



# SLOVENSKI STANDARD

## SIST EN 15307:2009

01-februar-2009

Nadomešča:

SIST EN 1391:1999

SIST EN 522:1999

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**Lepila za usnjene in obutvene materiale - Vrhnji spoji podplata - Minimalne trdnostne zahteve**

Adhesives for leather and footwear materials - Sole-upper bonds - Minimum strength requirements

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Klebstoffe für Leder und Schuhwerkstoffe - Sohlen-Obermaterial-Klebung - Mindestanforderungen an die Festigkeit

[SIST EN 15307:2009](#)

Colles pour cuir et matériaux de la chaussure - Collages tige-semelle - Exigences minimales en matière de résistance

**Ta slovenski standard je istoveten z: EN 15307:2007**

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**ICS:**

61.060	Obuvala	Footwear
83.180	Lepila	Adhesives

**SIST EN 15307:2009** en,fr,de

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EUROPEAN STANDARD

EN 15307

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2007

ICS 83.180

Supersedes EN 1391:1998, EN 522:1998

English Version

## Adhesives for leather and footwear materials - Sole-upper bonds - Minimum strength requirements

Colles pour cuir et matériaux de la chaussure - Collages  
tige-semelle - Exigences minimales en matière de  
résistance

Klebstoffe für Leder und Schuhwerkstoffe - Sohlen-  
Obermaterial-Klebungen - Mindestanforderungen an die  
Festigkeit

This European Standard was approved by CEN on 26 April 2007.

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 CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This document (EN 15307:2007) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

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 November 2007, and conflicting national standards shall be withdrawn at the latest by November 2007.

This document supersedes EN 1391:1998 and EN 522:1998.

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

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**EN 15307:2007 (E)****Safety statement**

Persons using this document should be familiar with the normal laboratory practice, if applicable. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

**1 Scope**

This European Standard defines for four main types of footwear minimum strength requirements for their sole-upper bonds produced with solvent-based or dispersion adhesives under specified conditions.

**2 Normative references**

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

EN 923:2005, *Adhesives — Terms and definitions*

EN 1392, *Adhesives for leather and footwear materials — Solvent-based and dispersion adhesives — Testing of bond strength under specified conditions*

EN 15062, *Adhesives for leather and footwear materials — Solvent-based and dispersion adhesives — Testing ageing of bonds under specified conditions*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

EN ISO 10365, *Adhesives — Designation of main failure patterns (ISO 10365:1992)*

EN ISO 19952:2005, *Footwear — Vocabulary (ISO 19952:2005)*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 923:2005 and EN ISO 19952:2005 and the following apply.

**3.1****leather**

tanned animal skin, usually free of hair

**3.2****footwear materials**

natural and synthetic materials which are suitable for footwear manufacture or repair and have adequate wear properties as upper or sole materials

## 4 Principle

The surfaces of the leathers or the footwear materials used are treated by a method specific to the type of material. Then strips of specified length and width are cut from the treated materials.

The treated surfaces are bonded by an adhesive to test pieces of specified form.

The test pieces are stored under specified conditions and their bond strength is determined under specified conditions.

## 5 Minimum strength requirements

### 5.1 Specifications

#### 5.1.1 General

In accordance with practical experience gained for the different types of footwear the following minimum strength requirements are specified for sole-upper bonds:

#### 5.1.2 Peel resistance after 4 d. at $(23 \pm 2)^\circ\text{C}$

The peel resistance after 4 d. storage in the standard atmosphere 23/50 according to ISO 554 shall be for sole-upper bonds of

- Women town footwear: at least 3,5 N/mm
- Men town footwear: at least 4,5 N/mm
- School footwear: at least 5,0 N/mm
- Casual footwear: at least 5,0 N/mm

#### 5.1.3 Initial peel resistance at $(23 \pm 2)^\circ\text{C}$

Regardless of the materials used the initial peel resistance 2 min after assembling shall be at least 1,0 N/mm.

#### 5.1.4 Peel resistance under constant load at $(50 \pm 2)^\circ\text{C}$

Regardless of the materials used the peel resistance at a load of 1,5 kg at  $(50 \pm 2)^\circ\text{C}$  for 10 min ("creep resistance") shall be less than 10 mm.

#### 5.1.5 Ageing test

Bonds aged and reconditioned according to EN 15062 shall retain at least 80% of their initial strength determined in the control test.

In any case, the strength of the aged and reconditioned bonds shall fulfil the minimum requirements specified from 5.1.2 to 5.1.4.

All above mentioned minimum requirements are considered to be fulfilled if adhesive failure (AF) according to EN ISO 10365 occurs. Occurrence of cohesive substrate failure (CSF) and the value at which it was stated shall be recorded in the test report.

**EN 15307:2007 (E)****6 Test methods****6.1 Types of tests****6.1.1 Peel tests at  $(23 \pm 2)$  ° C**

According to EN 1392.

**6.1.2 Peel test at  $(50 \pm 2)$  ° C for 10 min at a constant load of 1,5 kg ("creep test")**

According to EN 1392.

**6.1.3 Ageing test**

According to EN 15062

**6.2 Material identification**

The leather(s) or footwear material(s) used under test shall be completely identified by name, manufacturer, date of manufacture/supply, type of leather or footwear material, e.g. soling or upper material. Leathers shall be listed by colour, thickness and type of tannage (if known). Rubber and plastic materials shall be listed by colour, polymer base and Shore-hardness according to EN ISO 868. This identification of materials shall be included in the test report.

Some reference footwear test materials with strictly specified and controlled properties have been developed for research, development and quality certification purposes by European national footwear research institutes (Annex A). If such a reference test material is used, its designation, source and date of supply shall be recorded in the test report.

**6.3 Adhesive identification**

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The adhesive applied for bonding shall be identified by name, manufacturer, date of manufacture/supply and/or lot number, main polymer, type (solvent-based or dispersion) and colour. For two-part adhesives the nature of the crosslinking agent and the mixing ratio of the components shall be identified. This adhesive identification shall be included in the test report.

Some reference footwear test adhesives with strictly specified and controlled properties have been developed for research, development and quality certification purposes by some European national footwear research institutes (Annex A). If such a reference test adhesive is used, its designation, source and date of supply shall be recorded in the test report.

**6.4 Preparation of test pieces**

According to EN 1392.

**6.5 Storage of test pieces**

Before starting peel tests specified in 6.1 store the test pieces for 5.1.2 for 4 d, for 5.1.3 for 2 min and for 5.1.4 before warming up to  $(50 \pm 2)$  ° C for 6 d in the standard atmosphere of 23/50 according to ISO 554.

**6.6 Procedures and evaluation**

According to EN 1392.



## 7 Test report

The test report shall include:

- a) reference to this European Standard;
- b) identification of the type of footwear to be manufactured (i.e. women town footwear, men town footwear, school footwear or casual footwear);
- c) complete identification of the leather or footwear material used according to 6.2;
- d) complete identification of the adhesive used for the preparation of the test pieces according to 6.3;
- e) preparation of the bonding surfaces of the leather or footwear material according to EN 1392;
- f) complete identification of the bonding procedure according to EN 1392 (adhesive applicator, number of adhesive coats applied, length of intermediate drying periods, contact or heat activated bonding, activation temperature of the adhesive coats etc.);
- g) description of the conditions of storage of the test pieces;
- h) test results, individual and mean values according to EN 1392 and mode of failure according to EN ISO 10365;
- i) factors which may have affected the results;
- j) date of test.

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