INTERNATIONAL STANDARD

ISO 1833-28

First edition
2019-06

Textiles — Quantitative chemical analysis —

Part 28: Mixtures of chitosan with certain other fibres (method using diluted acetic acid)

Textiles — Analyse chimique quantitative —

Partie 28: Mélanges de chitosane avec certaines autres fibres (méthode à l'acide acétique dilué)

Reference number
ISO 1833-28:2019(E)

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Published in Switzerland

Contents

Page

Foreword

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

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

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 www.iso.org/members.html.

Textiles — Quantitative chemical analysis —

Part 28: Mixtures of chitosan with certain other fibres (method using diluted acetic acid)

1 Scope

This document specifies a method, using diluted acetic acid, to determine the mass percentage of chitosan fibres, after elimination of non-fibrous matter, in textiles made of mixtures of:

— chitosan fibre

with

— certain other fibres.

This method is applicable to fibre mixtures of chitosan fibre with cellulose fibres (cotton, linen, ramie, viscose, modal, lyocell), protein fibres (wool, cashmere, silk), or synthetic fibres (polyester, polyamide, acrylic).

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 terms and definitions apply.

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

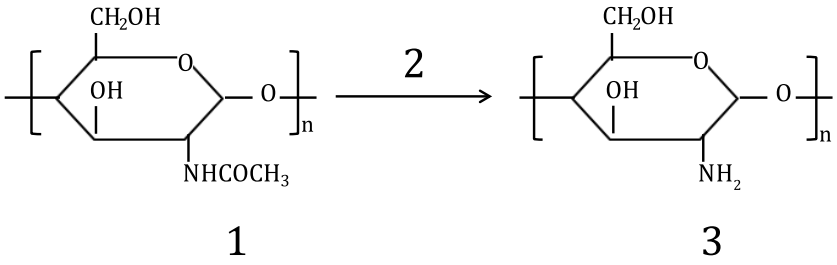
— IEC Electropedia: available at http://www.electropedia.org/

3.1
chitosan fibre
chitin fibre in which at least 55 % acetylated groups have been deacetylated

Note 1 to entry: Chitin as generic name, see ISO 2076.

Note 2 to entry: In the textile industry, the deacetylation degree is generally more than 90 %.

Note 3 to entry: See Figure 1.



1 3

Key

1 chitin
2 deacetylation
3 chitosan

Figure 1 — Chitosan fibre

4 Principle

The chitosan fibre is dissolved out from a known dry mass of the mixture with diluted acetic acid. 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 chitosan fibre is found by the difference.

Annex A presents the statistical data for chitosan content.

5 Reagents

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

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

5.2 Diluted ammonia solution, dilute 80 ml of ammonia solution (ρ = 0,88 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 with stopper, minimum capacity 500 ml.

6.2 Mechanical shaker with water-bath, providing reciprocating movement with the capability to maintain at temperature of 90 °C to 95 °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 (6.1), add 200 ml of diluted acetic acid (5.1) per gram of specimen, insert the stopper, agitate vigorously to wet out the specimen and shake continuously for 60 min in the mechanical shaker (6.2) at 90 °C to 95 °C.

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 more diluted acetic acid of 90 °C to 95 °C. Drain the crucible using suction. Wash the residue successively with water of 90 °C to 95 °C, twice with dilute