

Methods of

Test for fabrics produced from polyolefin tape yarns

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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 Employers' Association
- Confederation of British Wool Textiles Limited
- International Wool Secretariat
- Man-made Fibres Producers' Committee
- Ministry of Defence
- SATRA Footwear Technology Centre
- Soap and Detergent Industry Association
- Society of Dyers and Colourists
- Society of Motor Manufacturers and Traders Limited
- Textile Institute
- Textile Research Council

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Foreword

This British Standard has been prepared under the direction of the Textiles and Clothing Standards Policy Committee. It is a revision of BS 4859:1973 which is withdrawn.

The principal changes introduced into this revision are as follows:

- a) the hook snagging method of test has been deleted;
- b) the heat shrinkage method of test has been revised;
- c) a method of test has been included for determination of friction using a sledge;
- d) a method of test for determination of ultraviolet (UV) stability has not been included in this edition of BS 4859 pending preparation of a revised method.

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.

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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.

1 Scope

This British Standard describes methods of test for fabrics produced from polyolefin tape yarns.

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

2 Definitions

For the purposes of this British Standard the definitions given in BS 4611 apply.

3 Atmosphere for conditioning and testing

An atmosphere of 20 ± 2 °C is required for conditioning and testing.

In cases of dispute the samples shall be conditioned in, and the tests shall be carried out in, the standard temperate atmosphere for testing textiles as defined in BS 1051, i.e. a relative humidity of 65 ± 2 % and a temperature of 20 ± 2 °C.

NOTE Certain properties of tape yarns, particularly tensile properties, vary according to the age of the sample. A sample may be considered to have stabilized in not less than 7 days after manufacture. Where agreed between the interested parties samples of fabric should be aged for this period at a temperature of between 15 °C and 30 °C.

4 Properties to be tested in accordance with existing British Standards

4.1 General

A number of properties of polyolefin tape yarn fabrics can be tested in accordance with other appropriate British Standard methods listed below. The tests shall be carried out according to the British Standard method with the exception of the atmosphere for conditioning and testing, which shall be in accordance with clause 3.

BS 1006 for the determination of colour fastness.

BS 1930 for the determination of width of woven or knitted fabrics when relaxed at zero tension.

BS 1931 for the determination of length of woven or knitted fabrics when relaxed at zero tension.

BS 2471 for the determination of the mass per unit length and per unit area of woven or knitted fabrics.

BS 2819 for measuring distortion in bowed and skewed fabrics.

BS 2861 for the presentation of a weave diagram and plans for drafting, denting and lifting.

BS 2862 for the determination of the number of threads per centimetre in woven fabrics.

BS 2863 for the determination of crimp of yarn in fabric.

BS 3320 for the determination of slippage resistance of yarns in woven fabrics.

BS 3356 for the determination of stiffness of cloth.

BS 4303 for the determination of tear strength.

BS 4768 for the determination of the bursting strength and bursting distension of fabrics.

4.2 Linear density

For determination of linear density use the method in section 3 of BS 2865:1984. For the removal of non-fibrous matter, use a solvent to extract the tape yarn specimens in a Soxhlet extractor, ensuring that the extractor siphons at least ten times. (Appendix A contains the full procedure for the determination of extractive content.)

4.3 Thickness of fabric

For determination of fabric thickness use method B of BS 2544, with a foot pressure of 135 kPa.

4.4 Breaking strength and extension

For determination of breaking strength and extension, use the method described in BS 2576 except that the rate of separation of the pulling jaw shall be 200 ± 10 mm/min.

NOTE Ensure that the specimen is firmly gripped. The slippery nature of the fabric may make it necessary to use serrated or lined clamps.

4.5 Air permeability

For determination of air permeability use method 18 of BS 3424.

NOTE It should be stressed that air permeability has no direct relationship with either liquid permeability or permeability to solids (e.g. dust). These vary according to the type of liquid or solid being used, and it is not possible to devise a method representative of them all.

5 Determination of heat shrinkage using hot air

NOTE Heat shrinkage can be determined by using hot air (see clause 5) or an oil bath (see clause 6). In cases of dispute, the procedure using an oil bath should be used.

5.1 Principle

A test specimen is suspended in an air oven under specified conditions and the change in dimensions is determined.

5.2 Apparatus

5.2.1 Marking and cutting device, for preparing specimens of the size and shape required.

5.2.2 Scale or rule, graduated in increments of 0.5 mm and which is longer than the longest side of the specimens.

5.2.3 Stop watch or timer

5.2.4 Oven, mechanical convection type and capable of maintaining a temperature between 90 °C and 160 °C to an accuracy of ± 1 °C.