



# SLOVENSKI STANDARD SIST-TP CEN/TR 15990:2021

01-september-2021

Nadomešča:

SIST-TP CEN/TR 15990:2010

SIST-TP CEN/TR 15990:2010/AC:2011

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**Podatki - Preskušanje materialov za obutev in preskušanje lepil**

Data Sheets - Footwear Tests Materials and Test Adhesives

Datenblätter - Schuh-Testwerkstoffe und Schuh-Testklebstoffe

Fiches techniques - Matériaux et colles pour essais des articles chaussants

**Ta slovenski standard je istoveten z: CEN/TR 15990:2021**

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**ICS:**

61.060	Obuvala	Footwear
83.180	Lepila	Adhesives

**SIST-TP CEN/TR 15990:2021**

**en,fr,de**

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TECHNICAL REPORT

CEN/TR 15990

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TECHNISCHER BERICHT

June 2021

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Supersedes CEN/TR 15990:2010

English Version

## Data sheets - Footwear tests materials and test adhesives

Fiches techniques - Matériaux et colles pour essais des articles chaussants

Datenblätter - Schuh-Testwerkstoffe und Schuh-Testklebstoffe

This Technical Report was approved by CEN on 21 June 2021. It has been drawn up by the Technical Committee CEN/TC 193.

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

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## European foreword

This document (CEN/TR 15990:2021) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

This document supersedes CEN/TR 15990:2010.

The main technical changes in comparison to the previous version are as follows:

- New information providers for test materials L1, L2, SBR and SBS in 3.1, 3.2, 3.3, 3.5 respectively;
- Update of company names.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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**CEN/TR 15990:2021 (E)****Introduction**

For testing adhesive bonds some important European Standards have been developed by CEN/TC 193/Working Group 5 “Adhesives for Leather and Footwear” in close cooperation with European Shoe Institutes and the “Association of European Adhesive and Sealant Manufacturers (FEICA)”:

- EN 1392:2006, *Adhesives for leather and footwear materials — Solvent-based and dispersion adhesives — Testing of bond strength under specified conditions*
- EN 15062:2006, *Adhesives for leather and footwear materials — Solvent-based and dispersion adhesives — Testing ageing of bonds under specified conditions*
- EN 15307:2014, *Adhesives for leather and footwear materials — Sole-upper bonds — Minimum strength requirement*

These European Standards intend to serve:

- the manufactures of shoe materials for testing the bondability of their products;
- the adhesive manufactures to determine the bond properties of their adhesives;
- the shoe industry to test the suitability of the materials and/or adhesives before applying in their production line and for quality control.

In the footwear industry a large number of different solvent or dispersion adhesives are applied for sole-upper bonding offering a broad range of technical effects. The most important and most often adhesives used are based on polyurethane and polychloroprene. For research, development and quality certification purposes some simply formulated 1- and 2-part “reference test adhesives” have been developed which can be considered as typical adhesives of these types. In footwear manufacture also a great number of the different sole and upper materials are used. From the most important and most often applied some materials have been selected as “reference test materials”.

The annexed data sheets offer for each of these reference test adhesives and reference test materials some information and specify some properties. CEN/TC193 Working Group 5 takes care for a continuous updating of these data sheets. For further information on a reference test adhesive or a reference test material (e.g. on availability and supply) please contact the European Shoe Institute mentioned in its data sheet:

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**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.

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**CEN/TR 15990:2021 (E)****1 Scope**

For research, development and quality certification purposes, some simply formulated 1- and 2-part “reference test adhesives” have been developed and, from the most important and most often applied, some materials have been selected as “reference test materials”. This document offers for each of these reference test adhesives and reference test materials some information and specify some properties. CEN/TC 193/WG 5 takes care for a continuous updating of these data sheets.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1392, *Adhesives for leather and footwear materials - Solvent-based and dispersion adhesives — Testing of bond strength under specified conditions*

EN 12092, *Adhesives - Determination of viscosity*

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

EN ISO 1183-1, *Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1)*

EN ISO 3376, *Leather - Physical and mechanical tests - Determination of tensile strength and percentage elongation (ISO 3376)*

