



SLOVENSKI STANDARD
kSIST FprEN 15307:2014
01-julij-2014

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

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

Klebstoffe für Leder und Schuhwerkstoffe - Sohlen-Obermaterial-Klebungen - Mindestanforderungen

Adhésifs pour cuir et matériaux de la chaussure - Collages de semelles et matériaux de dessus - Prescriptions minimales

Ta slovenski standard je istoveten z: FprEN 15307 rev

ICS:

61.060	Obuvala	Footwear
83.180	Lepila	Adhesives

kSIST FprEN 15307:2014

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

FINAL DRAFT
FprEN 15307

May 2014

ICS 83.180

Will supersede EN 15307:2007

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

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Foreword

This document (FprEN 15307:2014) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 15307:2007.

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.

ENVIRONMENTAL STATEMENT — It is understood that some of the material permitted in this standard may have negative environmental impact. As technological advantages lead to acceptable alternatives for these materials, they will be eliminated from this standard to the extent possible.

At the end of the test, the user of the standard should take care to carry out an appropriate disposal of the wastes, according to local regulation.

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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 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.

EN 923:2005+A1:2008, *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)*

EN ISO 10365, *Adhesives - Designation of main failure patterns (ISO 10365)*

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

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+A1:2008 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 Classification

In accordance with practical experience gained the different types of footwear can be classified with regard to the mechanical stress on its sole-upper bonds in use as follows:

Class A: Low stress on sole-upper bonds in use (i.e. infants footwear, indoor footwear, fashion footwear)

Class B: Medium stress on sole-upper bonds in use (i.e. men town footwear, women town footwear, cold weather footwear and casual footwear)

Class C: High stress on sole-upper bonds in use (i.e. children footwear and general sports footwear)

Class D: Very high stress on sole-upper bonds in use (i.e. mountain footwear)

5.2 Specifications

5.2.1 Peel resistance after 4 days at $(23 \pm 2)^\circ\text{C}$

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

Class A: at least 2,5 N/mm

Class B: at least 3,0 N/mm or material failure with at least 2,5 N/mm;

Class C: at least 4,0 N/mm or material failure with at least 3,0 N/mm;

Class D: at least 5,0 N/mm or material failure with at least 3,5 N/mm.

5.2.2 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.

5.2.3 Creep resistance under constant load at $(50 \pm 2)^\circ\text{C}$

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

5.2.4 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 in 5.2.1, 5.2.2 and 5.2.3.

Occurrence of cohesive substrate failure (CSF) and the value at which it was stated shall be recorded in the test report.

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6 Test methods

6.1 Types of tests

6.1.1 Peel tests at (23 ± 2) °C

According to EN 1392.

6.1.2 Peel test at (50 ± 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

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 4 days(5.2.1), for 2 min (5.2.2) and before warming up to (50 ± 2) °C for 6 days (5.2.3) in the standard atmosphere of 23/50 according to ISO 554.

6.6 Procedures and evaluation

According to EN 1392.