

Testing coated fabrics —

Part 21: Method 24. Method for determination of elongation and tension set

IMPORTANT NOTE. It is recommended that this Part be read in conjunction with the information in Part 0 “Foreword and general introduction”.

Confirmed
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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Plastics and Rubber Standards Policy Committee (PRM/-) to Technical Committee PRM/78, upon which the following bodies were represented:

- British Nonwovens Manufacturers' Association
- British Plastics Federation
- British Railways Board
- British Resin Manufacturers' Association
- British Rubber Manufacturers' Association Ltd.
- British Textile Confederation
- British Textile Technology Group
- Department of Health
- Department of the Environment (Building Research Establishment)
- Electricity Industry in United Kingdom
- Furniture Industry Research Association
- Home Office
- Industrial Safety (Protective Equipment) Manufacturers' Association
- London Regional Transport
- Made-Up Textiles Association
- Ministry of Defence
- National Union of Dyers, Bleachers and Textile Workers (NUDBTW)
- RAPRA Technology Ltd.
- SATRA Footwear Technology Centre
- Society of Motor Manufacturers and Traders Ltd.

The following body was also represented in the draft of the standard, through subcommittees and panels:

Ministry of Defence

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Foreword

This revision has been prepared under the direction of the Plastics and Rubber Standards Policy Committee.

The response of many textiles, including coated fabrics, to stresses in the bias direction is particularly important, and this is especially so when one considers that the integrity of a structure depends upon its weakest link. When the tensile properties of textile materials are examined or specified with a particular end-use in mind, their bias direction performance is quite often overlooked.

Tension set, sometimes referred to as permanent set, is defined in various ways depending upon the discipline concerned. The general descriptions of tension set or permanent set, however, invariably agree; it is only the means by which it is derived that differs. In order to avoid any misunderstanding, therefore, a definition of tension set as applied to coated fabrics has been prepared.

The factors affecting the determination of tension set are:

- a) the rate at which the specimen is extended;
- b) the temperature and relative humidity prior to and during testing;
- c) the period or elapse of time between the extension of the specimen and the release of the load or strain.;
- d) the period allowed for recovery;
- e) the previous mechanical history of the specimen.

This last factor can be of particular importance, as specimens can be mechanically conditioned by repeated loadings followed by periods of relative recovery in which some strain is maintained or periods of recovery in which the specimen is under zero strain.

Generally, however, the point of interest in conducting the test is to discover the extent to which the coated fabric will suffer permanent deformation after it has been strained beyond a given point. The extent of the permanent deformation is the value referred to as tension or permanent set.

Because of all these variables and as the designers of coated fabrics for airships, sails and inflated structures will have different interests than designers of coated fabrics for upholstery and clothing applications for example, a method of test has been developed which caters for all these interests and at the same time permits direct comparisons to be made between materials of different types.

For methods related to creep and creep recovery, reference should be made to BS 3424-0:1982.

This edition supersedes BS 3424-21:1987 which is withdrawn.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, 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.