



SLOVENSKI STANDARD
oSIST prEN 13523-29:2016
01-januar-2016

Prevlečene kovine, ki se navijajo - Preskusne metode - 29. del: Odpornost proti onesnaženju iz okolja (zbiranje nesnage in priprava vzorcev)

Coil coated metals - Test methods - Part 29: Resistance to environmental soiling (Dirt pick-up and striping)

Bandbeschichtete Metalle - Prüfverfahren - Teil 29: Beständigkeit gegen Verschmutzung (Schmutzaufnahme und Streifenbildung)

Tôles prélaquées - Méthodes d'essai - Partie 29 : Résistance à la pollution environnementale (salissures)

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25.220.60 Organske prevleke Organic coatings

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Will supersede EN 13523-29:2010

English Version

Coil coated metals - Test methods - Part 29: Resistance to environmental soiling (Dirt pick-up and striping)

Tôles prélaquées - Méthodes d'essai - Partie 29 :
Résistance à la pollution environnementale (salissures)

Bandbeschichtete Metalle - Prüfverfahren - Teil 29:
Beständigkeit gegen Verschmutzung
(Schmutzaufnahme und Streifenbildung)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 139.

If this draft becomes a European Standard, 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.

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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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European foreword

This document (prEN 13523-29:2015) has been prepared by Technical Committee CEN/TC 139 “Paints and varnishes”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13523-29:2010.

The main changes are:

- a) the washing procedure was corrected;
- b) the text has been revised editorially and the normative references have been updated.

The EN 13523 series, *Coil coated metals — Test methods*, consists of the following parts:

- *Part 0: General introduction;*
- *Part 1: Film thickness;*
- *Part 2: Gloss;*
- *Part 3: Colour difference — Instrumental comparison;*
- *Part 4: Pencil hardness;*
- *Part 5: Resistance to rapid deformation (impact test);*
- *Part 6: Adhesion after indentation (cupping test);*
- *Part 7: Resistance to cracking on bending (T-bend test);*
- *Part 8: Resistance to salt spray (fog);*
- *Part 9: Resistance to water immersion;*
- *Part 10: Resistance to fluorescent UV radiation and water condensation;*
- *Part 11: Resistance to solvents (rubbing test);*
- *Part 12: Resistance to scratching;*
- *Part 13: Resistance to accelerated ageing by the use of heat;*
- *Part 14: Chalking (Helmen method);*
- *Part 15: Metamerism;*
- *Part 16: Resistance to abrasion;*
- *Part 17: Adhesion of strippable films;*

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- *Part 18: Resistance to staining*
- *Part 19: Panel design and method of atmospheric exposure testing*
- *Part 20: Foam adhesion*
- *Part 21: Evaluation of outdoor exposed panels*
- *Part 22: Colour difference — Visual comparison*
- *Part 23: Resistance to humid atmospheres containing sulfur dioxide*
- *Part 24: Resistance to blocking and pressure marking*
- *Part 25: Resistance to humidity*
- *Part 26: Resistance to condensation of water*
- *Part 27: Resistance to humid poultice (Cataplasma test)*
- *Part 29: Resistance to environmental soiling (Dirt pick-up and striping)*

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1 Scope

This part of the EN 13523 series specifies a procedure for the comparative evaluation of resistance to soiling of an organic coating on a metallic substrate (coil coating) in an outdoor exposure environment, particularly the soiling defect known as “Tiger stripes”.

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 13523-0, *Coil coated metals - Test methods - Part 0: General introduction*

EN 13523-19:2011, *Coil coated metals — Test methods — Part 19: Panel design and method of atmospheric exposure testing*

3 Terms and definitions

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

4 Principle

A test panel is exposed along with known reference panels, to the effects of atmospheric dirt and rain. The dirt and rain is collected and directed onto the surface of the panels in such a way as to channel rainwater thus creating the conditions to form stripes on the surface under test.

