INTERNATIONAL STANDARD

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Textiles — Quantitative chemical analysis —

Part 17: Mixtures of chlorofibres (homopolymers of vinyl chloride) and certain other fibres (method using sulfuric acid)

Textiles — Analyse chimique quantitative —

Partie 17: Mélanges de chlorofibres (homopolymères de chlorure de vinyle) et de certaines autres fibres (méthode à l'acide sulfurique)

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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 1833-17 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This first edition of ISO 1833-17 cancels and replaces Clause 16 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 17: Mixtures of chlorofibres (homopolymers of vinyl chloride) and certain other fibres (method using sulfuric acid)

1 Scope

This part of ISO 1833 specifies a method, using sulfuric acid, to determine the percentage of chlorofibres, after removal of non-fibrous material, in textiles made of binary mixtures of

— chlorofibres based on homopolymers of vinyl chloride (after-chlorinated or not)

and

— cotton, viscose, cupro, modal, acetate, triacetate, polyamide, polyester, certain acrylic and certain modacrylic fibres. [The modacrylics concerned are those which give a limpid solution when immersed in concentrated sulfuric acid (ρ = 1,84 g/ml).]

This method can be used, particularly in place of the methods described in ISO 1833-12 and ISO 1833-13, in all cases where a preliminary test shows that the chlorofibres do not dissolve completely either in dimethylformamide or in the azeotropic mixture of carbon disulfide and acetone.

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 constituent other than the chlorofibre is dissolved from a known dry mass of the mixture with concentrated sulfuric acid (ρ = 1,84 g/ml). The residue, consisting of the chlorofibre, 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 the second constituent is obtained by the difference.

4 Reagents

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

4.1 Sulfuric acid, concentrated (ρ = 1,84 g/ml).

4.2 Sulfuric acid, 50 % (mass fraction) aqueous solution.

Prepare this reagent by adding carefully, while cooling, 400 ml of sulfuric acid (4.1) to 500 ml of distilled water. After cooling this solution to room temperature, dilute the solution to 1 l with water.

4.3 Ammonia, dilute solution.

Dilute 60 ml of concentrated ammonia solution ($\rho = 0{,}880$ g/ml) to 1 l with distilled 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, of minimum capacity 200 ml, glass stoppered.

5.2 Glass rod, with flattened end.

6 Test procedure

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

To the specimen contained in the flask, add 100 ml of the sulfuric acid (4.1) per gram of specimen. Allow the contents of the flask to remain at room temperature for 10 min, and during that time, stir the test specimen occasionally by means of the glass rod.

If a woven or knitted fabric is being treated, wedge it between the wall of flask and the glass rod and exert a light pressure in order to separate the material dissolved by the sulfuric acid.

Decant the liquid through the weighed filter crucible. Add a fresh portion of 100 ml of the sulfuric acid (4.1) to the flask and repeat the same operation.

Transfer the contents of the flask to the filter crucible, and transfer the fibrous residue there with the aid of the glass rod. If necessary, add a little concentrated sulfuric acid (4.1) to the flask in order to remove any fibres adhering to the wall.

Drain the filter crucible using suction. After emptying or changing the filter-flask, wash the residue in the crucible successively with the 50 % sulfuric acid solution (4.2), the distilled or deionized water, the ammonia solution, and finally with the distilled or deionized water, draining the crucible using suction after each addition until the water drained from the crucible is neutral. Do not apply suction during the washing operation, but only after the liquid has drained through the crucible.

Finally, 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

For homogeneous mixtures of textile materials, the confidence limits of results obtained by this method are not greater than $\pm$ 1 for the confidence level of 95 %.