



SLOVENSKI STANDARD

SIST EN 14510:2005

01-julij-2005

Lepila za usnje in obutvene materiale - Raztopinska in disperzijska lepila – Ugotavljanje lepljivosti pri nameščanju podplata (namestitveni sprijem)

Adhesives for leather and footwear materials - Solvent-based and dispersion adhesives - Determination of sole positioning tack (spotting tack)

Klebstoffe für Leder und Schuhwerkstoffe - Lösemittel- und Dispersionsklebstoffe - Bestimmung des Sohlensetz-Tack (Setz-Tack)

Adhésifs pour cuir et matériaux de la chaussure - Adhésifs à base de solvants ou en dispersion - Détermination du tack à l'affichage (tack immédiat)

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Ta slovenski standard je istoveten z: EN 14510:2005

ICS:

61.060	Obuvala	Footwear
83.180	Lepila	Adhesives

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EUROPEAN STANDARD

EN 14510

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2005

ICS 83.180

English version

Adhesives for leather and footwear materials - Solvent-based and dispersion adhesives - Determination of sole positioning tack (spotting tack)

Adhésifs pour cuir et matériaux de la chaussure - Adhésifs à base de solvants ou en dispersion - Détermination du tack à l'affichage (tack immédiat)

Klebstoffe für Leder und Schuhwerkstoffe - Lösemittel- und Dispersionsklebstoffe - Bestimmung des Sohlensetz-Tack (Setz-Tack)

This European Standard was approved by CEN on 25 March 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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Foreword

This European Standard (EN 14510:2005) 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 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

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

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Introduction

Some adhesives based on special polymers (polychloroprene, polyurethane) are widely used in the footwear industry for sole attaching, coated on an upper and a sole material. The apparently dry coats show the property of "sole positioning tack" (or "spotting tack") either at room temperature ("cold positioning tack") or when heated to a specific temperature ("hot positioning tack"). Because of the short pressing time required in the bonding process these adhesives allow a very economical production of footwear.

"Sole positioning tack" is a very complex rheological phenomenon depending particularly on temperature, contact time and pressure applied.

This European Standard specifies a conventional method for assessing this phenomenon. This method is suitable for quality control in adhesive manufacture as well as in shoe production [1] [2]. Fully automated test equipment has been developed for carrying out series of sole positioning tack tests in research and development [3].

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1 Scope

This European Standard specifies a method for determining the sole positioning tack at bonding of an apparently dry adhesive film, usually after heat reactivation.

The method is applicable to all types of heat reactivated or cold bonding adhesives used for sole bonding. It can also be used to assess the influence of soling and upper materials on the sole positioning tack of an adhesive.

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 522, *Adhesives for leather and footwear materials - Bond strength – Minimum requirements and adhesive classification*

EN 923:1998, *Adhesives - Terms and definitions*

EN 1067, *Adhesives - Examination and preparation of samples for testing*

EN 1391, *Adhesives for leather and footwear materials - A method for evaluating the bondability of materials - Minimum requirements and material classification*

EN 1392, *Adhesives for leather and footwear materials - Solvent-based and dispersion adhesives - Test methods for measuring the bond strength 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 15605, *Adhesives – Sampling (ISO 15605:2000)*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 923:1998 and the following apply.

sole positioning tack

property of a sole attaching adhesive which enables an apparently dry film to form a bond on light contact with a second film, as when a sole is lightly placed ("spotted") onto an upper before the shoe passes to a bonding press. Sole positioning tack is characterized by the force in newtons required to separate the bond formed.

NOTE The level of sole positioning tack (or "spotting tack") required may depend on the stiffness of the materials at bonding. Sole positioning tack is usually associated with heat activated adhesives but can be assessed for cold bonding adhesives and will depend on the adhesive open time, the reactivation temperature and the soling material, especially if substances migrate from the soling into the adhesive during the open time.

EN 14510:2005 (E)**4 Principle**

Pieces of footwear soling and upper materials are coated with the adhesive to be tested. The adhesive coats are allowed to dry for a specified time. Depending on the requirements, the apparently dry adhesive coats on the soling material or, if specified, on both the soling material and the upper material are heat activated to a specified temperature by an infrared radiant heater or in a warm air cabinet. A coat on the soling material and a coat on the upper material are then brought into contact under a specified light pressure. The resulting bond is broken after 5 s by separating the materials and the maximum separation force required is recorded as a measure of the sole positioning tack (or "spotting tack").

5 Safety

Persons using this standard shall be familiar with normal laboratory practice.

This standard does not purport to address all safety problems, if any, associated with its use.

It is the responsibility of the user to establish health and safety practices and to ensure compliance with any European and national regulatory conditions.

6 Adhesive and materials**6.1 Adhesive**

Identify the adhesive under test in the test report, in particular record name and/or designation, manufacturer, date of manufacture/supply and/or lot number, main polymer and colour. For two-part adhesives identify the nature of the crosslinking agent and the mixing ratio of the components.

