

Methods of test for

Elastic fabrics

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/24, upon which the following bodies were represented:

- Association of Consulting Scientists
- British Nonwovens Manufacturers' Association
- British Polyolefin Textiles Association
- British Textile Confederation
- British Textile Machinery Association
- British Textile Technology Group
- British Throwsters Association
- Confederation of British Wool Textiles Limited
- Furniture Industry Research Association
- International Wool Secretariat
- Ministry of Defence
- North East Lancashire Textile Manufacturers' Association
- SATRA Footwear Technology Centre
- Soap and Detergent Industry Association
- Society of Dyers and Colourists
- Textile Finishers' Association
- Textile Institute

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Foreword

This British Standard has been prepared under the direction of the Textiles and Clothing Standards Policy Committee. It supersedes BS 4952:1973 and BS 4294:1968 which are withdrawn.

The principal changes introduced by this revision are that this edition of BS 4952 uses a similar format to BS 5441 and lists properties which can be tested in accordance with existing British Standards. The test procedures have been brought up-to-date by deleting test variants that are no longer in use and the retained techniques have been refined. The standard also includes provisions for testing looped specimens in addition to straight specimens.

Methods already published as British Standards have not been reproduced, but a list is given, in 1.6, of other test methods that can be of use in the assessment of elastic fabrics.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1.1 Scope

This British Standard describes methods of test specific to both narrow and wide elastic fabrics. The test methods are applicable to woven and to warp knitted and weft knitted fabrics but certain tests can also be applicable to stretch fabrics which are obtained by the use of elastomeric bulked yarns or by a process such as slack mercerization.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

1.2 Definitions

For the purposes of this British Standard the following definitions apply.

1.2.1

elastic fabrics

fabrics, which incorporate elastomeric threads

1.2.2

elastomer

a macromolecular material which returns rapidly to approximately its initial dimensions and shape after substantial deformation by a weak stress and release of stress

1.2.3

modulus

the tensile force in the test specimen required to produce a specified elongation

1.3 Apparatus

1.3.1 Metal scale, graduated in millimetres.

1.3.2 Autographic constant rate-of-extension stress/strain apparatus (unless otherwise indicated in the particular test procedure) capable of cycling between zero extension and either a predetermined force or a predetermined extension and capable of maintaining a specimen either under a constant tension or at a constant elongation.

The apparatus shall be provided with means for recording the extension of the test specimen and the corresponding force. It shall be equipped with either line contact clamps for straight specimens (see **1.3.3.2**) or loop assembly clamps (see **1.3.3.3**).

1.3.3 Clamps

1.3.3.1 General

The central points of the two clamps shall be in the line of pull and the testing device shall be calibrated with the clamps in position.

The clamps shall be capable of allowing the specimens to be maintained either at a constant elongation or under a constant force as appropriate for the test to be performed.

1.3.3.2 Line contact clamps

Line contact clamps as shown in Figure 1 shall consist of two jaws, one being a flat steel plate, the other having a convex 3 mm radius. The line of contact of the jaws shall be at right angles to the line of pull, and their clamping faces shall be in the same plane. The jaws shall be capable of holding the test specimen without allowing it to slip, shall be designed so that they do not cut or otherwise weaken the specimen and shall be not less than the width of the specimen.

1.3.3.3 Loop assembly clamps

Loop assembly clamps shall be as shown in Figure 2 and shall essentially comprise two removable steel bars of circular cross section and 4 mm in diameter, around which the specimen passes and by which it is extended as the bars move apart. The axes of the bars shall be at right angles to the line of pull and shall be in the same plane.

1.3.3.4 Gauge length and specimen length under extension

In the case of line contact clamps, the gauge length and the length of the extended test specimen at any time is measured as the distance between the lines of contact of the two jaws.

Where specimen length is to be measured after removal of the specimen from the jaws, the gauge length marks shall be drawn on the specimen before it is inserted into the clamps.

NOTE The method of marking should be such as to prevent damage to the specimen.

In the case of loop assembly jaws, the gauge length is measured as the circumference around the loop bars.

1.4 Test specimens

1.4.1 General

Take samples of fabric from which test specimens will be cut to represent the fabric under test.

Prepare the specimens according to whether machine direction or cross direction stretch of the fabric is to be tested. Where possible test at least five specimens in each direction.

1.4.2 Preparation of specimens

1.4.2.1 General

Prepare specimens in accordance with **1.4.2.2** to **1.4.2.5** as appropriate.

NOTE Straight specimens and looped specimens do not necessarily give the same results.