

Methods for

Determination of fibre length by comb sorter diagram

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- Association of Consulting Scientists
- British Nonwovens Manufacturers' Association
- British Polyolefin Textiles Association
- British Textile Employers' Association
- British Textile Technology Group
- Confederation of British Wool Textiles Ltd.
- 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 Ltd.
- Textile Institute

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Foreword

This British Standard has been prepared under the direction of the Textiles and Clothing Standards Policy Committee and forms a revision of BS 4044:1966 which is withdrawn.

The principal changes introduced by this revision are that an additional procedure for determination of fibre length of twistless combed slivers and prepared rovings of a type used in the woollen and worsted systems is included.

NOTE This method is related to ISO 920:1976 published by the International Organization for Standardization (ISO).

In addition, the original method from BS 4044:1966 has been updated by revising preparation of the test specimens and including a new Table 1.

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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.

Section 1. General

1 Scope

This British Standard describes methods for determination of fibre length by the use of a comb sorter diagram. The following two procedures are described.

a) Method A is applicable to samples composed of individual fibres, particularly to samples of cotton fibres, and to samples of waste silk and uncrimped staple fibres having a fibre length of approximately 50 mm.

NOTE 1 For longer types of waste silk and staple fibre, the technique for arranging the test specimen in the form of a continuous sorter diagram becomes progressively more difficult. Only specially skilled operators can make satisfactory sorter diagrams on samples containing many fibres of 100 mm or more in length. Moreover, the time required to make a test increases steadily with increasing fibre length of sample.

b) Method B is applicable to twistless combed slivers and prepared rovings of a type used in the woollen and worsted systems.

NOTE 2 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 following definitions apply.

2.1

barbe

the mean length of the fibres of a sliver or roving, calculated from the proportions by mass of the fibres in the sliver or roving

the barbe (in mm) is calculated by the following equation:

$$\frac{n_1 a_1 L_1^2 + n_2 a_2 L_2^2 + \text{etc.}}{n_1 a_1 L_1 + n_2 a_2 L_2 + \text{etc.}} = \frac{P_1 L_1 + P_2 L_2 + \text{etc.}}{P_1 + P_2 + \text{etc.}}$$

where

n_1, n_2 , etc. represent the number of fibres in each length group;

L_1, L_2 , etc. represent the group length determined on partially decrimped fibres (in mm);

a_1, a_2 , etc. represent the linear density of partially decrimped fibres of each group;

P_1, P_2 , etc. represent the total mass of the fibres belonging to each length group.

2.2

hauteur

the mean length of the fibres of a sliver or roving, calculated from the proportions by titre of the fibres in the sliver or roving

the hauteur (in mm) is calculated by the following equation:

$$\frac{n_1 a_1 L_1 + n_2 a_2 L_2 + \text{etc.}}{n_1 a_1 + n_2 a_2 + \text{etc.}} = \frac{P_1 + P_2 + \text{etc.}}{\frac{P_1}{L_1} + \frac{P_2}{L_2} + \text{etc.}}$$

using the same symbols as in 2.1

3 Atmosphere for conditioning and testing

All test specimens shall be conditioned and tested in the standard temperate atmosphere for testing textiles as defined in BS 1051, i.e. a relative humidity of $65 \pm 2\%$ and a temperature of $20 \pm 2^\circ\text{C}$.