If a reference test adhesive with specified properties in accordance with EN 1391 is used, note its designation in the test report.

6.2 Materials

Identify type of upper and of soling material used for testing. Record name and/or designation, manufacturer, date of manufacture/supply. For leathers list colour, thickness and type of tannage (if known); for rubber and plastic materials list colour, polymer base and Shore-hardness in accordance with EN ISO 868. Include this identification of the material in the test report.

If a reference footwear test material(s) with specified properties in accordance with EN 522 is used, record the designation of the reference footwear test material(s) in the test report.

7 Apparatus

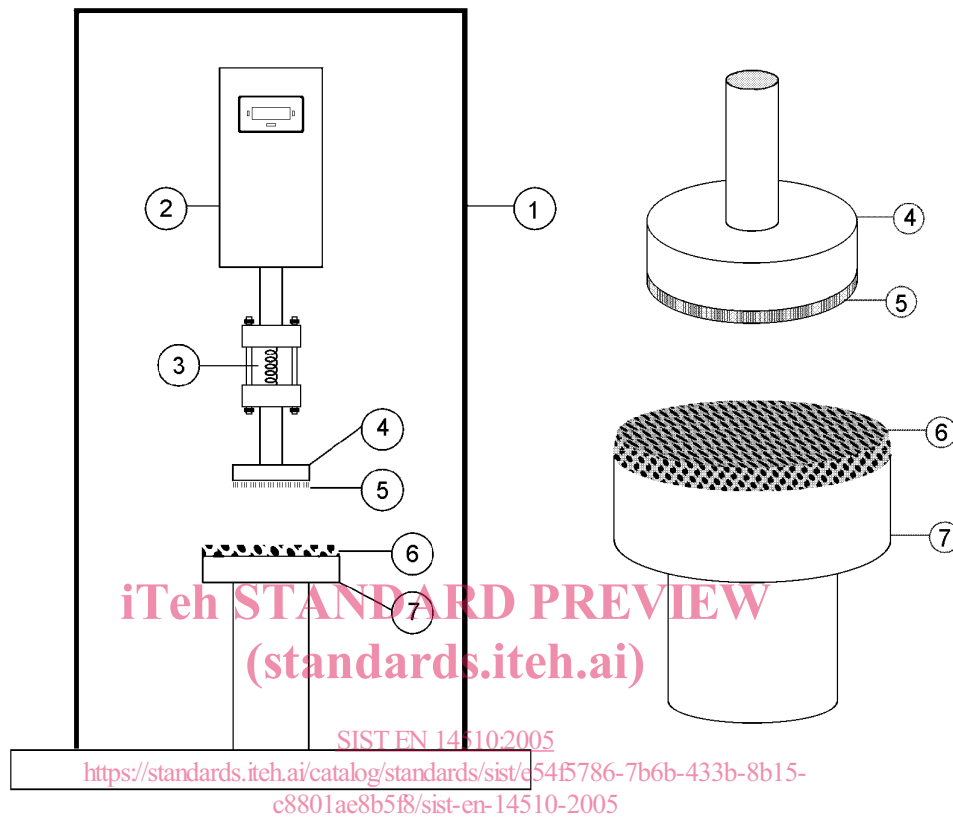
7.1 Devices for a mechanical treatment of the soling and upper material surfaces according to EN 1392, if required.

7.2 Adhesive applicator e.g. brush, roller or coating machine to apply a uniform coating on the materials used for testing.

7.3 Punches for cutting test pieces with diameter $(20 \pm 0,5)$ mm and $(30 \pm 0,5)$ mm or optionally a press knife for preparing rectangular test pieces.

7.4 Adhesive (e.g. cyanoacrylate based) suitable for bonding the test pieces to the supports (7.5.4 and 7.5.6).

7.5 Tack testing machine (see Figure 1), comprising the following items 7.5.1 to 7.5.6 or any other tack testing machine which can be precisely adjusted to the test parameters specified in clause 9.



Key

- | | |
|---------------------|------------------------|
| 1 Rigid stand | 5 Upper test specimen |
| 2 Force gauge | 6 Soling test specimen |
| 3 Damping spring | 7 Support for soling |
| 4 Support for upper | |

Figure 1 — Details of tack testing machine and test pieces

NOTE Suitable tack testing machines are described in [1], [2] and [3].

7.5.1 Rigid stand with a means of securing the force gauge and driving it up and down on a vertical axis at a speed of (100 ± 10) mm/min.

7.5.2 Force gauge capable of measuring and recording compressive and tensile forces up to 1 kN to an accuracy of 5 N.

7.5.3 Means of automatically reversing the direction of travel of the force gauge (5 ± 1) s after a specified compressive force is recorded.

7.5.4 Rigid support, piston with $(20 \pm 0,5)$ mm diameter for the upper material test specimen with a means of securely clamping its ends which, if required, can be heated to a temperature in the range of 40 °C to 90 °C.