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STANDARD **1973**

Second edition
1995-11-01

Textile fibres — Determination of linear density — Gravimetric method and vibroscope method

Fibres textiles — Détermination de la masse linéique — Méthode gravimétrique et méthode au vibroscope

Reference number
ISO 1973:1995(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 1973 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 6, *Fibre testing*.

This second edition cancels and replaces the first edition (ISO 1973:1976), which has been technically revised.

Annexes A and B of this International Standard are for information only.

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Case Postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

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Textile fibres — Determination of linear density — Gravimetric method and vibroscope method

1 Scope

This International Standard specifies a gravimetric method and a vibroscope method for the determination of the linear density of textile fibres applicable respectively to:

a) bundles of fibres;

b) individual fibres.

Useful data can be obtained on man-made fibres and, with less precision, on natural fibres.

The procedures can be applied only to fibres which can be kept straight and, in the case of bundles, parallel, during test preparation. These methods are properly applicable when the fibres are readily freed of crimp. They are not applicable to tapered fibres.

NOTE 1 The vibroscope method may not be applicable to hollow and flat (ribbon-like) fibres.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing.*

ISO 1130:1975, *Textile fibres — Some methods of sampling for testing.*

ISO 6989:1981, *Textile fibres — Determination of length and length distribution of staple fibres (by measurement of single fibres).*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 tension: Force tending to cause the extension of a body.

NOTE 2 In textile testing, the tension applied is based on the linear density or cross-sectional area.

3.2 tensioning force: Force effective on a fibre specimen during the vibroscope test.

4 Principle

Two methods for determining linear density are described:

4.1 Gravimetric method (direct method by weighing), for bundles of fibres

Specimens of a given length are weighed on a balance. This method is applicable to bundles of fibres.

4.2 Vibroscope method, for individual fibres

Individual fibres of a given length and under specified tension are subjected to vibration at resonance frequency. The linear density is determined from the conditions of the resonance state, i.e. the resonance frequency, the length of the fibre and the tensioning force. The linear density is read directly on the scale of the vibroscope apparatus. This method assumes that the linear density of the tested length of the fibre is constant.