BRITISH STANDARD

BS 5131 : Section 3.7 : 1991

Methods of test for

Footwear and footwear materials

Part 3. Uppers, textiles and threads

Section 3.7 Breaking strength of shoe laces

NOTE. It is recommended that this Section should be read in conjunction with BS 5131 : Part 0, published separately.

Méthodes d'essai des chaussures et des matériaux pour chaussures
Partie 3. Dessus de chaussures, textiles et fils
Section 3.7 Résistance à la rupture des lacets de chaussures

Prüfung von Schuhwerk und Schuhwerkstoffen
Teil 3. Oberleder, Textilien und Fäden
Abschnitt 3.7 Bruchfestigkeit von Schuhbändern

BSI STANDARDS

Foreword

This Section of BS 5131 has been prepared under the direction of the Textiles and Clothing Standards Policy Committee. It supersedes BS 5131 : Section 3.7 : 1979, which is withdrawn.

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

Method

1 Scope

This Section of BS 5131 describes a method for the determination of the breaking strength of shoe laces both in equilibrium with a reference atmosphere and also in the wet state.

2 Principle

Test specimens, cut from the shoe laces, are tested in a tensile testing machine. The force required to break the test specimen is determined.

3 Apparatus [1)]

3.1 *Conditioning cabinet or room,* maintaining an atmosphere of 20 ± 2 °C and 65 ± 2 % r.h.

3.2 *A tensile testing machine,* having a rate of traverse of 100 ± 20 mm/min. A force range of 0 N to 1000 N (0 kgf to 100 kgf) is suitable for most shoe laces though some of the strongest may give breaking strengths up to about 1500 N (150 kgf). The machine provides means for gripping the shoe laces securely without inducing jaw breaks. Suitable gripping devices are bollards or serrated or rubber covered jaws.

4 Conditioning

Where the shoe laces are to be tested by the dry test method (**6.2**), place them in the conditioning cabinet or room (**3.1**). After 48 h, cut the test specimens (see clause **5**). Carry out the test in this atmosphere.

Where the shoe laces are to be tested by the wet test method (**6.3**), do not condition them.

5 Preparation of test specimens

Cut three lengths of shoe lace which are sufficiently long to allow for a test length of 200 mm between the grips on the tensile testing machine (**3.2**). If the test material is supplied as made-up shoe laces, cut each test specimen from a different shoe lace.

6 Procedure

6.1 General

Select the appropriate bollards or jaws and fit them to the tensile testing machine (**3.2**).

NOTE. A preliminary test to determine the most suitable type of clamp is recommended.

6.2 Dry test method

Clamp the test specimen in the bollards or jaws so that there is a distance of 200 mm between the edges of the clamps in the bollards or between the edges of the jaws. Run the machine at a rate of traverse of 100 mm/min and note the force required to break the test specimen. Test the other two test specimens in the same way.

If any of the test specimens breaks at the jaws, reject these results and carry out further tests on new test specimens until three results are obtained for test specimens which do not break at the jaws.

6.3 Wet test method

Soak the test specimens in distilled or de-ionized water at 20 °C for 1 h. Where complete wetting of test specimens that are normally resistant to wetting is essential, use an aqueous solution containing not more than 1 g/L of a non-ionic wetting agent instead of water.

While the test specimens are still wet, determine the force required to break them using the method described in **6.2**.

7 Calculation and expression of results

Calculate the arithmetic mean of the three results obtained using the methods described in clause **6**. Use this to express the mean breaking strength of the test material.

8 Test report

The test report shall include the following items:

(a) results expressed in accordance with clause **7**, including an indication as to whether the tests were carried out with the shoe laces in the wet or dry state;

(b) nature and full identification of the sample(s);

(c) reference to this method of test, i.e. BS 5131 : Section 3.7;

(d) date of testing.

[1)] For information on the availability of suitable apparatus to perform this test, apply to Enquiry Section, BSI, Linford Wood, Milton Keynes, MK14 6LE quoting the number of this standard and the clause number referring to the items concerned. Enclose a stamped addressed envelope for reply.

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Textiles and Clothing Standards Policy Committee (TCM/-) to Technical Committee TCM/39, upon which the following bodies were represented:

British Footwear Manufacturers' Federation
British Leather Confederation
British Rubber Manufacturers' Association
British Steel plc
Consumer Standards Advisory Committee of BSI
Cork Industry Federation
Footwear Components Federation
Footwear Distributors' Federation
Institute of Trading Standards Administration
Iron and Steel Trades' Confederation
Lancashire Footwear Manufacturers' Association
Mail Order Traders' Association of Great Britain
Ministry of Defence
National Union of Footwear, Leather and Allied Trades
Office of Fair Trading
SATRA Footwear Technology Centre

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

British Adhesives and Sealants Association
British Paper and Board Industry Federation
British Plastics Federation
Multiple Shoe Retailers' Association
RAPRA Technology Ltd.

This British Standard, having been prepared under the direction of the Textiles and Clothing Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 January 1991

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