

Textiles - Quantitative chemical analysis - Part 22:  
Mixtures of viscose or certain types of cupro or modal  
or lyocell with flax fibres (method using formic acid  
and zinc chloride) (ISO 1833 22:2020)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 1833-22:2021 sisaldab Euroopa standardi EN ISO 1833-22:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 1833-22:2021 consists of the English text of the European standard EN ISO 1833-22:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.08.2021.	Date of Availability of the European standard is 04.08.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 59.060.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation: Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

Textiles - Quantitative chemical analysis - Part 22:  
Mixtures of viscose or certain types of cupro or modal or  
lyocell with flax fibres (method using formic acid and zinc  
chloride) (ISO 1833 22:2020)

Textiles - Analyse chimique quantitative - Partie 22:  
Mélanges de viscose ou de certains types de cupro,  
modal ou lyocell avec des fibres de lin (méthode à  
l'acide formique et au chlorure de zinc) (ISO 1833-  
22:2020)

Textilien - Quantitative chemische Analysen - Teil 22:  
Mischungen aus Viskose oder bestimmten Arten von  
Cupro-, Modal- oder Lyocellfasern mit Flachsfasern  
(Ameisensäure-/Zinkchlorid-Verfahren) (ISO 1833-  
22:2020)

This European Standard was approved by CEN on 14 December 2020.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## European foreword

This document (EN ISO 1833-22:2021) has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with Technical Committee CEN/TC 248 "Textiles and textile products" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2022, and conflicting national standards shall be withdrawn at the latest by February 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 1833-22:2013.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN websites.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 1833-22:2020 has been approved by CEN as EN ISO 1833-22:2021 without any modification.

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>1</b>
<b>5 Reagents and apparatus</b> .....	<b>2</b>
5.1 General.....	2
5.2 Reagent.....	2
5.3 Apparatus.....	2
<b>6 Test procedure</b> .....	<b>2</b>
6.1 General.....	2
6.2 Removal of the non-cellulosic components of the flax fibres.....	2
6.3 Dissolution of viscose, cupro, modal or lyocell fibre.....	2
<b>7 Calculation and expression of results</b> .....	<b>3</b>
7.1 Calculation of loss in mass during pre-treatment.....	3
7.2 Calculation of dry mass of after-transfer mixture corrected to its initial dry mass before pre-treatment.....	3
7.3 Calculation of dry masses of viscose or cupro or modal or lyocell and pretreated flax fibres.....	3
7.4 Calculation of the percentages of each component with agreed percentage additions for moisture.....	4
<b>8 Precision</b> .....	<b>4</b>

## 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](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 1833-22:2013), 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 flax fibres (method using formic acid and zinc chloride)” to “Mixtures of viscose or certain types of cupro or modal or lyocell with flax fibres (method using formic acid and zinc chloride)”;
- the warning has been removed (it is already mentioned in ISO 1833-1);
- [Clause 3](#) (Terms and definitions) has been added and subsequent clauses have been renumbered;
- in [5.2](#) (former 4.2), the sodium hydroxide solution has been removed (as listed in ISO 1833-1:2020);
- in [5.2.1](#), additional instruction in case of the use of zinc chloride other than fused anhydrous zinc chloride has been added;
- in [6.2](#) (former 5.2), the pre-treatment procedure has been replaced with a reference to ISO 1833-1:2020, A.5.25;
- in [5.3.2](#), the heating temperature of 40 °C has been removed and changed to 70 °C;
- in [6.3](#), the testing temperature of 40 °C has been removed and changed to 70 °C, and the neutralisation stage has been detailed;
- in [7.3](#), the d-factors for flax has been updated;
- in [Clause 8](#), “percentage point” has been added to avoid confusion;

- the former informative Annex A, related to proficiency testing results, has been removed as it was based on the former test method setting the testing temperature at 40 °C;
- the Bibliography has been removed.

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](http://www.iso.org/members.html).

# Textiles — Quantitative chemical analysis —

## Part 22:

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

### 1 Scope

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

- viscose or certain types of the cupro or modal or lyocell fibres
- with
- flax fibres.

This document is not applicable to mixtures in which the flax fibre has suffered extensive chemical degradation, nor 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 1833-1:2020, *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

After the removal of the non-cellulosic components (pectin, etc.) related to the flax fibre internal structure by means of pre-treatment with sodium hydroxide, the viscose, cupro or 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 mass percentage of viscose, cupro, modal or lyocell fibre is found by difference.

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