INTERNATIONAL STANDARD

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Textiles — Quantitative chemical analysis —

Part 5: Mixtures of viscose, cupro or modal and cotton fibres (method using sodium zincate)

Textiles — Analyse chimique quantitative —

Partie 5: Mélanges de viscose, cupro ou modal et de fibres de coton (méthode au zincate de sodium)

Reference number
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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 1833-5 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This first edition of ISO 1833-5 cancels and replaces Clause 4 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 5:
Mixtures of viscose, cupro or modal and cotton fibres (method using sodium zincate)

1 Scope

This part of ISO 1833 specifies a method, using sodium zincate, to determine the percentage of viscose, cupro or modal fibre, after removal of non-fibrous matter, in textiles made of binary mixtures of

— viscose or most of the current cupro or modal fibres

and

— raw, scoured, kiered or bleached cotton.

Where a cupro or modal fibre is present, a preliminary test should be carried out to see whether it is soluble in the reagent.

The method is not applicable to mixtures in which the cotton has suffered extensive chemical degradation, nor when the viscose, cupro or modal fibre is rendered incompletely soluble by the presence of certain permanent finishes or reactive dyes that cannot be removed completely.

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 viscose, cupro or modal fibre is dissolved from a known dry mass of the mixture, with sodium zincate solution. The residue is collected, washed, dried and weighed; its corrected mass is expressed as a percentage of the dry mass of the mixture. The percentage of viscose, cupro or modal fibre is found by the difference.

4 Reagents

Use the reagents described in ISO 1833-1 together with those given in 4.1, 4.2, 4.3 and 4.4.

4.1 Sodium zincate (stock solution).

Determine the NaOH content of sodium hydroxide pellets and dissolve the equivalent of 180 g of NaOH in 180 ml to 200 ml of water.

Stir the solution continuously with a mechanical stirrer, and add gradually 80 g of zinc oxide of analytical reagent quality, at the same time gradually heating the solution. When all the zinc oxide has been added, heat the solution until it boils gently; continue boiling the solution until it becomes clear or only slightly turbid, then cool it, add 20 ml of water, stir thoroughly, cool to room temperature, and make up to 500 ml with water in a graduated flask. Filter the solution through a sintered glass filter, with pore size 40 µm to 90 µm, before use.

4.2 Sodium zincate, dilute solution (working solution).

To 1 volume (accurately measured) of stock sodium zincate solution add, while stirring, 2 volumes of water. Mix thoroughly, and use within 24 h of preparation.

4.3 Ammonia, dilute solution.

Dilute 200 ml of concentrated ammonia solution ($\rho = 0{,}880$ g/ml) to 1 l with water.

4.4 Acetic acid, dilute solution.

Dilute 50 ml of glacial acetic acid to 1 l with water.

5 Apparatus

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

5.1 Mechanical shaker.

5.2 Mechanical stirrer.

5.3 Conical flask, minimum capacity 500 ml, glass-stoppered.

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 freshly prepared dilute sodium zincate solution per gram of specimen.

Insert the stopper and shake the flask vigorously on the mechanical shaker for (20 ± 1) min.

Filter the contents of the flask through the weighed filter crucible. Apply suction to the crucible to remove excess liquor, again replace the residue in the flask by means of forceps, add 100 ml of ammonia solution, and shake the flask for 5 min on the mechanical shaker.

Filter the contents of the flask through the same weighed filter crucible and wash any fibres from the flask into the crucible with water.

Wash the crucible and residue with 100 ml of acetic acid solution, and then thoroughly with water. 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 for raw, scoured, kiered, or bleached cotton is 1,02.

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