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Textiles — Quantitative chemical analysis —

Part 12: Mixtures of acrylic, certain modacrylics, certain chlorofibres, certain elastane fibres with certain other fibres (method using dimethylformamide)

Textiles — Analyse chimique quantitative —

Partie 12: Mélanges d'acrylique, certains modacryliques, certaines chlorofibres, certains élasthannes avec certaines autres fibres (méthode au diméthylformamide)

Reference number
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Foreword

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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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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 third edition cancels and replaces the second edition (ISO 1833-12:2019), which has been technically revised. The main changes compared to the previous edition are as follows:

— in Clause 1, some remaining fibres (polypropylene and polypropylene/polyamide bicomponent have been added;

— in Clause 8, a specific *d* factor for polyacrylate 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.

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Textiles — Quantitative chemical analysis —

Part 12: Mixtures of acrylic, certain modacrylics, certain chlorofibres, certain elastane fibres with certain other fibres (method using dimethylformamide)

1 Scope

This document specifies a method, using dimethylformamide, to determine the mass percentage of acrylic, modacrylic, chlorofibre or elastane, after removal of non-fibrous matter, in textiles made of mixtures of

— acrylic, certain modacrylics, certain chlorofibres, certain elastane fibres

with

— wool, animal hair, silk, cotton, viscose, cupro, modal, lyocell, polyamide, polyester, polypropylene, elastomultiester, elastolefin, melamine, polypropylene/polyamide bicomponent, polyacrylate or glass fibres.

It is not applicable to animal hair, wool and silk dyed with chromium based mordant dyes.

NOTE Dyestuff identification is described in ISO 16373-1.

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 acrylic, modacrylic, chlorofibre or elastane is dissolved out from a known dry mass of the mixture, with dimethylformamide at 90 °C to 95 °C. 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, and the percentage of acrylic, modacrylic, chlorofibre or elastane is found by the difference.

Where certain modacrylic fibres, certain chlorofibres or certain elastane fibres are present, a preliminary test shall be carried out to determine whether the fibre is completely soluble in the reagent.

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It is also possible to analyse mixtures containing certain elastane fibres by using the test methods described in ISO 1833-20 or ISO 1833-21, depending on the solubility of elastane and on the other fibres present.

5 Reagents

Use the reagents described in ISO 1833-1 together with that given in 5.1.

5.1 Dimethylformamide, not containing more than 0,1 % water.

NOTE The boiling point is between 152 °C to 154 °C.

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

6 Apparatus

Use the apparatus described in ISO 1833-1 together with those given in 6.1 and 6.2.

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

6.2 Water bath, suitable for maintaining the water temperature between 90 °C to 95 °C.

7 Test procedure

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

Add 100 ml of dimethylformamide per gram of specimen to the specimen in the conical flask. Insert the stopper, shake the flask to wet out the specimen and heat the flask for 1 h in a water bath at 90 °C to 95 °C.

Shake the flask and contents gently by hand at intervals of about 10 min five times during this period.

Decant the liquid through a weighed filter crucible, retaining the fibres in the flask.

Add a further 60 ml of dimethylformamide to the flask and heat it for 30 min in the water-bath at a temperature between 90 °C and 95 °C, shaking the flask and contents gently by hand at intervals of about 10 min during this period. Filter the contents of the flask through the filter crucible using suction. Transfer any residual fibres to the crucible by washing out the flask with dimethylformamide. Drain the crucible using suction.

Wash the residue with about 1 l of hot water at 70 °C to 80 °C, filling the crucible each time.

After each addition of water, apply suction briefly but not until the water has drained under gravity. If the washing liquor drains through the crucible too slowly, slight suction may be applied.

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

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 in the case of wool, cotton, viscose, cupro, modal, lyocell, polyamide, polyester, elastomultiester melamine and polyacrylate, for which the value of d is 1,01.

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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 %.

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Bibliography

[1] ISO 1833-20, *Textiles — Quantitative chemical analysis — Part 20: Mixtures of elastane with certain other fibres (method using dimethylacetamide)*

[2] ISO 1833-21, *Textiles — Quantitative chemical analysis — Part 21: Mixtures of chlorofibres, certain modacrylics, certain elastanes, acetates, triacetates with certain other fibres (method using cyclohexanone)*

[3] ISO 16373-1, *Textiles — Dyestuffs — Part 1: General principles of testing coloured textiles for dyestuff identification*

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