
**Textiles — Quantitative chemical
analysis —**

**Part 1:
General principles of testing**

Textiles — Analyses chimiques quantitatives —

Partie 1: Principes généraux des essais



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Principle	1
5	Reagents	1
6	Apparatus	2
7	Conditioning and testing atmosphere	2
8	Sampling and pre-treatment of sample	2
9	Procedure	3
10	Calculation and expression of results	4
11	Precision of the methods	5
12	Test report	6
Annex A (informative) Methods for the removal of non-fibrous matter		7
Annex B (informative) Method of quantitative analysis by manual separation		14

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 1833-1 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This first edition of ISO 1833-1 cancels and replaces ISO/TR 5090:1977 and partially revises ISO 1833:1977.

ISO 1833:1977 will be cancelled and replaced by ISO 1833-1, ISO 1833-3, ISO 1833-4, ISO 1833-5, ISO 1833-6, ISO 1833-7, ISO 1833-8, ISO 1833-9, ISO 1833-10, ISO 1833-11, ISO 1833-12, ISO 1833-13, ISO 1833-14, ISO 1833-15, ISO 1833-16, ISO 1833-17, ISO 1833-18 and ISO 1833-19.

ISO 1833 consists of the following parts, under the general title *Textiles — Quantitative chemical analysis*:

- *Part 1: General principles of testing*
- *Part 2: Ternary fibre mixtures*
- *Part 3: Mixtures of acetate and certain other fibres (method using acetone)*
- *Part 4: Mixtures of certain protein and certain other fibres (method using hypochlorite)*
- *Part 5: Mixtures of viscose, cupro or modal and cotton fibres (method using sodium zincate)*
- *Part 7: Mixtures of polyamide and certain other fibres (method using formic acid)*
- *Part 8: Mixtures of acetate and triacetate fibres (method using acetone)*
- *Part 9: Mixtures of acetate and triacetate fibres (method using benzyl alcohol)*
- *Part 10: Mixtures of triacetate or polylactide and certain other fibres (method using dichloromethane)*
- *Part 11: Mixtures of cellulose and polyester fibres (method using sulfuric acid)*
- *Part 12: Mixtures of acrylic, certain modacrylics, certain chlorofibres, certain elastanes and certain other fibres (method using dimethylformamide)*
- *Part 13: Mixtures of certain chlorofibres and certain other fibres (method using carbon disulfide/acetone)*

- *Part 14: Mixtures of acetate and certain chlorofibres (method using acetic acid)*
- *Part 15: Mixtures of jute and certain animal fibres (method by determining nitrogen content)*
- *Part 16: Mixtures of polypropylene fibres and certain other fibres (method using xylene)*
- *Part 17: Mixtures of chlorofibres (homopolymers of vinyl chloride) and certain other fibres (method using sulfuric acid)*
- *Part 18: Mixtures of silk and wool or hair (method using sulfuric acid)*
- *Part 19: Mixtures of cellulose fibres and asbestos (method by heating)*
- *Part 21: Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates and certain other fibres (method using cyclohexanone)*

The following parts are under preparation:

- *Part 6: Mixtures of viscose or certain types of cupro or modal or lyocell and cotton fibres (method using formic acid and zinc chloride)*
- *Part 20: Mixtures of elastane and certain other fibres (method using dimethylacetamide)*
- *Part 22: Mixtures of viscose or certain types of cupro or modal or lyocell and flax fibres (method using formic acid and zinc chlorate)*
- *Part 23: Mixtures of polyethylene and polypropylene (method using cyclohexanone)*
- *Part 24: Mixtures of polyester and some other fibres (method using phenol and tetrachloroethane)*

Introduction

In general, the methods described in the different parts of ISO 1833 are based on the selective solution of an individual component. After the removal of a component, the insoluble residue is weighed, and the proportion of soluble component is calculated from the loss in mass. This part of ISO 1833 gives the information which is common to the analyses, by this method, of all fibre mixtures, whatever their composition. This information should be used in conjunction with the other parts of ISO 1833; these parts contain the detailed procedures applicable to particular fibre mixtures. Where, occasionally, an analysis is based on a principle other than selective solution, full details are given in the appropriate part.

