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# Textiles — Quantitative chemical analysis —

## Part 4: Mixtures of certain protein fibres with certain other fibres (method using hypochlorite)

*Textiles — Analyse chimique quantitative —*

*Partie 4: Mélanges de certaines fibres protéiniques avec certaines autres fibres (méthode à l'hypochlorite)*



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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 1833-4:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the title was changed from "Mixtures of certain protein **and** certain other fibres…" to "Mixtures of certain protein fibres **with** certain other fibres …";

— in Clause 1, some remaining fibres were added to the list of fibres;

— a new Clause 3 (Terms and definitions) was added as set out in the ISO/IEC Directives Part 2, 2016;

— in 5.1.2 (former 4.2), a sentence related to the comparison of the 2 possible reagents was introduced;

— in Clause 7 (former Clause 6), a warning sentence related to the water bath temperature was introduced;

— in Clause 8 (former Clause 7), "melamine" was added;

— in Clause 9 (former Clause 8), "percentage point" was added to avoid confusion.

A list of all parts in the ISO 1833 series can be found on the ISO website.



 

# Textiles — Quantitative chemical analysis —

# Part 4: Mixtures of certain protein fibres with certain other fibres (method using hypochlorite)

## 1 Scope

This document specifies a method, using hypochlorite, to determine the mass percentage of protein fibre, after removal of non-fibrous matter, in textiles made of mixtures of certain non-protein fibres and certain protein fibres, as follows:

— wool, other animal-hair (such as cashmere, mohair), silk, protein,

with

— cotton, cupro, viscose, modal, acrylic, chlorofibres, polyamide, polyester, polypropylene, glass, elastane, elastomultiester, elastolefin, melamine and polypropylene/polyamide bicomponent.

## 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

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

## 4 Principle

The protein fibre is dissolved out from a known dry mass of the mixture with alkaline hypochlorite. The residue is collected, washed, dried and weighed; its mass, corrected if necessary, is expressed as a percentage of the dry mass of the mixture. The percentage of protein fibre is found by the difference.

## 5 Reagents

Use the reagents described in ISO 1833-1 together with those given in 5.1, 5.2 and 5.3.

**5.1 Hypochlorite solution**.

**5.1.1 Sodium hypochlorite**.

Sodium hypochlorite solution containing (35 ± 2) g/l of active chlorine (approximately 1 mol/l) to which (5 ± 0,5) g/l of previously dissolved sodium hydroxide is added.

The active chlorine content of the solution shall be checked iodometrically but its concentration is not critical within the range 0,9 mol/l to 1,1 mol/l.

**5.1.2 Lithium hypochlorite**.

Dissolve 100 g of lithium hypochlorite containing 35 % active chlorine (or 115 g containing 30 % active chlorine) in approximately 700 ml of distilled water, add 5 g of sodium hydroxide (5.2) dissolved in approximately 200 ml of distilled water and make up to 1 l with distilled water.

The solution which has been freshly prepared does not need to be checked iodometrically.

Either lithium hypochlorite or sodium hypochlorite can be used for the preparation of the hypochlorite solution. Lithium hypochlorite is recommended in cases involving a small number of analyses or for analyses conducted at fairly lengthy intervals. This is because the percentage of hypochlorite in solid lithium hypochlorite, unlike that in sodium hypochlorite, is virtually constant. If the percentage of hypochlorite is known, hypochlorite content does not need to be checked iodometrically for each analysis, since a constant weighed portion of lithium hypochlorite can be employed.

**5.2 Sodium hydroxide**.

**5.3 Acetic acid**, dilute solution.

Dilute 5 ml of acetic acid (ρ = 1,05 g/ml at 20 °C) to 1 l with water.

## 6 Apparatus

Use the apparatus described in ISO 1833-1 together with those given in 6.1 and 6.2.

**6.1 Conical flask**, minimum capacity 250 ml.

**6.2 Water-bath** at temperature (20 ± 2) °C.

## 7 Test procedure

Follow the general procedure described in ISO 1833-1, and then proceed as follows.

To the specimen contained in the conical flask, add 100 ml of hypochlorite solution per gram of specimen, agitate vigorously to wet out the specimen and agitate continuously for 40 min in a water bath at (20 ± 2) °C.

Pay attention to keep the water bath temperature within the limits as the dissolution of some fibres (e.g. wool) proceeds exothermically. This can be done by distributing and removing the reaction heat; otherwise, considerable errors may be caused by the incipient dissolution of the non-soluble fibres.

Filter the contents of the flask through the weighed filter crucible and transfer any residual fibres to the crucible by washing out the flask with a little hypochlorite solution.

Drain the crucible using suction and wash the residue successively with water, dilute acetic acid, and finally water, draining the crucible using suction after each addition. Do not apply suction until each washing liquid has drained under gravity.



 