



SLOVENSKI STANDARD

SIST EN 13523-16:2005

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Coil coated metals - Test methods - Part 16: Resistance to abrasion

Bandbeschichtete Metalle - Prüfverfahren - Teil 16: Widerstandsfähigkeit gegen Abrieb

Tôles prélaquées - Méthodes d'essai - Partie 16: Résistance a l'abrasion

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Organske prevleke

Organic coatings

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en

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EUROPEAN STANDARD
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Coil coated metals - Test methods - Part 16: Resistance to abrasion

Tôles prélaquées - Méthodes d'essai - Partie 16:
Résistance à l'abrasion

Bandbeschichtete Metalle - Prüfverfahren - Teil 16:
Widerstandsfähigkeit gegen Abrieb

This European Standard was approved by CEN on 23 September 2004.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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EN 13523-16:2004 (E)**Foreword**

This document (EN 13523-16:2004) has been prepared by Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.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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1 Scope

This part of EN 13523 describes the procedure for determining the resistance to abrasion and wear of an organic coating on a metallic substrate.

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 13523-0:2001, *Coil coated metals — Test methods — Part 0: General introduction and list of test methods*.

EN 23270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing (ISO 3270:1984)*.

ISO 7784-2, *Paints and varnishes — Determination of resistance to abrasion — Part 2: Rotating abrasive rubber wheel method*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13523-0:2001 apply.

4 Principle

A coated test panel is placed on a rotating disc under a set of two abrasive wheels mounted in parallel and symmetrically on opposite sides of the centre rotating in the reverse direction.

5 Apparatus

5.1 Taber abraser, as specified in ISO 7784-2, or equivalent equipment.

5.2 Analytical balance, accurate to 0,1 mg.

5.3 Suction device, with two nozzles. One of the nozzles shall be positioned between the two wheels and the other placed diametrically opposite the first. The distance between the axes of the two nozzles shall be (75 ± 2) mm and the distance between them and the test panel 1 mm to 2 mm.

When the suction nozzles are in position, the air pressure in the suction device shall be 1,5 kPa to 1,6 kPa lower than the atmospheric pressure.

6 Sampling

See EN 13523-0.

EN 13523-16:2004 (E)**7 Test panels**

See EN 13523-0.

Cut three test panels to approximately 100 mm × 100 mm with a hole drilled in the centre, appropriate for the apparatus being used.

The test panels shall be flat and free from any edge burr to avoid any deformation of the test panels.

8 Procedure**8.1 Test conditions**

Measure the resistance to abrasion of the organic coating at ambient conditions. For more accurate measurements, as required for instance in case of dispute, the temperature shall be (23 ± 2) °C and the relative humidity (50 ± 5) %, in accordance with EN 23270.

8.2 Determination

First determine the mass of each test panel to be tested, using an analytical balance (5.2).

Place the test panel on the panel holder, coated side to be tested facing up, and fix it using a screw.

Prepare the two abrading arms with cleaned abrasive wheels, e.g. type CS 10 or the more abrasive CS 17 (see ASTM D 4060-01), and additional masses to make the total load typically 500 g or 1000 g. Place the arms on the test panel and start the abrader (speed fixed; typically 60 rpm, maximum 100 rpm) for a specified number of revolutions or until the substrate is exposed.

A suction device continuously removes the debris from the test panel.

The test can be interrupted after 250, 500, 1000 or more revolutions. If the substrate is exposed, the test shall be stopped and no mass measurement is required. Otherwise the test panel is re-weighed.

The loss of material i.e. difference in mass, in combination with the number of revolutions is a measure of the abrasion resistance.

The wheels shall be cleaned after every 1000 revolutions in a continuous test or before every new test, using a fresh refacing disc for 25 revolutions.

Repeat the procedure for two further test panels.

9 Expression of results

The result shall be expressed either by the mean of the mass loss after every specified number of revolutions or the mean of the number of revolutions until the substrate is just exposed.

10 Precision

No precision data are available

11 Test report

The test report shall contain at least the following information:

- a) all details necessary to identify the product tested;
- b) a reference to this part of EN 13523 (EN 13523-16);
- c) the total mass of the abrading arms;
- d) the type of wheels used;
- e) the result of the test, as indicated in clause 9;
- f) any deviation from the test method specified;
- g) the date of the test.

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Bibliography

EN 1396, *Aluminium and aluminium alloys — Coil coated sheet and strip for general applications — Specifications.*

EN 10169-1, *Continuously organic coated (coil coated) steel flat products — Part 1: General information (definitions, materials, tolerances, test methods).*

ENV 10169-2, *Continuously organic coated (coil coated) steel flat products — Part 2: Products for building exterior applications.*

EN 10169-3, *Continuously organic coated (coil coated) steel flat products — Part 3: Products for building interior applications.*

ASTM D 4060-01, *Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.*

ISO 7784-1, *Paints and varnishes — Determination of resistance to abrasion — Part 1: Rotating abrasive-paper-covered wheel method.*

ISO 7784-3, *Paints and varnishes — Determination of resistance to abrasion — Part 3: Reciprocating test panel method.*

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