SLOVENSKI STANDARD
SIST-TP CEN ISO/TR 11827:2016

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Tekstilije - Preskušanje sestave - Identifikacija vlaken (ISO/TR 11827:2012)

Textiles - Composition testing - Identification of fibres (ISO/TR 11827:2012)

Textiles - Essai de composition - Identification des fibres (ISO/TR 11827:2012)

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ICS:

59.060.01 Tekstilna vlakna na splošno Textile fibres in general

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TECHNICAL REPORT

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Textiles - Composition testing - Identification of fibres (ISO/TR 11827:2012)

Textiles - Essai de composition - Identification des fibres (ISO/TR 11827:2012)

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

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Endorsement notice

The text of ISO/TR 11827:2012 has been approved by CEN as CEN ISO/TR 11827:2016 without any modification.

TECHNICAL REPORT

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Textiles — Composition testing — Identification of fibres

Textiles — Essai de composition — Identification des fibres

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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ISO/TR 11827 was prepared by Technical Committee ISO/TC 38, *Textiles.*

Introduction

The correct identification of fibres in textiles and the accurate determination of the composition of each fibre present is a legal requirement in many countries throughout the world for imported textile goods and at the point of sale to the public. Fibre identification can be carried out by a number of different techniques, e.g. microscopy, solubility, spectroscopy, melting point, pyrolysis, density, refractive index, etc.

Textiles — Composition testing — Identification of fibres

IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This Technical Report describes procedures for the identification of natural and man-made fibres, and may be used, when necessary, to coordinate with methods for the quantitative analysis of fibre blends.

