INTERNATIONAL STANDARD

ISO 1833-12

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Textiles — Quantitative chemical analysis —

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

Textiles — Analyse chimique quantitative —

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

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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.

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 1833-12 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This first edition of ISO 1833-12 cancels and replaces Clause 11 of 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 polyesteer and some other fibres (method using phenol and tetrachloroethane)*

Textiles — Quantitative chemical analysis —

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

1 Scope

This part of ISO 1833 specifies a method, using dimethylformamide, to determine the percentage of acrylic, modacrylic, chlorofibre or elastane, after removal of non-fibrous matter, in textiles made of binary mixtures of

— acrylic, certain modacrylics, certain chlorofibres, certain elastanes

and

— animal fibres, cotton (scoured, kiered or bleached), viscose, cupro, modal, polyamide, polyester or glass fibres.

It is applicable to animal hair, wool and silk dyed with pre-metallized dyes, but not to those dyed with after-chrome dyes.

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 1833-1, *Textiles — Quantitative chemical analysis — Part 1: General principles of testing*

3 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.

4 Reagents

Use the reagents described in ISO 1833-1 together with that given in 4.1.

4.1 Dimethylformamide, boiling point 152 °C to 154 °C.

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

5 Apparatus

Use the apparatus described in ISO 1833-1 together with those given in 5.1 and 5.2.

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

5.2 Heating apparatus, suitable for maintaining the temperature of the flask within the limits 90 °C to 95 °C.

6 Test procedure

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

To the specimen contained in the conical flask, add 150 ml of dimethylformamide per gram of specimen. Insert the stopper, shake the flask to wet out the specimen and heat the flask for 1 h at 90 °C to 95 °C.

If there are difficulties in dissolving the acrylic portion of the specimen completely, add an extra volume of 50 ml of dimethylformamide.

Shake the flask and contents gently by hand 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 at 90 °C to 95 °C, shaking the flask and contents gently by hand twice 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 water. Drain the crucible using suction.

Wash the residue twice with hot water by filling the crucible, allowing it to drain under gravity, and then drain using suction. If the residue consists of polyamide or polyester fibre, dry the crucible and residue, then cool and weigh them. If the residue consists of animal fibre, cotton, viscose, cupro or modal fibre, transfer it with forceps to a 200 ml glass-stoppered flask, add 160 ml of water and allow the flask to stand for 5 min at room temperature, shaking the flask and contents vigorously at intervals.

Decant the water through the crucible and repeat this washing process three more times. After the last wash, filter the contents of the flask through the crucible using suction.

Transfer any residual fibres to the crucible by washing out the flask with water.

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

7 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 following cases:

polyamide	1,01
wool	1,01
scoured, kiered or bleached cotton	1,01
viscose, cupro, modal	1,01
polyester	1,01

8 Precision

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

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