

Irish Standard I.S. EN ISO 20705:2020

Textiles - Quantitative microscopical analysis - General principles of testing (ISO 20705:2019)

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I.S. EN ISO 20705:2020

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National Foreword

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EUROPÄISCHE NORM

EN ISO 20705

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English Version

Textiles - Quantitative microscopical analysis - General principles of testing (ISO 20705:2019)

Textiles - Analyse quantitative par microscopie -Principes généraux des essais (ISO 20705:2019) Textilien - Quantitative mikroskopische Analyse -Allgemeine Prüfungsgrundsätze (ISO 20705:2019)

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European foreword

This document (EN ISO 20705:2020) has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with Technical Committee CEN/TC 248 "Textiles and textile products" the secretariat of which is held by BSI.

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Textiles — Analyse quantitative par microscopie — Principes généraux des essais



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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.

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This document was prepared by Technical Committee ISO/TC 38, Textiles.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <u>www.iso.org/members.html</u>.

Introduction

This document is used for the quantitative analysis of textiles containing mixtures of fibres which cannot be separated readily by mechanical methods or by chemical methods, as described in the different parts of ISO 1833.

The quantitative microscopical analysis rely on the ability of a fibre analyst to identify and count, by means of a microscope [light microscope (LM) or scanning electron microscope (SEM)], the relative number of fibres of each type in a prepared test specimen (based on fibre apparent diameter of a longitudinal view or fibre section area of a cross view, depending on the fibre types).

Fibre counts lead to the calculation of the percentage in the mixture of the test specimen by number of fibres (based on fibre apparent diameter or fibre section area) and by their respective density. And then, the calculation of the fibre percentage by mass of the laboratory sample is carried out in relation to its structure (loose fibres, yarns, woven fabrics, knitted fabric, etc.).

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Textiles — Quantitative microscopical analysis — General principles of testing

1 Scope

This document specifies common methods for the quantitative microscopical analysis of various mixtures of fibres. The methods described are based on the use of a light microscope (LM) or a scanning electronic microscope (SEM), on the measurements of the fibre apparent diameter (preparation of longitudinal views) or on the measurements of fibre section area (preparation of cross views), depending on the section shape of the fibres.

NOTE 1 When the section shape is circular or almost circular, the longitudinal views are appropriate. For the other section shapes, the cross views are adequate and <u>Annex A</u> lists conventional density of fibres to be used for the calculation of the mass percentage of the components. Pictures of section shapes of fibres can be found in ISO/TR 11827.

NOTE 2 <u>Annex B</u> presents statistical data on fibre diameter measurements (longitudinal view) and on fibre area measurements (cross view).

The given procedures apply to fibres in any textile form when mixtures of fibres cannot be separated by manual methods or by chemical methods.

Examples of mixtures of fibres are cashmere and wool, cotton and flax, flax and hemp.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1833-1, Textiles — Quantitative chemical analysis — Part 1: General principles of testing

3 Terms and definitions

For the purposes of this document, the following term and definition apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <u>https://www.iso.org/obp</u>
- IEC Electropedia: available at <u>http://www.electropedia.org/</u>

3.1 test specimen unit linear portion of a single thread

Note 1 to entry: The length of the test specimen unit depends on the test specimen holder dimension.

Note 2 to entry: This expression is not applicable to test specimen prepared from samples of loose fibre (see $\frac{7.1.2}{1.2}$) or sliver (see $\frac{7.1.3}{1.2}$).

4 Principle

A longitudinal view image (respectively, a cross view image) of fibre snippets representative of a test specimen is magnified to an appropriate scale/size under optical light microscope or scanning



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