SLOVENSKI STANDARD
SIST EN 1165:2000

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Feather and down - Test methods - Determination of water-soluble chlorides

Feather and down - Test methods - Determination of water-soluble chlorides

Federn und Daunen - Prüfverfahren - Bestimmung von wasserlöslichen Chloriden

Plumes et duvets - Méthodes d'essai - Détermination des chlorures solubles dans l'eau

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English version

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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of an identical text or by endorsement, at the latest by February 1997, and conflicting national standards shall be withdrawn at the latest by February 1997.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 water-soluble chloride content of feathers and down.
The techniques involved are not adequate for determining significant differences where the water-soluble chlorides found by this method are below 50 mg/kg.

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 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:

water-soluble chlorides content: It is the amount of chloride ions extracted and determined by means of a titration technique under conditions specified in this standard.

4 Principle

The test specimen is extracted with ambient temperature water for 1 h. The extract is filtered and its chloride ion concentration is determined by a titration technique with standard silver nitrate. To the aqueous extract at ambient temperature is added a small quantity of potassium chromate as an indicator.

5 Reagents

5.1 Water grade 2, conforming with ISO 3696

5.2 0,1 mol/l nitric acid

5.3 0,01 mol/l silver nitrate: to be stored in a brown bottle

5.4 phenolphthalein indicator, solution 1,0% of mass

5.5 potassium chromate, solution 3,9 g/l

5.6 sodium carbonate solution, 10,6 g/l

6 Apparatus

Glassware and other apparatus shall be clean. Boil flasks, beakers and funnels shall be cleaned in distilled water. Forceps and scissors for individual sample preparation shall be kept clean in the same way.

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

6.5 One-mark pipette, capacity 25 ml (in accordance with ISO 648)

6.6 Microburette, capacity 10 ml, graduated in 0,01 ml (in accordance with ISO 385-3)

6.7 Sintered (fritted) filter, pore size index P 100 (in accordance with ISO 4793) or chloride free medium paper filter

6.8 Glass funnel

6.9 Conical flasks, capacity 250 ml or 300 ml

6.10 Latex gloves or equivalent

6.11 Light source with wave length of 400-600 mm or yellow glasses

7. Preparation of the test specimen

7.1 Condition the laboratory bulk sample in accordance with EN 20139 and measure the temperature and relative humidity in accordance with EN 20187.

7.2 Clean protective gloves should be worn at all times when handling the individual sample and the test specimens prepared from it.

7.3 Cut the individual sample into pieces approximately 5 mm to 10 mm in size, and mix them thoroughly. Prepare two test specimens at least.

8. Procedure

8.1 For filling containing less than 150 mg/kg of chlorides, use a test specimen of 10 g or more. For filling containing more than 150 mg/kg use a test specimen of such mass that the chloride content concerned is not greater than 1,50 mg . The conditioned test specimens shall be weighed to an accuracy of 10 mg.

8.2 Place the individual sample in a tumbler jar, add 1 l of water (5.1) and tumble the jar at room temperature for at least 60 min.

8.3 The resulting suspension shall be filtered into the beaker; do not squeeze excess water from down and feather.

8.4 To 200 ml of the filtrate shall be added one drop of phenolphthalein indicator solution (5.4) and then add 0,1 mol/l nitric acid (5.2) from a measuring pipette until acid, then add sodium carbonate solution (5.6) until alkaline, plus three drops in excess.

8.5 Dropwise add nitric acid (5.2) to just discharge the pink colour.

8.6 Add 0,5 ml potassium chromate solution (5.5) and titrate with 0,01 mol/l silver nitrate (5.3) using a microburette. Add silver nitrate solution (5.3) until a reddish-brown tint is observed under a light source (6.11) or through yellow glasses.

8.7 Determine the amount of silver nitrate solution (5.3) necessary to titrate a blank to the same end point.

8.8 Repeat the procedure on a second test specimen.

9 Expression of results

The chloride content expressed as mass content in mg/kg is calculated as follows:

$$C = (A \times B/W) \times 1000$$

where:

C is the chloride content, in mg/kg;
A is the volume, in milliliters, of silver nitrate solution (5.3) consumed in the titration of the test solution, corrected for the blank;
B is the chloride equivalent of the silver nitrate solution (5.3);
W is the mass in grams of the conditioned test specimen.

NOTE: 1 ml 0,01 mol/l $AgNO_3$ is equivalent to 0,355 mg of chloride

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 informations:

- the reference to this standard;

- date and place of testing;

- identification mark of the individual sample tested;

- the arithmetic mean result of the content of water-soluble chlorides in milligrams per kilogram, and round off the result to the nearest integer;

- any deviations from the procedure and any other circumstances that can have affected the result.