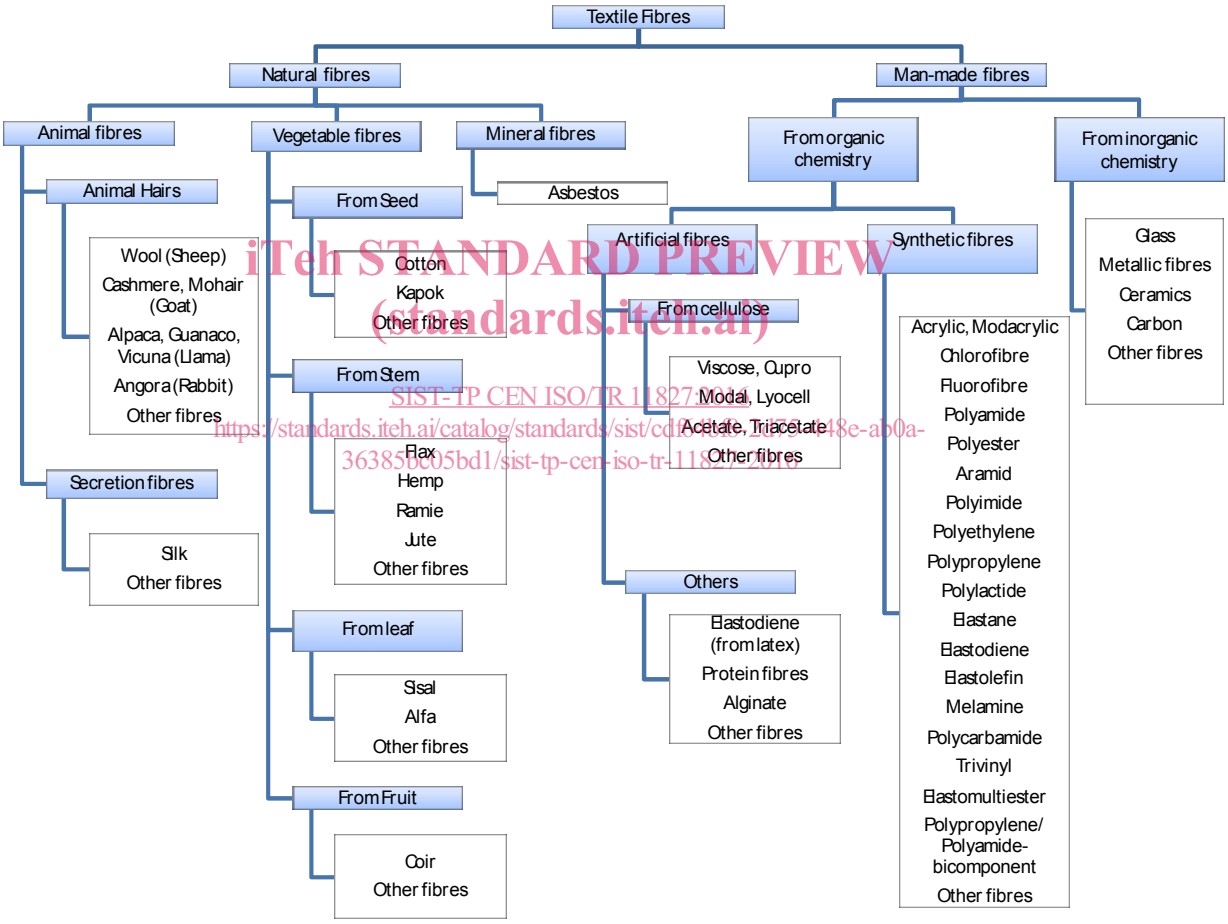

Figure 1 — Classification of the textile fibres in relation to their origin

2 Safety note

This Technical Report calls for the use of substances/procedures that may be injurious to the health/environment if appropriate conditions are not observed. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety/environment at any stage.

3 Normative references

The following referenced documents are indispensable for the application 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 1833-4, *Textiles — Quantitative chemical analysis — Part 4: Mixtures of certain protein and certain other fibres (method using hypochlorite)*

ISO 2076, *Textiles — Man-made fibres — Generic names*

ISO 6938, *Textiles — Natural fibres — Generic names and definitions*

4 Terms and definitions

For the purposes of this document, the following terms and definitions given in ISO 2076 and ISO 6938 and the following apply.

4.1
natural fibre
fibre which occurs in nature: it can be categorized according to its origin into animal, vegetable and mineral fibre

4.2
man-made fibre
manufactured fibre
fibre obtained by a manufacturing process

4.2.1
artificial fibre
manufactured fibre made by transformation of natural polymers (macromolecular material existing in nature)

4.2.2
synthetic fibre
manufactured fibre made from synthetic polymers (macromolecular material which has been chemically synthesised)

4.2.3
bicomponent fibre
fibre composed of two fibres forming polymer components, which are chemically or physically different or both

5 Principle

Objective: identify the fibres

Means: based on fibre properties (single or combination)

Properties for example:

- Morphology
- Solubility
- Light absorption or transmission by IR
- Burning behaviour
- Thermal behaviour

- Colouration
- Optical behaviour
- Elemental composition

6 Apparatus and preparation of solutions

6.1 Apparatus

6.1.1 **Light Microscope,** using transmitted light

6.1.2 Scanning Electron Microscope

6.1.3 Bunsen Burner or other flame source

6.1.4 Infrared Spectrometer

6.1.4.1 Attenuated Total Reflection (ATR) spectroscopy device

6.1.4.2 Fourier Transform Infrared (FT-IR) spectrometer

6.1.5 Melting Point device (heated block)

6.1.6 Differential Scanning Calorimeter (DSC)

6.1.7 Thermal Gravimetric Analysis (TGA) device (thermobalance)

6.1.8 Gravimetric device (density gradient column)

6.1.9 Energy Dispersive X-ray (EDX) device

6.2 Preparation of solutions

Use only reagents of recognized analytical grade.

6.2.1 Sodium hydroxide and calcium oxide

Prepare a mixture of sodium hydroxide and calcium oxide (mass ratio of 1:1,4)

6.2.2 Iodine/potassium iodine solution

Dissolve 20 g of potassium iodide in 20 ml to 50 ml of distilled water. In this solution dissolve 2,5 g of iodine and dilute to 100 ml

6.2.3 Zinc chloride/iodine solution

Dissolve 66 g of zinc chloride, anhydrous, and 6 g of potassium iodide in 34 ml of water.

Add a small amount of iodine crystal so that the solution is saturated.

6.2.4 Chlorine bleaching solution

Prepare the solution according to ISO 1833-4.

6.2.5 Zinc chloride/formic acid solution

Dissolve 100 g of zinc chloride, anhydrous in 100 ml of water.