Mixtures of fibres during processing and, to a lesser extent, finished textiles may contain fats, waxes or dressings, either occurring naturally or added to facilitate processing. Salts and other water-soluble matter may also be present. Some or all of these substances would be removed during analysis, and calculated as the soluble-fibre component. To avoid this error, non-fibrous matter should be removed before analysis. A method of pre-treatment for removing oils, fats, waxes and water-soluble matter is given in Annex A of this part of ISO 1833.

In addition, textiles may contain resins or other matter added to bond the fibres together or to confer special properties, such as water-repellence or crease resistance.

Such matter, including dyestuffs in exceptional cases, may interfere with the action of the reagent on the soluble component and/or it may be partially or completely removed by the reagent. This type of added matter may also cause errors and should be removed before the sample is analysed. If it is impossible to remove such added matter, the methods of analysis are no longer applicable. Dye in dyed fibres is considered to be an integral part of the fibre and is not removed.

Most textile fibres contain water, the amount depending on the type of fibre and on the relative humidity of the surrounding air. Analyses are conducted on the basis of dry mass, and a procedure for determining the dry mass of test specimens and residues is given in this part of ISO 1833. The result is therefore obtained on the basis of clean, dry fibres.

Provision is made for recalculating the result on the basis of

- a) agreed allowances for moisture content¹⁾,
- b) agreed allowances for moisture and also for
 - 1) fibrous matter removed in the pre-treatment, and
 - 2) non-fibrous matter (for example, fibre dressing, processing oil, or size) that can be properly regarded as part of the fibre as an article of commerce.

In some methods, the insoluble component of a mixture may be partially dissolved in the reagent used to dissolve the soluble component. Where possible, reagents have been chosen that have little or no effect on the insoluble fibres. If loss in mass is known to occur during the analysis, the result should be corrected; correction factors for this purpose are given. These correction factors have been determined in several laboratories by treating, in the appropriate reagent as specified in the method of analysis, fibres cleaned by the pre-treatment. These correction factors apply only to undegraded fibres, and different correction factors may be necessary if the fibres have been degraded during processing.

1) The values to use are the conventional conditioning rates for the respective fibres, when rates exist.

The procedures given apply to single determinations; at least two determinations on separate test specimens should be made, but more may be carried out if desired. Before proceeding with any analysis, all the fibres present in the mixture should have been identified. For confirmation, unless it is technically impossible, it is recommended that use be made of alternative procedures whereby the constituent that would be the residue in the standard method is dissolved out first.

If it is practicable to separate the components of a mixture manually, the method described in Annex B should be used in preference to the chemical methods of analysis given in the individual parts of ISO 1833.

This document is a preview generated by EVS

This document is a preview generated by EVS

Textiles — Quantitative chemical analysis —

Part 1: General principles of testing

1 Scope

This part of ISO 1833 specifies a common method for the quantitative chemical analysis of various binary mixtures of fibres. This method and the methods described in the other parts of ISO 1833 are applicable, in general, to fibres in any textile form. Where certain textile forms are excepted, these are listed in the scope of the appropriate part.

2 Normative references

The following referenced documents are indispensable for the application 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 5089, *Textiles — Preparation of laboratory test samples and test specimens for chemical testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

non-fibrous matter

processing aids such as lubricants and sizes (but excluding jute-batching oils), and naturally occurring non-fibrous substances

4 Principle

After the identification of the components of a mixture, one component is removed, usually by selective solution, the insoluble residue is weighed, and the proportions of soluble component are calculated from the loss in mass. Where relevant, the fibre in the larger proportion is removed first.

5 Reagents

Use only reagents of recognized analytical grade.

5.1 Light petroleum, re-distilled, distilling between 40 °C and 60 °C.

5.2 Distilled or deionized water.