



**SLOVENSKI STANDARD**  
**kSIST FprEN ISO 17701:2016**  
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**Obutev - Preskusne metode za zgornje dele, podloge in vložke - Migracija barve (ISO/FDIS 17701:2016)**

Footwear - Test methods for uppers, lining and insoles - Colour migration (ISO/FDIS 17701:2016)

Schuhe - Prüfverfahren für Obermaterialien, Futter und Decksohlen - Farbmigration (ISO/FDIS 17701:2016)

Chaussures - Méthodes d'essai des tiges, de la doublure et des garnitures intérieures - Migration de la couleur (ISO/FDIS 17701:2016)

**Ta slovenski standard je istoveten z: FprEN ISO 17701**

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## Footwear — Test methods for uppers, lining and insoles — Colour migration

*Chaussures — Méthodes d'essai des tiges, de la doublure et des  
garnitures intérieures — Migration de la couleur*

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Please see the administrative notes on page iii



Reference number  
ISO/FDIS 17701:2015(E)

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## ISO/CEN PARALLEL PROCESSING

This final draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN-lead** mode of collaboration as defined in the Vienna Agreement. The final draft was established on the basis of comments received during a parallel enquiry on the draft.

This final draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel two-month approval vote in ISO and two month formal vote in CEN.

**Positive votes shall not be accompanied by comments.**

**Negative votes shall be accompanied by the relevant technical reasons.**



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## ISO/FDIS 17701:2015(E)

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

ISO 17701 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 309, *Footwear*, in collaboration with ISO Technical Committee TC 216, *Footwear*, in accordance with the arrangement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 17701:2003), which has been technically revised.

# Footwear — Test methods for uppers, lining and insoles — Colour migration

## 1 Scope

This International Standard specifies a test method for determining the propensity of a material to cause discolouration of another material when stored in close contact. This method is applicable to all materials which are used in intimate contact to adhesives which are used to bond them.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-A01, *Textiles — Tests for colour fastness — Part A01: General principles of testing*

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 18454, *Footwear — Standard atmospheres for conditioning and testing of footwear and components for footwear*

ISO 19952:2005, *Footwear — Vocabulary*

CIE 15, *Colorimetry*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19952:2005 and the following apply.

### 3.1

#### **colour migration**

discolouration caused by movement of colour from one material to another

## 4 Apparatus and material

The following apparatus and material shall be used:

**4.1** Knife to cut the test specimen.

**4.2** Two smooth and even glass plates at least 70 mm × 70 mm and a mass of 50 g ± 5 g.

**4.3** Mass of sufficient size that when combined with the mass of the glass plate will exert a pressure of 5,2 kPa ± 0,5 kPa.

NOTE The necessary mass depends of the area of the test specimen to get the same pressure.

#### EXAMPLE

Area of test specimen = 30 mm × 20 mm = 600 mm<sup>2</sup>

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Mass = pressure × area

$$\text{Mass} = 5,2 \text{ kPa} \times 600 \text{ mm}^2 = 5\,200 \text{ Pa} \times 600 \text{ mm}^2 = 5\,200 \text{ kg} \times \text{m}^{-1} \times \text{s}^{-2} \times 6 \times 10^{-4} \text{ m}^2$$

$$\text{Mass} = 3,12 \text{ kg} \times \text{m} \times \text{s}^{-2} = 3,12 \text{ N}$$

A mass of 3,12 N (these are 0,318 kg) is necessary to get a pressure of 5,2 kPa.

Please note that the mass of one glass plate has to be subtracted: mass = 318 g – 50 g = 268 g.

If the area of the test specimen is 50 mm × 40 mm, a mass of 1,060 kg is necessary to get the same pressure. Please note that the mass of one glass plate has to be subtracted: mass = 1 060 g – 50 g = 1 010 g.

**4.4** Oven, without a door or glass window, heated to 60 °C ± 2 °C.

**4.5** Colorimeter to measure the colour of the test specimen and the reference specimen to convert the results in CIE colour values and to calculate automatically the CIELAB colour differences in accordance with CIE 15.

The colorimeter has to be calibrated with a white standard (normal light D 65, normal observer 10°, measure geometry d18°).

**4.6** Grey scales with half step rating for assessing change in colour and degree of staining complying with ISO 105-A02 and ISO 105-A03, respectively.

**4.7** Artificial lighting conditions as specified in ISO 105-A01 or north daylight.

## **5 Sampling and conditioning**

Store the test materials in a conditioned standard atmosphere as specified in ISO 18454 for a minimum of 24 h prior to testing.

### **5.1 Testing for colour migration between materials**

Cut two test specimens from each material, the dark-coloured material and the light-coloured material with a size of 30 mm × 20 mm (±2 mm) as minimum. One of each type of test specimen is the reference sample.

If there are insufficient materials, smaller samples may be used and a proportionally lower mass than 1 000 g ± 10 g to maintain the same contact pressure.

### **5.2 Testing for the effect of adhesives**

Cut two samples of the test material with a size of (50 ± 2) mm × (50 ± 2) mm. One of the test specimens is the reference sample.

Coat the centre of the surface, to which the adhesive would be applied in production with the adhesive under test, so that the coating covers approximately 75 % of the area of the test specimen. Use a quantity of adhesive that is judged to be representative of that to be used in production. Allow the adhesive to dry at room temperature.

### **5.3 Testing for the effect of adhesives in laminate**

Cut two samples from each material to be laminated together with a size of (50 ± 2) mm × (50 ± 2) mm, when testing for the effect of an adhesive within a laminate. One of each type of test specimen is the reference sample.