5 Apparatus and materials

5.1 Existing EN 13523-19 exposure rack design (see EN 13523-19:2011, Clause 4 and Figure 4) modified as described below.

The area of the rack normally used for the exposure of panels to the 5° orientation is used to install a sheet made of UV stable polymeric material (e.g. polycarbonate). This sheet forms the collector of the atmospheric soil and is angled on the upper surface of the rack at between 10° and 12° with respect to the horizontal plane to control the rate of run-off of rainwater. The machining imparts grooves of 3 mm width and 3 mm depth at a separation of 3 mm extending along the surface and over the rounded edge to direct rainwater onto the panels in rivulets (see Figures 1 and 2).

The upper row of the 90° North facing exposure area of the rack is used to fix the panels, having removed the existing overhang. Two rows are used for this exposure if the panels are longer than 200 mm. The test panels are positioned so that the top edge is in uniform contact with the bottom edge of the collector overhang.



Figure 1 — Detail of grooves to be machined – Top view



Figure 2 — Detail of grooves to be machined – Side view

6 Sample preparation

The test samples shall be flat and free from contamination. Sampling shall be performed according to EN 13523-0. Sample dimensions shall be 100 mm × (200 mm to 400 mm).⁷

If coil production line samples are used these should be cut so as to have the longest dimension in the direction of rolling.

7 Procedure

In addition to the test panel, expose two reference panels for each test campaign: one of known good and one of known poor performance. This allows for comparative evaluation in various atmospheric conditions.

The duration of the test is typically three months and shall be no longer than six months and shall be for a continuous period to avoid other weathering effects, e.g. corrosion, photo degradation, etc.

To minimize seasonal effects, the start date should be noted.

At the end of the test period there shall be sufficient separation in performance between the reference panels so as to allow a ranking of the test panels. If not, the test will be restarted with new panels.

8 Evaluation

Evaluate all panels as soon as possible after the exposure; intermediate examinations may be made (visual observations of the panels on the exposure rack).

During handling of the panels and storage before examination, care shall be taken not to disturb the dirt on the surface.

Then the test panels are compared to the reference panels and classified relative to each other and to reference panels and ranked accordingly, e.g.:

- better than the best reference panel;
- same as the best reference panel;
- in between of both reference panels;
- same as the worst reference panel;
- worse than the worst reference panel.

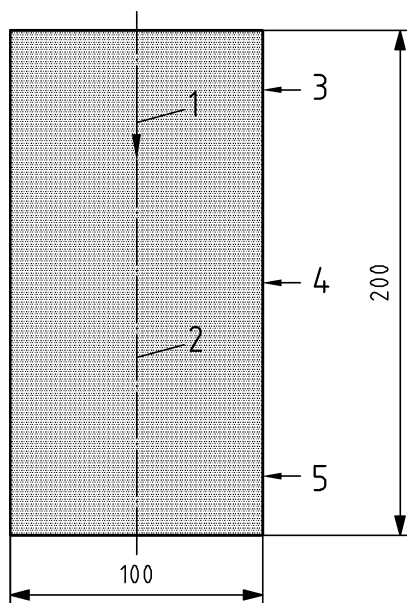
Changes in gloss and colour measured in accordance with EN 13523-2 and EN 13523-3 can be used to make the comparison. Record gloss and colour at points A, B and C (triplicate readings), as indicated in Figure 3.

The results should be documented by photographing the panels.

To evaluate the ease with which the panels can be cleaned, they may then be subjected to a washing procedure: Wash the left half of the panel indicated in Figure 3 with water containing 0,5 % by mass of a mild non-reactive detergent (pH 6 to pH 7) at ambient temperature. Use a cloth or sponge that is non-abrasive and smooth to gently clean the surface. Rinse with water at ambient temperature and air dry at ambient temperature.

A first evaluation is made by comparing the washed area of each panel with the unwashed area; the second evaluation is made by re-ranking the washed areas as above.

Dimensions in millimetres

**Key**

- 1 direction of dirt/water
- 2 line for wash test
- 3, 4, 5 measuring points (triplicate reading)

Figure 3 — Dirt panel inspection**9 Test report**

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The test report shall contain at least the following information: 23-29-2017

- a) all details necessary to identify the product tested;
- b) a reference to this part of the EN 13523 series (EN 13523-29);
- c) all details necessary to identify the references;
- d) the geographical location of the rack;
- e) the test duration;
- f) the results of the test, as indicated in Clause 8;
- g) any deviation from the test procedure described;
- h) the date(s) of the test.