparation of test specimens

Using a cutting die and press, cut pile side up four circular specimens of approximately 37,5 mm diameter from the material to be tested, following the procedure described in ISO 1957.

6 Conditioning

Condition the test specimens left flat, pile side uppermost, in the standard atmosphere for testing textiles defined in EN 20 139, for a minimum of 24 h.

7 Test procedure

7.1 Mount a specimen in the specimen holder, taking care to ensure that the specimen is flat. If necessary, trim the outer tufts to facilitate entry into the holder. Using a tensioning device (usually a torque wrench) clamp the specimen in the holder with a torque of aproximately 6,5 N·m and brush any loose tufts from the pile surface.

7.2 Weigh the specimen holder complete with mounted specimen and record the initial mass (m_i) to 10 mg accuracy.

7.3 Fit the specimen holder in position on the machine.

7.4 Insert a new disc of the standard abradant with the felt backing in the abradant holder and fit the holder into position on the machine.

[1)]A suitable machine is available from BTTG Wira House, West Park Ring Road, Leeds LS16 6QL, UK. This information is given for the convenience of users of the standard and does not constitute an endorsement by CEN of the product. Equivalent products may be used if they can be shown to lead to the same results.

[2)]A suitable abradant fabric, reference PE 280 Type 478, is obtainable from Lockertex, PO Box 161, Warrington WA1 2SU, UK.

[3)]A suitable wool felt is available from P & S Textiles Ltd., Hornby Street, Bury BL9 5BL, UK. This information is given for the convenience of users of the standard and does not constitute an endorsement by CEN of the product. Equivalent products may be used if they can be shown to lead to the same results.

A new piece of felt shall be used for each carpet. It shall be used for no more than 20000 cycles in total and it shall be reversed after 10000 cycles.

If the felt is heavily contaminated by fibres, as seen by change in colour or by dust visible on the surface and not possible to remove, replace the felt.

7.5 Set the counter for 5000 cycles, lower the abradant holder on to the specimen, and start the machine.

7.6 Remove the specimen holder from the machine, brush off any loosened fibres and weigh (complete with specimen) within 2 min of the end of the abrasion treatment.

Record the final mass (m_f) to 10 mg accuracy.

7.7 If the specimen shows wear to backing at 5000 cycles, repeat the test using 2500 cycles, record the final mass to 10 mg accuracy ($m_{f2,5}$).

8 Calculation and expression of results

8.1 Determine the mass loss for each of the four specimens by the following equation:

$$m_L = m_i - m_f$$

where

m_L is the absolute mass loss, in grams;

m_i is the initial mass of the specimen, in grams;

m_f is the final mass of the specimen, in grams.

If the 2500 cycles end point is used, the calculation is:

$$m_L = 2(m_i - m_{f2,5})$$

where

$m_{f2,5}$ is the final mass of specimen after 2500 cycles, in grams.

8.2 Calculate the average mass loss per 5000 cycles in grams, the standard deviation, and the coefficient of variation.

9 Test report

The test report shall contain the following information:

a) reference to this standard, i.e. EN 1813;

b) a complete identification of the product tested, including type, source, colour and manufacturer's reference;

c) previous history of the sample;

d) the average mass loss and coefficient of variation;

e) any deviation from this standard, including the number of cycles used, if different from 5000 cycles.

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