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**Textiles — Qualitative and  
quantitative analysis of some cellulose  
fibres (lyocell, cupro) and their  
blends —**

**Part 2:  
Blend quantification using light  
microscopy method**

*Textiles — Analyses qualitative et quantitative de certaines fibres  
cellulosiques (lyocell, cupro) et leurs mélanges —*

*Partie 2: Quantification du mélange par une méthode de  
microscopie optique*



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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](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*.

A list of all parts in the ISO 21915 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).

## Introduction

The qualitative and quantitative determination of fibres is important for the distribution of textile products. In many countries, it is legally obligatory for producers to attach information on the type of fibres used and their mixing ratio to textile products.

Therefore, it is desirable that qualitative methods of all fibres used in textile products and quantitative methods in the case where fibres are mixed (all combinations that can be assumed) exist as test standards.

Cupro and lyocell described in this document are regenerated fibres made from plants and can be said to be materials that contribute to a sustainable society in that raw materials are not derived from petroleum.

However, cupro and lyocell are difficult to qualify. Because the characteristics of appearance, chemical resistance, infrared spectroscopy (IR) spectrum, etc. are almost the same, the qualitative property according to ISO/TR 11827 and the quantification by the ISO 1833 series cannot be performed in some cases. That is, even if we know that unknown fibre is a cupro or lyocell, we cannot identify which one is.

Therefore, it is difficult to distinguish cupro or lyocell if the cupro or lyocell exists in the textile product or the possibility that cupro and lyocell are mixed completely cannot be denied.

ISO 21915 is composed of three parts. ISO 21915-1 specifies the identification method of cupro and lyocell by scanning electron microscope and infrared spectrum analysis. Those may be the time-consuming methods to use the composition analysis. This document and ISO 21915-3 specify methods for the composition analysis. The method to be used is determined by the instrument availability and experience.



# Textiles — Qualitative and quantitative analysis of some cellulose fibres (lyocell, cupro) and their blends —

## Part 2: Blend quantification using light microscopy method

### 1 Scope

This document specifies the quantitative analysis of cupro and lyocell mixtures using the microscopical analysis as described in ISO 20705 after re-dyeing cupro and lyocell mixtures.

This testing method is applied only for cupro and lyocell, or those blends. If other fibres are present, those are identified using the test method of ISO/TR 11827 and removed using the relevant parts of the ISO 1833 series.

This method is not applicable for the fibre surface is damaged during the process (e.g. chemically or physically).

### 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 (all parts), *Textiles — Quantitative chemical analysis*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 20705:2019, *Textiles — Quantitative microscopical analysis — General principles of testing*

ISO 21915-1, *Textiles — Qualitative and quantitative analysis of some cellulose fibres (lyocell, cupro) and their blends — Part 1: Fibre identification using scanning electron microscope and spectral analysis methods*

### 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

##### **cupro**

cellulose fibre obtained by the cuprammonium process

[SOURCE: ISO 2076:2013, 4.1]

#### 3.2

##### **lyocell**

cellulose fibre obtained by an *organic solvent* (3.3) *spinning process* (3.4)

[SOURCE: ISO 2076:2013, 4.2]