INTERNATIONAL STANDARD

ISO 1833-11

First edition
2006-06-01

Textiles — Quantitative chemical analysis —

Part 11: Mixtures of cellulose and polyester fibres (method using sulfuric acid)

Textiles — Analyse chimique quantitative —
Partie 11: Mélanges de fibres de cellulose et de polyester (méthode à l'acide sulfurique)

Reference number
ISO 1833-11:2006(E)

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Published in Switzerland

Foreword

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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 1833-11 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This first edition of ISO 1833-11 cancels and replaces Clause 10 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 polyester and some other fibres (method using phenol and tetrachloroethane)*

Textiles — Quantitative chemical analysis —

Part 11:
Mixtures of cellulose and polyester fibres (method using sulfuric acid)

1 Scope

This part of ISO 1833 specifies a method, using sulfuric acid, to determine the proportion of cellulose fibre, after removal of non-fibrous matter, in textiles made of mixtures of

— natural and regenerated cellulose fibres

and

— polyester fibre.

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 cellulose fibre is dissolved out from a known dry mass of the mixture, with 75 % (mass fraction) sulfuric acid. The residue is collected, washed, dried and weighed; its mass is expressed as a percentage of the dry mass of the mixture. The proportion of cellulose fibre is found by the difference.

4 Reagents

Use the reagents described in ISO 1833-1 together with those given in 4.1 and 4.2.

4.1 Sulfuric acid, 75% (mass fraction).

A suitable reagent can be prepared by adding carefully, while cooling, 700 ml of concentrated sulfuric acid (ρ 1,84 g/ml) to 350 ml of distilled water. After the solution has cooled to room temperature, dilute it to 1 l with water. The concentration is not critical within the range 73 % to 77 % (mass fraction) sulfuric acid.

4.2 Ammonia, dilute solution.

Dilute 80 ml of concentrated ammonia solution (ρ 0,880 g/ml) to 1 l with water.

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 500 ml, glass-stoppered.

5.2 Heating apparatus suitable for maintaining the temperature of the flask at (50 ± 5) °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 200 ml of sulfuric acid per gram of specimen. Insert the stopper and shake the flask carefully to wet out the specimen. Maintain the flask at (50 ± 5) °C for 1 h, shaking the flask and contents gently at intervals of about 10 min.

Filter the contents of the flask through the weighed filter crucible using suction. Transfer any residual fibres to the crucible by washing out the flask with a little more sulfuric acid.

Drain the crucible using suction, and wash the residue on the filter once by filling the crucible with a fresh portion of sulfuric acid. Do not apply suction until the crucible has drained under gravity or stood for 1 min.

Wash the residue successively several times with cold water, twice with dilute ammonia solution, and then thoroughly with cold water, draining the crucible using suction after each addition. Do not apply suction until each washing liquor has drained under gravity.

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.

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 %.

ICS 59.060.01

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