
**Textiles — Quantitative chemical
analysis —**

Part 6:

**Mixtures of viscose, certain types of
cupro, modal or lyocell with certain
other fibres (method using formic acid
and zinc chloride)**

Textiles — Analyse chimique quantitative —

*Partie 6: Mélanges de viscose, certains types de cupro, modal ou
lyocell avec certaines autres fibres (méthode à l'acide formique et au
chlorure de zinc)*



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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 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 1833-6:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

- the title has been changed from “Mixtures of viscose or certain types of cupro or modal or lyocell **and** cotton fibres...” to “Mixtures of viscose, certain types of cupro, modal or lyocell **with** certain other fibres...”;
- in [Clause 1](#), the list of fibres has been updated;
- [Clause 3](#) (Terms and definitions) has been added;
- in [5.1](#), additional instruction in case of the use of zinc chloride other than fused anhydrous zinc chloride has been added;
- in [Clause 7](#), the testing temperature of 40 °C has been removed and changed to 70 °C, and the neutralisation stage has been detailed;
- in [Clause 8](#), a specific d-factor for melamine has been added;
- in [Clause 9](#), “percentage point” to avoid confusion has been added.

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 6:

Mixtures of viscose, certain types of cupro, modal or lyocell with certain other fibres (method using formic acid and zinc chloride)

WARNING — This document calls for the use of substances/procedures that may be injurious to the health/environment if appropriate conditions are not observed. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety/environment at any stage.

1 Scope

This document specifies a method, using a mixture of formic acid and zinc chloride, to determine the mass percentage of viscose, certain types of cupro, modal or lyocell, after removal of nonfibrous matter, in textiles made of mixtures of

— viscose, certain types of cupro, modal or lyocell,

with

— cotton.

This document has been initially specifically established for mixtures of viscose, certain types of cupro, modal or lyocell with cotton, it is also applicable to mixtures with polypropylene, elastolefin and melamine.

IMPORTANT — If a cupro or modal or lyocell fibre is found to be present, a preliminary test is carried out to see whether it is soluble in the reagent.

The method is not applicable to mixtures in which the cotton has suffered extensive chemical degradation. It is not applicable when the viscose, cupro, modal or lyocell fibre is rendered incompletely soluble by the presence of certain permanent finishes or reactive dyes that cannot be removed completely.

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 viscose, cupro, modal or lyocell fibre is dissolved out from a known dry mass of the mixture, with a reagent composed of formic acid and zinc chloride. The residue is collected, washed, dried and weighed; its corrected mass is expressed as a percentage of the dry mass of the mixture. The percentage of viscose, cupro, modal or lyocell fibre is found by difference.

5 Reagents

Use the reagents described in ISO 1833-1, together with those specified in [5.1](#) and [5.2](#).

5.1 Formic acid/zinc chloride reagent.

Prepare a solution containing 20 g of anhydrous zinc chloride (minimum assay to be $\geq 98\%$) and 68 g of anhydrous formic acid, made up to 100 g with water.

If zinc chloride other than fused anhydrous zinc chloride is used, then the fibre solubility shall be checked.

5.2 Ammonia, dilute solution.

Dilute 20 ml of concentrated ammonia solution (ρ 0,880 g/ml at 20 °C) to 1 l with water.

6 Apparatus

Use the apparatus described in ISO 1833-1, together with those described in [6.1](#) and [6.2](#).

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

6.2 Heating apparatus, suitable for maintaining the temperature of the flask at (70 ± 2) °C.

7 Test procedure

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

Place the specimen without delay in the conical flask preheated to 70 °C. Add 100 ml of formic acid/zinc chloride reagent per gram of specimen, preheated to 70 °C. Stopper the flask and shake it vigorously.

Allow the flask and contents to remain at 70 °C for 20 min, shaking it twice during this time at about 5 min and about 15 min.

Filter the contents of the flask through the weighed filter crucible and transfer any fibres into the crucible by washing the flask with the reagent. Rinse with a further 20 ml of reagent, preheated to 70 °C.

Wash the crucible and residue thoroughly with water at 70 °C.

Place the crucible containing the residue in 100 ml of cold ammonia solution in a 250 ml beaker, ensuring that the residue remains totally immersed in the solution for about 10 min and carefully loosening the fibres with a glass rod. Drain the crucible by suction.

Rinse thoroughly with cold water. Do not apply suction until each washing liquor has drained under gravity.

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