



**SLOVENSKI STANDARD**  
**SIST EN 13543:2002**

**01-januar-2002**

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**Manufactured articles filled with feather and down - Measurement of water absorption of filling material**

Manufactured articles filled with feather and down - Measurement of water absorption of filling material

Fertigartikel gefüllt mit Federn und Daunen - Messung der Wasseraufnahme von Füllstoff

Articles manufacturés garnis avec des plumes et duvets - Mesure de l'absorption d'eau du matériau de garnissage

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**Ta slovenski standard je istoveten z: EN 13543:2001**

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**ICS:**

59.040 Pomožni materiali za tekstilije Textile auxiliary materials

**SIST EN 13543:2002**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13543**

October 2001

ICS 59.040

English version

## Manufactured articles filled with feather and down - Measurement of water absorption of filling material

Articles manufacturés garnis avec des plumes et duvets -  
Mesure de l'absorption d'eau du matériau de garnissage

Fertigartikel gefüllt mit Federn und Daunen - Messung der  
Wasseraufnahme von Füllstoff

This European Standard was approved by CEN on 11 August 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard has been prepared by 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 April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

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

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**EN 13543:2001 (E)****1 Scope**

This European standard describes a method to determine the absorption of water of a filling of feathers and downs. The absorption of water is defined by the capacity and the time of absorption.

**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 (including amendments).

EN 1883	Feather and down - Sampling in view of tests
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)
EN ISO 3696	Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)

**3 Terms and definitions**

For the purposes of this standard the following terms and definitions apply.

**3.1****time of absorption**

time required for the saturation of a test specimen in defined condition

**3.2****capacity of absorption**

mass of water, under specified conditions, in a fully saturated test specimen, expressed as a percentage of the mass of the conditioned test specimen

**3.3****constant mass**

mass reached when two consecutive weights are equivalent to the nearest gram

**4 Principle**

A given quantity of feather and down is placed in a bag of defined dimension. The bag is immersed in water for a specified period of time. After this period, the bag is put to drain and then weighed.

The procedure is repeated until constant mass (3.3).

**5 Reagent**

Water of grade 3, conforming with EN ISO 3696 to  $(20 \pm 2)^\circ\text{C}$

## 6 Apparatus

6.1 Tank of immersion having minimal dimensions 400 mm x 400 mm x 300 mm.

6.2 Polyester (or polyamide) carrier bags prepared after cut in a knit ladderproof chain, having a maximal mass of 50 g/m<sup>2</sup>. Dimensions of bags (120 ± 5) mm x (150 ± 5) mm. A small side and a face are left open. Bags are fitted with handles. Identify each bag by marking it by means of yarns and knots to the number of 1, 2, etc.

6.3 Bars of metal (in stainless steel) of length (350 ± 10) mm and having a minimal mass of 500 g.

6.4 Balance with an accuracy of 0,01 g

6.5 Chronometer

## 7 Sampling, conditioning and testing

7.1 Take the sample of test according to EN 1883

7.2 Conditioning and testing are undertaken according to EN 20139. The temperature and the relative humidity are measured according to EN 20187

## 8 Procedure

8.1 Fill the tank of immersion with water (clause 5) to a height of at least 200 mm.

8.2 Of the conditioned laboratory sample, take 4 test specimens of filling identified as a, b, c and d, each of

(10 ± 0,1) g and place them carefully in their bags by the unpicked side (6.2) marked 1, 2, 3 and 4. Close the bags by sewing. Weigh each bag containing the filling to the nearest 0,1 g.  $M_{1a}$ ,  $M_{1b}$ ,  $M_{1c}$ ,  $M_{1d}$  being these masses.

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8.3 Pass the bar of metal to the breadth of the handles. Place the bar on the bottom of the tank of immersion, with the result that bags float to the surface but remain under the level of the water and do not touch between them. Launch the chronometer for a duration of at least 60 min.

8.4 At the end of this period of time pull bags off the tank of immersion after having removed bars. Suspend bags to a thread in the standard atmosphere. Leave to drain during 30 min. Avoid to eliminate the excess bag water during the manipulation. Weigh bags containing the filling wetted to the nearest 0,1 g.  $M_{2a}$ ,  $M_{2b}$ ,  $M_{2c}$ , and  $M_{2d}$  being these masses

8.5 Repeat the procedure of immersion, drainage and weighing according to an equal time, until constant mass (3.3).

8.6 Examine each weighing result of the series  $M_{2(a, b, c, d)}$  and verify that differences of mass do not exceed 15%. If such was the case, resume tests at the beginning. If differences persist, record them, calculate them and indicate in the report of test the individual results by even of values ( $M_{1a}$ ,  $M_{2a}$ ;  $M_{1b}$ ,  $M_{2b}$ ;  $M_{1c}$ ,  $M_{2c}$ ;  $M_{1d}$ ,  $M_{2d}$ ). See clause 9

8.7 Record the immersion time necessary to obtain the constant mass

## 9 Expression of results

9.1 Calculate the quantity of water retained according to the formula

$$M = (M_{2a} + M_{2b} + M_{2c} + M_{2d}) - (M_{1a} + M_{1b} + M_{1c} + M_{1d})$$

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where

$M$  is the mean mass value, expressed to the nearest 0,1 g;

$M_1$ , is the mass before the test, expressed to the nearest 0,1 g;

$M_2$  is the mass after the test, expressed to the nearest 0,1 g.

**9.2** Calculate the absorption of water in percentage according to the formula :

$$M_0 = \frac{M \cdot 100}{M_1}$$

where

$M_0$  is the capacity of water absorption in percentage;

$M$  is the mean quantity of water retained expressed in g to the nearest 0,1 g

$M_1$  is the mean mass of samples (a,b,c,d) conditioned before the test expressed to the nearest 0,1 g

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**10 Precision**

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At the moment of drafting this European standard, data on repeatability and reproducibility are not available.

**11 Test report**

The test report of test shall include at least the following information :

- a) reference to this standard;
- b) date and place of the test;
- c) identification of the sample tested;
- d) the average result of the water absorption in percentage expressed to the closest integer;
- e) the immersion time until constant mass;
- f) any deviation from the specified procedure and any unusual features observed during the test.