Irish Standard
I.S. EN ISO 17751-1:2016

Textiles - Quantitative analysis of cashmere, wool, other specialty animal fibers and their blends - Part 1: Light Microscopy method (ISO 17751-1:2016)

I.S. EN ISO 17751-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN ISO 17751-1:2016 is the adopted Irish version of the European Document EN ISO 17751-1:2016, Textiles - Quantitative analysis of cashmere, wool, other specialty animal fibers and their blends - Part 1: Light Microscopy method (ISO 17751-1:2016)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17751-1

April 2016

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English Version

Textiles - Quantitative analysis of cashmere, wool, other specialty animal fibers and their blends - Part 1: Light Microscopy method (ISO 17751-1:2016)

Textiles - Analyse quantitative du cachemire, de la laine, d'autres fibres animales spéciales et leurs mélanges - Partie 1: Méthode de microscopie optique (ISO 17751-1:2016)

Textilien - Quantitative Analyse von Kaschmir, Wolle, anderen speziellen tierischen Fasern und deren Mischungen - Teil 1: Lichtmikroskopie-Verfahren (ISO 17751-1:2016)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 17751-1:2016) 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.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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The text of ISO 17751-1:2016 has been approved by CEN as EN ISO 17751-1:2016 without any modification.

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INTERNATIONAL STANDARD

ISO 17751-1

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Textiles — Quantitative analysis of cashmere, wool, other specialty animal fibers and their blends —

Part 1: Light microscopy method

Textiles — Analyse quantitative du cachemire, de la laine, d'autres fibres animales spéciales et leurs mélanges —

Partie 1: Méthode de microscopie optique

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 38, *Textiles*.

ISO 17751 consists of the following parts, under the general title *Textiles — Quantitative analysis of cashmere, wool, other speciality animal fibres and their blends*:

— *Part 1: Light microscopy method*

— *Part 2: Scanning electron microscopy method*

Introduction

Cashmere is a high-value specialty animal fibre, but cashmere and other animal wool fibres such as sheep's wool, yak, camel, etc. exhibit great similarities in their physical and chemical properties, so that their blends are difficult to distinguish from each other by both mechanical and chemical methods. In addition, these fibres show similar scale structures. It is very difficult to accurately determine the fibre content of such fibre blends by current testing means.

Research on the accurate identification of cashmere fibres has been a long undertaking. At present, the most widely used and reliable identification techniques include the light microscopy (LM) method and the scanning electron microscopy (SEM). The SEM method shows complementary characteristics to those of LM method.

— The advantage of the LM method is that the internal medullation and pigmentation of fibres can be observed; the disadvantage is that some subtle surface structures cannot be clearly displayed. A decolouring process needs to be carried out on dark samples for testing. An improper decolouring process can affect the judgment of the fibre analyst.

—The SEM method shows opposite characteristics to those of LM method so some types of fibres need to be identified by scanning electron microscope.

The LM and SEM methods need be used together to identify some difficult-to-identify samples in order to utilize the advantages of both methods.

It has been proven in practice that the accuracy of a fibre analysis is highly related to the ample experience, full understanding, and extreme familiarity of the fibre analyst to the surface morphology of various types of animal fibres so besides the textual descriptions, several micrographs of different types of animal fibres are given in Annex C.

Textiles — Quantitative analysis of cashmere, wool, other specialty animal fibers and their blends —

Part 1: Light microscopy method

1 Scope

This part of ISO 17751 specifies a method for the identification, qualitative, and quantitative analysis of cashmere, wool, other speciality animal fibres, and their blends using light microscopy (LM).

This part of ISO 17751 is applicable to loose fibres, intermediate-products, and final products of cashmere, wool, other speciality animal fibres, and their blends.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
specialty animal fibre
any type of keratin fibre taken from animals (hairs) other than sheep

3.2
light microscope
optical instrument used to produce magnified images utilizing visible light source

Note 1 to entry: Types of microscopes suitable for fibre identification include projection microscopes and visual microscopic image analysers. Transmitted–light type microscopes with direct graduated scale equipped on optical lens are also applicable.

3.3
scale
cuticle covering the surface of animal fibres

3.4
scale frequency
number of *scales* (3.3) along the fibre axis per unit length

3.5
scale height
height of the cuticle at the *scale's* (3.3) distal edge