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Textiles — Quantitative chemical analysis —

Part 25: Mixtures of polyester with certain other fibres (method using trichloroacetic acid and chloroform)

Textiles — Analyse chimique quantitative —
Partie 25: Mélanges de polyester avec certaines autres fibres (méthode à l'acide trichloracétique et au chloroforme)

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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).

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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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textile 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 1833-25:2013), which has been technically revised.

The main changes compared to the previous editions are as follows:

— the title has been changed from “Mixtures of polyester **and** certain other fibres…” to “Mixtures of polyester **with** certain other fibres…”;

— in the introduction, explanations have been added;

— in the scope, remaining fibres have been named;

— the mandatory Clause 3, Terms and definitions, has been added;

— in Clause 8 (former Clause 7) a specific *d* factor for polyacrylate has been added.

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.

Introduction

Chloroform is said to be harmful for operators. Safety is secured by strict operation according to safety regulations or precautions. However, alternative methods intended for the dissolution of polyester are given References [1] and [2].

With quantitative analysis of fibre mixtures, polyester is usually the remaining fibre and the other fibres are dissolved.

The method described in this document is useful when the other fibres are insoluble in the usual solvents.

Textiles — Quantitative chemical analysis —

Part 25: Mixtures of polyester with certain other fibres (method using trichloroacetic acid and chloroform)

WARNING — This document calls for the use of substances/procedures that may be harmful 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 trichloroacetic acid and chloroform to determine the mass percentage of polyester fibres after removal of non-fibrous matter, in textiles made of mixtures of

— polyester fibres

with

— aramid fibres (except polyamide imide), flame retardant (FR) viscose and polyacrylate.

2 Normative references

The following document is referred to in the text in such a way that some or all of its 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 polyester fibre is dissolved out from a known dry mass of the mixture, with a reagent composed of trichloroacetic acid and chloroform. 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 polyester is found by difference.

5 Reagents

Use the reagents described in ISO 1833-1, together with those specified in 5.1, 5.2 and 5.3.

5.1 Solution of crystallized trichloroacetic acid/chloroform reagent, prepared at a mass ratio 1:1.

SAFETY PRECAUTIONS — The harmful effects of this reagent shall be borne in mind, and full precautions shall be taken during use.

5.2 Solution of 15 g of trichloroacetic acid filled up to 100 g with chloroform.

5.3 Chloroform.

6 Apparatus

Use the apparatus described in ISO 1833-1, together with that described in 6.1.

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

7 Test procedure

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

Place the specimen in the conical flask.

Add 50 ml of trichloroacetic acid/chloroform reagent (5.1) per gram of specimen.

Stopper the conical flask and shake it vigorously.

Allow the flask and contents to remain for 15 min, shaking it during this time at intervals.

Decant the liquid through the weighed filter crucible with suction.

Pour 100 ml of trichloroacetic acid/chloroform reagent (5.1) into the conical flask, decant the liquid through the filter crucible, and then transfer any residual fibres to the crucible by washing out the conical flask with the trichloroacetic acid/chloroform solution (5.2) followed by chloroform (5.3).

Drain the crucible with suction. Do not apply suction until the washing liquor has drained under gravity.

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

Check the residue under a microscope to see if the treatment completely eliminated the soluble fibre.

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 except for polyacrylate, for which d is 1,01.

9 Precision

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

Bibliography

[1] ISO 1833-24, *Textiles — Quantitative chemical analysis — Part 24: Mixtures of polyester and certain other fibres (method using phenol and tetrachloroethane)*

[2] AATCC *Fiber Analysis: Quantitative*