BRITISH STANDARD

BS EN
1734 : 1997

Rubber- or plastics-coated fabrics — Determination of resistance to water penetration — Low-pressure method

The European Standard EN 1734 : 1996 has the status of a British Standard

ICS 59.080.40

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee TCI/78, Coated fabrics, upon which the following bodies were represented:

British Plastics Federation
British Rubber Manufacturers Association Ltd.
British Textile Technology Group
Furniture Industry Research Association
Home Office
Made-up Textiles Association
Ministry of Defence
RAPRA Technology Ltd.
SATRA Footwear Technology Centre
Society of British Aerospace Companies Ltd.
Society of Motor Manufacturers and Traders Limited
The Textile Institute

This British Standard, having been prepared under the direction of the Sector Board for Materials and Chemicals, was published under the authority of the Standards Board and comes into effect on
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Amendments issued since publication

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The following BSI references relate to the work on this standard:
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National foreword

This British Standard has been prepared by Technical Committee TCI/78, and is the English language version of EN 1734 : 1996 *Rubber- or plastics-coated fabrics — Determination of resistance to water penetration — Low-pressure method*, published by the European Committee for Standardization (CEN). No current British Standard is superseded.

Cross-references

Publication referred to	Corresponding British Standard
EN ISO 2231 : 1995	BS EN ISO 2231 : 1995 *Testing coated fabrics Part 2. Method 4. Pre-conditioning and conditioning of coated fabrics for testing purposes*
EN 22286 : 1993	BS EN 22286 : 1994 *Methods for the determination of length and width of a roll, net mass and mean mass per unit area of a piece, cut, roll or sample and the determination of thickness for coated fabrics*

Additional information

Attention is drawn to the fact that other means of assessing the hydrostatic resistance properties of coated fabrics are given in BS 3424 : Part 26 : 1990 and ISO 1420 : 1987.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

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

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1734

November 1996

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Descriptors: coated fabrics, fabrics coated with rubber, fabrics coated with plastics, watertightness, fluid-tightness tests, pressure tests, hydrostatic tests

English version

Rubber- or plastics-coated fabrics — Determination of resistance to water penetration — Low-pressure method

Supports textiles revêtus de caoutchouc ou de plastique — Détermination de la résistance à la pénétration de l'eau — Méthode à basse pression

Mit Gumi- oder kunststoffbeschichtete Textilien — Bestimmung der Wasserdichtheit — Verfahren bei geringem Druck

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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

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 248, Textiles and textile products, 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 May 1997, and conflicting national standards shall be withdrawn at the latest by May 1997.

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

1 Scope

This standard specifies a method for the determination of the resistance of rubber- or plastics-coated fabrics to water penetration (hydrostatic resistance) when subjected to a specific hydrostatic pressure over a fixed period of time. Two test specimen sizes are given; one is circular, the other square.

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 ISO 2231 *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing* (ISO 2231 : 1989)

EN 22286 *Rubber- or plastics-coated fabrics — Determination of roll characteristics* (ISO 2286 : 1986)

3 Principle

A test specimen of coated fabric is subjected to an increasing pressure of water on one face, under standard conditions, until a predetermined pressure specified in the coated fabric specification is obtained. The required pressure is maintained for a specified time or until penetration occurs, whichever is the sooner.

4 Apparatus

4.1 General

The apparatus consists of a well, fitted with a clamp to fasten the test specimen over the well. The well has a nozzle on its lower part, allowing it to be connected to a water inlet pipe so as to fill it at room temperature.

A restraining mesh is fitted over the test specimen. This mesh comprises wires of 1 mm up to 1,2 mm diameter to form squares of not greater than 30 mm side.

4.2 Means of measuring water pressure

Either a manometer connected to the testing head, allowing water pressure up to 19,6 kPa (200 cmH_2O) to be read to an accuracy of $\pm$1%, or a pressure gauge, graduated in centimetres head of water, or in kilopascals with a maximum reading of at least 100 kPa (946 cmH_2O), is used as the means of measuring the water pressure applied to the test specimen.

4.3 Test specimen area

The open part of the well (**4.1**) over which the test specimen is clamped shall be either a square having a side of 100 mm (100 cm^2) or a circle of 113 mm diameter (100 cm^2).

If necessary, soft rubber sealing gaskets can be employed between the coated fabric test specimen and the surfaces of the clamps in order to reduce the risk of damage to the test specimen by the clamps, and to facilitate the testing of seams. In this respect, rubber having a hardness of approximately 40 IRHD (International Rubber Hardness Degree) and approximately 1 cm thick or 1 cm in diameter has been found useful. Alternatively, a closed-cell, cross-linked polyethylene foam having a density of 45 kg/m^3 to 55 kg/m^3 and approximately 1 cm thick has also been used.

5 Test specimens

5.1 Conditioning

Immediately prior to testing, condition the test specimens for at least 16 h in an appropriate atmosphere in accordance with EN ISO 2231.

5.2 Sampling

Test specimens shall be taken from an area with no functional or visible defects and shall be located in the usable width of the coated fabric as defined in EN 22286.

5.3 Number of test specimens

Unless otherwise specified in the material specification, five test specimens shall be tested for each series of tests.

5.4 Shape and dimensions

5.4.1 *Square*

Each test specimen shall be a square with sides measuring approximately 200 mm.

5.4.2 *Circular*

Each test specimen shall have a diameter of 130 mm to 200 mm.

6 Procedure

6.1 Test method

With the vessel connected to the water inlet pipe, open the inlet valve and allow the water to run until it overflows. Check that the vessel is horizontal by ensuring that the water is uniformly flush with all four edges. The open part of the well may be circular.

Ensure that the inlet pipe is totally purged of air, and also that the level of water in the vessel corresponds to the zero on the manometer tube.

Place the test specimen on the vessel with the face to be tested, moistened prior to the test, in contact with the water, without trapping any air under the test specimen.

Fit the retaining mesh (see **4.1**).

Secure the test specimen and the mesh firmly on the vessel using the clamp, taking care to ensure that the edges of the clamp are completely parallel with those of the vessel.

6.2 Application of pressure

Open the inlet valve so that the pressure gradually increases in the vessel at an approximate rate of 1 m per 3 min. The pressure shall be verified using either a manometer or a pressure gauge (see **4.2**).

Once the required pressure has been reached, control the inlet valve, if necessary, and maintain the pressure for the required time (3 min to 5 min).

Then inspect the visible part of the test specimen in order to detect whether any water droplets have passed through the coated fabric.

Close the vessel inlet valve and return the pressure to zero by opening the evacuation valve.

If a leak is detected in the test specimen clamping zone during the test, begin again.

7 Expression of results

The visible face of the coated fabric shall not have any 'water penetration points' nor any trace of moisture, on any of the five test specimens.

A 'water penetration point' is considered to be any spot in which a drop appears as a pin prick and grows to reach a diameter of 1 mm to 1,5 mm.

Penetration occurring exactly on the edges of the clamp shall not be considered to be a 'water penetration point'.

8 Test report

The test report shall include the following:

a) the date of the test;

b) reference to this standard;

c) the description of the coated fabric;

d) the conditioning and testing atmosphere used;

e) the number of test specimens used;

f) whether the test specimens were square or circular;

g) which side(s) of the coated fabric were subjected to water pressure;

h) the pressure level and the time applied;

i) whether any leakage occurred and at what time interval;

j) if applicable, the specific conditions used for ageing or other testing;

k) details of any deviations from the standard test procedure.

List of references

See national foreword.

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