INTERNATIONAL STANDARD

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Second edition
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Textiles — Quantitative chemical analysis —

Part 21: Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates with certain other fibres (method using cyclohexanone)

Textiles — Analyse chimique quantitative —

Partie 21: Mélanges de chlorofibres, certains modacryliques, certains élasthannes, acétates, triacétates avec certaines autres fibres (méthode à la cyclohexanone)

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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.

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 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 1833-21:2006), which has been technically revised. The main changes compared to the previous edition are as follows:

— the title has been changed from "Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates **and** certain other fibres…" to "Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates **with** certain other fibres**…**";

— in Clause 1 some remaining fibres have been added;

— the mandatory Clause 3 "Terms and definitions" has been added and the subsequent clauses have been renumbered;

— in Clause 7 (former Clause 6) tolerances have been added to the washing temperature;

— in Clause 8 (former Clause 7), a specific *d* factor for melamine and polyacrylate has been added;

— in Clause 9 (former 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 21: Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates with certain other fibres (method using cyclohexanone)

1 Scope

This document specifies a method, using cyclohexanone, to determine the mass percentage of chlorofibre, modacrylic, elastane, acetate and triacetate, after removal of non-fibrous matter, in textiles made of mixtures of

— acetate, triacetate, chlorofibre, certain modacrylics, certain elastanes

with

— wool, animal hair, silk, cotton, cupro, modal, viscose, lyocell, polyamide, acrylic, melamine, polyacrylate and glass fibres.

It is also possible to analyse mixtures containing chlorofibres by using the test methods described in ISO 1833-13 or ISO 1833-17.

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 acetate and triacetate fibres, chlorofibres, certain modacrylics, and certain elastanes are dissolved out from a known dry mass with cyclohexanone at a temperature close to boiling point. 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, modacrylic, elastane, acetate and triacetate are found by the difference.

5 Reagents

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

5.1 Cyclohexanone.

NOTE The boiling point of cyclohexanone is at 156 °C.

5.2 Ethanol, 50 % by volume with water.

SAFETY PRECAUTIONS — Cyclohexanone is flammable and toxic. Suitable precautions shall be taken in its use.

6 Apparatus

Use the apparatus described in ISO 1833-1 together with those given in 6.1 to 6.5.

6.1 Hot extraction apparatus (see Annex A).

NOTE This is a variant of the apparatus described in Reference [5].

6.2 Filter crucible, to contain the specimen.

6.3 Porous baffle (porosity grade 1), flat circular stopper of glass with a glass filter in the middle.

The stopper is placed over the glass filter crucible.

6.4 Reflux condenser, that can be adapted to the distillation flask.

6.5 Heating device, suitable for the hot extraction apparatus (6.1) and for boiling point of cyclohexanone (5.1).

7 Procedure

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

Where modacrylics or elastanes are present, a preliminary test should be carried out to determine whether the fibre is completely soluble in the reagent.

Pour into the distillation flask 100 ml of cyclohexanone (5.1) per gram of material.

Insert the extraction container in which the filter crucible (6.2), containing the specimen and the porous baffle (6.3), slightly inclined, have previously been placed. Insert the reflux condenser (6.4). Bring to the boil and continue extraction for 60 min at a minimum rate of 12 cycles per hour.

After extraction and cooling remove the extraction container, take out the filter crucible and remove the porous baffle.

Wash the contents of the filter crucible three or four times with 50 % ethanol heated to (60 ± 2) °C and subsequently with 1 l of water at (60 ± 2) °C.

Do not apply suction during or between the washing operations. Allow the liquid to drain under gravity and then apply suction.

Finally, dry the crucible (6.2) with the residue, then cool and weigh them.

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 with the following exceptions:

— silk and melamine, d = 1,01;

— polyacrylate, d = 1,02;

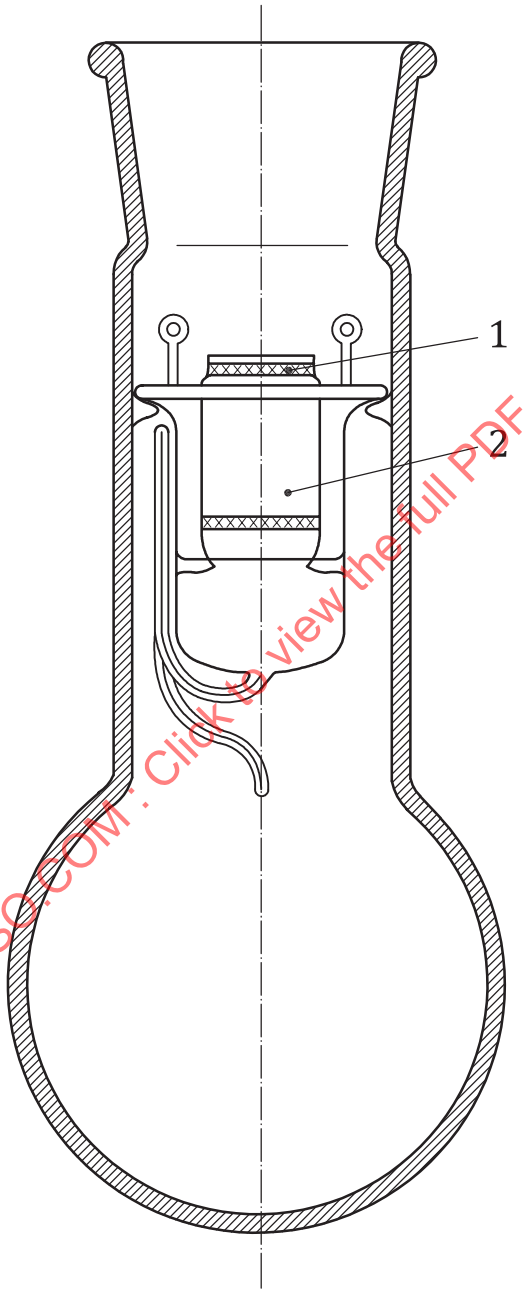
— acrylic, d = 0,98.

9 Precision

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

Annex A
(informative)

Hot extraction apparatus



Key

1 porous baffle
2 filter crucible

Figure A.1 — Hot extraction apparatus