INTERNATIONAL STANDARD

ISO 1833-13

Second edition
2019-10

Textiles — Quantitative chemical analysis —

Part 13: Mixtures of certain chlorofibres with certain other fibres (method using carbon disulfide/acetone)

Textiles — Analyse chimique quantitative —

Partie 13: Mélanges de certaines chlorofibres avec certaines autres fibres (méthode au sulfure de carbone/acétone)

Reference number
ISO 1833-13:2019(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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.

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 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 1833-13:2006), which has been technically revised. The main changes compared to the previous edition are as follows:

— the title has been changed from “Mixtures of certain chlorofibres and certain other fibres (method using carbon disulfide/acetone)” to “Mixtures of certain chlorofibres **with** certain other fibres (method using carbon disulfide/acetone)”;

— in Clause 1:

  — several remaining fibres have been added;

  — references on other methods used for analysing mixtures containing chlorofibes have been added;

— in 5.2 “minimum 92 % by volume” has been added to ethanol;

— in Clause 7, a specific *d* factor for melamine and polyacrylate has been added;

— in Clause 8, “percentage point” has been added to avoid confusion.

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 13: Mixtures of certain chlorofibres with certain other fibres (method using carbon disulfide/acetone)

1 Scope

This document specifies a method, using carbon disulfide/acetone, to determine the mass percentage of chlorofibre, after removal of non-fibrous matter, in textiles made of mixtures of

— certain chlorofibres,

with

— wool, animal hair, silk, cotton, viscose, cupro, modal, lyocell, polyamide, polyester, elastomultiester, acrylic, melamine, polypropylene, polypropylene/polyamide bicomponent, polyacrylate and glass fibres.

It is also possible to analyse mixtures containing chlorofibres by using the test methods described in ISO 1833-17 or ISO 1833-21.

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*

ISO 1833-4, *Textiles — Quantitative chemical analysis — Part 4: Mixtures of certain protein fibres with certain other fibres (method using hypochlorite)*

ISO 1833-7, *Textiles — Quantitative chemical analysis — Part 7: Mixtures of polyamide with certain other fibres (method using formic acid)*

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 chlorofibre is dissolved out from a known dry mass of the mixture, with the azeotropic mixture of carbon disulfide and acetone. 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 chlorofibre is found by the difference.

Before carrying out the analysis, the solubility of the chlorofibres in the reagent shall be checked.

When the wool or silk content of a mixture exceeds 25 %, the method described in ISO 1833-4 shall be used.

When the polyamide content of a mixture exceeds 25 %, the method described in ISO 1833-7 shall be used.

5 Reagents

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

5.1 Azeotropic mixture of carbon disulfide and acetone.

Mix 555 ml of carbon disulfide with 445 ml of acetone.

SAFETY PRECAUTIONS — The toxic effects of this reagent shall be borne in mind, and full precautions shall be taken during use.

5.2 Ethanol (minimum 92 % by volume).

6 Apparatus

Use the apparatus described in ISO 1833-1 together with those given in 6.1, 6.2 and 6.3.

6.1 Conical flask, minimum capacity 200 ml, glass-stoppered.

6.2 Mechanical shaker.

6.3 Small watch-glass.

7 Test procedure

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

To the specimen contained in the conical flask, add 100 ml of carbon disulfide/acetone reagent (5.1) per gram of specimen. Stopper the flask tightly and shake the flask on the mechanical shaker for (20 ± 1) min, loosening the stopper once or twice at the beginning of the process to release any excess pressure.

Decant the supernatant liquid through the weighed filter crucible.

Repeat the treatment with a further 100 ml of fresh reagent.

Continue with this cycle of processes until a drop of the extraction liquid leaves no deposit of chlorofibre on evaporation from a watch-glass.

Transfer the residue from the flask to the filter crucible using more reagent, drain using suction, and wash the crucible and residue three times with 20 ml ethanol (5.2) and then three times with water. Do not apply suction until each washing liquor has drained under gravity.

Finally, drain the crucible using suction, dry the crucible and residue, then cool and weigh them.

NOTE With certain mixtures having a high chlorofibre content, there might be substantial shrinkage of the specimen during the drying procedure, as a result of which the dissolution of chlorofibre by the solvent is retarded. This does not, however, affect the ultimate dissolution of the chlorofibre by the solvent.

8 Calculation and expression of results

Calculate the results as described in the general instructions of ISO 1833-1.

The value of *d* is 1,00, except for melamine and polyacrylate, for which "*d*" = 1,01.

9 Precision

On a homogeneous mixture of textile materials, the confidence limits of the results obtained by this method are not greater than ±1 percentage point for the confidence level of 95 %.

Bibliography

[1] ISO 1833-17, *Textiles — Quantitative chemical analysis — Part 17: Mixtures of cellulose fibres and certain fibres with chlorofibres and certain other fibres (method using concentrated sulfuric acid)*

[2] ISO 1833-21, *Textiles — Quantitative chemical analysis — Part 21: Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates with certain other fibres (method using cyclohexanone)*