SLOVENSKI STANDARD
SIST EN 1162:2000

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Feather and down - Test methods - Determination of the oxygen index number

Feather and down - Test methods - Determination of the oxygen index number

Federn und Daunen - Prüfverfahren - Bestimmung der Sauerstoffzahl

Plumes et duvets - Méthodes d'essai - Mesure de l'indice d'oxygene

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English version

Feather and down - Test methods - Determination of the oxygen index number

Plumes et duvets - Méthodes d'essai - Mesure de l'indice d'oxygène

Federn und Daunen - Prüfverfahren - Bestimmung der Sauerstoffzahl

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 222 "Feather and down as filling material for any article, as well as finished articles filled with feather and down", the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1997, and conflicting national standards shall be withdrawn at the latest by February 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for determining the oxygen index number of feathers and down by means of a titration method.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 20139 Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973)

EN 20187 Paper, board and pulps - Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples (ISO 187:1990)

ISO 385-3 Laboratory glassware - Burettes - Part 3:Burettes for which a waiting time of 30 s is specified

ISO 648 Laboratory glassware - One-mark pipettes

ISO 835-3 Laboratory glassware - Graduated pipettes - Part 3:Pipettes for which a waiting time of 15 s is specified

ISO 3696 Water for analytical laboratory use - Specification and test methods

ISO 3819 Laboratory glassware - Beakers

ISO 4793 Laboratory sintered (fritted) filters - Porosity grading, classification and designation

3 Definitions

For the purposes of this standard the following definition applies:

oxygen index number (of feather and down): Quantity of oxidizable and soluble material present in the filtrate of the aqueous extract of the material. It provides an index of the cleanliness of the material being tested, and is expressed as milligrammes oxygen per 100 g of the individual sample.

4 Principle

The aqueous extract obtained at room temperature is titrated with a 0,02 mol/l solution of potassium permanganate.

5 Reagents

5.1 Water Grade 3 in accordance with ISO 3696

5.2 3 mol/l sulfuric acid

5.3 0,02 mol/l potassium permanganate

6 Apparatus

6.1 Analytical balance (with sensitivity of 0,1 mg)

6.2 Tumbler jar, capacity 2000 ml

6.3 Beaker, capacity 2000 ml (in accordance with ISO 3819)

6.4 Beaker, capacity 400 ml (in accordance with ISO 3819)

6.5 Shaking machine with 150 shakes per min and with shaking swing of 40 mm or tumbling machine with 150 min^{-1}

6.6 Sintered (fritted) filter: pore size index P 160 (equal to G-1) 10 cm diameter (in accordance with ISO 4793)

6.7 One-mark pipette class A capacity 100 ml (in accordance with ISO 648)

6.8 Graduated pipette, capacity 5 ml (in accordance with ISO 835-3)

6.9 Microburette graduated in 0,02 ml (in accordance with ISO 385-3)

6.10 Stopwatch

7 Conditioning and testing

Test specimen of a representative part of the laboratory bulk sample shall be conditioned for a minimum period of 24 h in accordance with EN 20139 and the temperature and relative humidity shall be measured in accordance with EN 20187.

8 Procedure

8.1 A conditioned test specimen of mass of (10 ± 0,1) g shall be placed in the tumbler jar; after adding 1000 ml of water (5.1), the jar shall be tumbled at room temperature for at least 60 min.

8.2 The resulting suspension shall be filtered through the P 160 sintered filter into the 2000 ml beaker (6.3); do not squeeze excess water from the feathers.

8.3 With the pipette transfer 100 ml of the filtrate into a 400 ml beaker, add 3 ml of 3 mol/l sulphuric acid and titrate with 0,02 mol/l potassium permanganate, adding

approximately 0,02 ml at a time until a pink colour persists for 60 s.

8.4 A blank test of 100 ml water (5.1) shall be mixed with 3 ml of 3 mol/l sulfuric acid and titrated with 0,02 mol/l potassium permanganate, adding approximately 0,02 ml at a time until a pink colour persists for 60 s.

8.5 Repeat the test on another test specimen at least.

9 Expression of results.

The oxygen index number is calcuated as follows:

$$I = 80 \times (A - B)$$

where:

I is the oxygen index number;

A is the quantity of 0,02 mol/l potassium permanganate used for the test specimen, in milliliter;

B is the quantity of 0,02 mol/l potassium permanganate used for the blank test, in milliliter.

Calculate the mean of the two determinations with the approximation to the nearest integer.

10 Test report.

The test report shall include at least the following information:

- the reference to this standard;

- date and place of testing;

- identification mark of the individual sample tested;

- the arithmetic mean result to the nearest integer in accordance with clause 9;

- any departure from the procedure and any other circumstances (for example the presence of antistatic agent) that can have affected the result.