



# SLOVENSKI STANDARD SIST EN 986:1999

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Textile floor coverings - Tiles - Determination of dimensional changes due to the effects of varied water and heat conditions and distorsion out of plane

Textile Bodenbeläge - Fliesen - Bestimmung der Maßänderung infolge der Wirkungen wechselnder Feuchte- und Temperaturbedingungen und vertikale Flächenverformung

Revetements de sol textiles - Dalles - Détermination de la variation des dimensions due a diverses conditions de mouillage et de chaleur et de l'incurvation

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Ta slovenski standard je istoveten z: EN 986:1995

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## ICS:

59.080.60      Tekstilne talne obloge      Textile floor coverings

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EUROPEAN STANDARD

EN 986

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 1995

ICS 59.080.60; 91.180

Descriptors: Textiles, floor coverings, textile floor coverings, tiles, tests, determination, dimensional stability, climatic conditions, humidity, heat

English version

**Textile floor coverings - Tiles - Determination of dimensional changes due to the effects of varied water and heat conditions and distortion out of plane**

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Revêtements de sol textiles - Dalles -  
Détermination de la variation des dimensions  
due à diverses conditions de mouillage et de  
chaleur et de l'incurvation

Textile Bodenbeläge - Fliesen - Bestimmung der  
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# CEN

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

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Ref. No. EN 986:1995 E

## Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 134 "Resilient and textile floor coverings", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 1995, and conflicting national standards shall be withdrawn at the latest by October 1995.

According to the CEN/CENELEC Internal Regulations, 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.

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## 1 Scope

This European Standard specifies a method for the determination of dimensional changes and distortion out of plane likely to take place when textile floorcoverings in tile form are exposed to various conditions of moisture and heat.

This standard is applicable to all textile floorcoverings in tile form.

## 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 1957 : 1986 Machine-made textile floorcoverings - Sampling and cutting specimens for physical tests

ISO 2551 : 1981 Machine-made textile floorcoverings - Determination of dimensional changes due to the effects of varied water and heat conditions

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## 3 Principle

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### 3.1 Dimensional stability

Determination of changes in the flat dimensions of a specimen after treatment with various specified conditions of moisture and heat.

### 3.2 Distortion out of plane

Measure of the vertical deformation shown by the specimen after treatment with various specified conditions of moisture and heat.

## 4 Apparatus

### 4.1 Dimensional stability

4.1.1 Instrument capable of measuring a dimension to an accuracy of 0,05 mm, such as a slide gauge or measuring table or an opto-electronic system.



**4.1.2** Loading plate of metal or glass of dimensions slightly smaller than the test specimen, or any other device capable of keeping the specimen flat during measurement of dimensional change.

## **4.2 Distortion out of plane**

**4.2.1** Instrument capable of measuring in the vertical dimension to an accuracy of 0,5 mm.

**4.2.2** Support plate of dimensions slightly larger than the test specimen on which to place the specimen during measurement.

**4.3** Drying oven with forced ventilation able to maintain a temperature of  $60\text{ °C} \pm 2\text{ °C}$  containing removable shelves of smooth inert material with perforations to permit free circulation of air.

**4.4** Container to hold water at  $20\text{ °C} \pm 2\text{ °C}$ , of dimensions at least 20 mm greater than the test specimen and deep enough to permit the specimen to be submerged.

## **5 Sampling and preparation of specimens**

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### **5.1 Tiles of dimensions $\leq 500$ mm**

Take at least three tiles as delivered by the manufacturer, marking to show the direction of manufacture.

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### **5.2 Tiles of dimensions $> 500$ mm**

From these tiles take at least three specimens of dimensions not greater than 500 mm x 500 mm.

## **6 Conditioning**

Condition the test specimens in the standard atmosphere for testing textiles as defined in EN 20139 for at least 48 hours.

## 7 Test procedure

### 7.1 Initial measurements

#### 7.1.1 Distortion out of plane

Make all measurements on the conditioned specimen. Place the back of the specimen on the flat support (4.2.2). If necessary measure the initial curvature before doing the test (see 7.2.5).

#### 7.1.2 Dimensional stability

Keeping the conditioned specimen flat with the loading plate (4.1.2), measure the distance between the sides parallel to the direction of manufacture then between the sides perpendicular to the direction of manufacture in at least two different places. Measure to the nearest 0,05 mm with the apparatus in 4.1.1.

### 7.2 Test procedure

7.2.1 Place the test specimen in the oven at  $60\text{ °C} \pm 2\text{ °C}$  so that air can circulate freely around the specimen. After 2 hours remove the specimen and perform the measurements in 7.1.2 at an interval of  $(5 \pm 1)$  min from the time of removal from the oven.

7.2.2 Immerse the test specimen flat in water at  $20\text{ °C} \pm 2\text{ °C}$ . After 2 hours remove the specimen taking care not to distort it (e.g. as a result of its weight). The excess of water is removed by draining. Perform the measurements in 7.1.2 at an interval of  $(5 \pm 1)$  min from the time of removal from the water.

7.2.3 Place the test specimen in the oven at  $60\text{ °C} \pm 2\text{ °C}$  for 24 hours then perform the measurements in 7.1.2 at an interval of  $(5 \pm 1)$  min from the time of removal from the oven.

7.2.4 Now condition the specimen in the standard atmosphere for testing textiles for 48 hours.

7.2.5 After conditioning measure the distortion out of plane as follows :

- place the back of the specimen on the support plate (4.2.2). Measure the vertical distance between the support plate and the back of the tile, measure this distance in each direction and in the position where it is greatest with the apparatus in 4.2.1.

7.2.6 Then measure the dimensions of the specimen as indicated in 7.1.2.

## 8 Expression of results

### 8.1 Dimensional stability

For each specimen in each direction at each stage described in section 7 :

- let  $l_0$  be the arithmetic mean of the initial measures.

and :

-  $l_{mi}$  the arithmetic mean at each stage.

Calculate the dimensional change and express as a percentage of the mean by the formula :

$$\frac{l_{mi} - l_0}{l_0} \times 100$$

Indicate the result with a "-" if it is a shrinkage and a "+" if it is an increase.

Whenever possible the results may be expressed in the form of a graph.

### 8.2 Distortion out of plane

For each specimen and for each direction express the distortion out of plane by the distance measured in 7.2.5.

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## 9 Test report SIST EN 986:1999 <https://standards.iteh.ai/catalog/standards/sist/43745df3-a7fb-4642-9c79-ad4e3a13ef49/sist-en-986-1999>

The test report shall include the following information :

- a) a reference to this standard i.e. EN 986 ;
- b) a complete identification of the product tested including type, source and the manufacturer's reference numbers ;
- c) previous history of the sample ;
- d) the values calculated in section 8 ;
- e) a description of the final appearance of the test specimen including indications of the degree of buckling, saucering, doming, curling and any other change ;
- f) details of the measuring instrument used ;
- g) any deviation from this standard which may have affected the results.