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EN ISO 4045, *Leather - Chemical tests - Determination of pH and difference figure (ISO 4045)*

EN ISO 4048, *Leather - Chemical tests - Determination of matter soluble in dichloromethane and free fatty acid content (ISO 4048)*

EN ISO 5398-3, *Leather - Chemical determination of chromic oxide content - Part 3: Quantification by atomic absorption spectrometry (ISO 5398-3)*

ISO 34 (all parts), *Rubber, vulcanized or thermoplastic - Determination of tear strength*

ISO 37, *Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties*

ISO 247 (all parts), *Rubber - Determination of ash*

ISO 1407, *Rubber - Determination of solvent extract*

ISO 2781, *Rubber, vulcanized or thermoplastic - Determination of density*

ISO 4649, *Rubber, vulcanized or thermoplastic - Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 48 (all parts), *Rubber, vulcanized or thermoplastic - Determination of hardness*



### 3 Terms and Definitions

No terms and definitions are listed in this document.

### 4 Test materials

#### 4.1 Test material L1

**Description:** Chrome tanned cowhide upper leather, full grain

**Information:** Proyección Europlan XXI

Polig. Ind. Campo Alto – C/Alemania, nave 118

Elda, Alicante, 03600 Spain (+34 615 871 443)

**Designation:** Test upper leather L 1

Thickness: 1,5 mm to 1,8 mm

Colour: green brown

**Formulation:** Raw material: Cowhides of South Germany

Weight class: 25 kg to 29,5 kg

Manufacturing method: Specified by Proyección Europlan XXI

**Table 1 – Technical Data of Test Material L1**

Technical Data	Unit	Nominal	± Tolerance	Standard
Apparent density	g/cm <sup>3</sup>	0,7	0,1	EN ISO 2420
Tensile strength	N/mm <sup>2</sup>	> 350	-	EN ISO 3376
Elongation at break	%	Max. 80	-	EN ISO 3376
Ashes at 950 °C	%	6,0	1,0	EN ISO 4047
Chrome oxide	%		-	EN ISO 5398-3
pH-value	-	> 3,5	-	EN ISO 4045
Dichloro methane extract	%	8,0	2,0	EN ISO 4048

**Bonding properties:** Test Adhesives PU 1, PU 2, CR 1, CR 2, PUD 1 and PUD 2 (according to EN 1392)

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## 4.2 Test material L2

**Description:** Vegetably tanned soling leather, butt

**Information:** Proyección Europlan XXI

Polig. Ind. Campo Alto – C/Alemania, nave 118

Elda, Alicante, 03600 Spain (+34 615 871 443)

**Designation:** Test upper leather L 2

Thickness: 3,8 mm to 4,5 mm

Colour: brown

**Formulation:** Raw material

Manufacturing method: Specified by Proyección Europlan XXI

**Table 2 — Technical Data of Test Material L2**

Technical Data	Unit	Nominal	± Tolerance	Standard
Apparent density	g/cm <sup>3</sup>	Max. 1,15	-	EN ISO 2420
Tensile strength	N/mm <sup>2</sup>	> 800	-	EN ISO 3376
Elongation at break	%	Max. 30	-	EN ISO 3376
Ashes at 950 °C	%	Max. 1,3	-	EN ISO 4047
pH-value	-	> 3,5	-	EN ISO 4045
Dichloro methane extract	%	Max. 2,0	-	EN ISO 4048

**Bonding properties:** Test Adhesives PU 1, PU 2, CR 1, CR 2, PUD 1 and PUD 2 (according to EN 1392)

## 4.3 Test material SBR

**Description:** Synthetic rubber vulcanizate, transparent

**Information:** Prüf- und Forschungsinstitut Pirmasens e.V.

Marie-Curie-Str. 19, D- 66953 Pirmasens

Rocholl GmbH – Test specimens products for sealants and adhesives

Schwarzacher Straße 15

Germany – 74858 Aglasterhausen

**Formulation:** SBR

Silica

Zinc oxide

Colour pigments