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Prevlečene kovine, ki se navijajo - Preskusne metode - 14. del: Kredanje (metoda po Helmenu)

Coil coated metals - Test methods - Part 14: Chalking (Helmen method)

Bandbeschichtete Metalle - Prüfverfahren - Teil 14: Kreiden (Verfahren nach Helmen)

Tôles prélaquées - Méthodes d'essai - Partie 14: Farinage (méthode Helmen)

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17.040.20	Lastnosti površin	Properties of surfaces
25.220.60	Organske prevleke	Organic coatings

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English Version

Coil coated metals - Test methods - Part 14: Chalking (Helmen method)

Tôles prélaquées - Méthodes d'essai - Partie 14: Farinage
(méthode Helmen)

Bandbeschichtete Metalle - Prüfverfahren - Teil 14: Kreiden
(Verfahren nach Helmen)

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

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

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Foreword

This document (FprEN 13523-14:2014) 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 Formal Vote.

This document will supersede EN 13523-14:2001.

The main changes are:

- a) the text was editorially revised and the normative references were updated;
- b) in 5.3 rubbing with a finger as an alternative to rubbing with the plastic spatula for an optimum adhesion between the tape and the coating was added.

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

- *Part 0: General introduction and list of test methods*
- *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*
- *Part 18: Resistance to staining*

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- *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: Colour stability in 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)*

1 Scope

This Part of EN 13523 describes the procedure for determining objectively the chalking resulting from natural or artificial weathering of an organic coating on a metallic substrate.

The advantage of this procedure for measuring chalking of an organic coating is that the result can be read off immediately on an instrument. Subjective judgement by visual comparison of test specimens with reference specimens is not necessary.

Reproducible results can only be obtained by careful execution of the test. Special attention is paid to the adhesive tape and its application to the test surface.

The test method is not applicable to embossed coatings. In the case of textured coatings, the degree of texture will influence readings. Also dirt collection can influence readings on outdoor weathered specimens.

NOTE Different methods for assessing chalking are in use. The results of these different methods are not comparable.

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.

prEN 13523-0:2013, *Coil coated metals — Test methods — Part 0: General introduction*

EN 13523-10, *Coil coated metals — Test methods — Part 10: Resistance to fluorescent UV radiation and water condensation*

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

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

EN 60454-2, *Pressure-sensitive adhesive tapes for electrical purposes — Part 2: Methods of test (IEC 60454-2)*

EN ISO 2813, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20°, 60° and 85° (ISO 2813)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 13523-0:2013 and the following apply.

3.1 chalking

appearance of a loosely adherent powder on the surface of a film or coat arising from the degradation of one or more of its constituents

[SOURCE: prEN ISO 4618:2013, 2.41]

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4 Principle

Following the Helmen method, a piece of transparent adhesive tape is placed on the test surface and rubbed with a plastic spatula or a finger until there is optimum adhesion. Then the rubbed adhesive tape is removed and its transparency measured. Two types of apparatus can be used, one giving a direct reading for chalking, the other one measures transmission which is converted to chalking as follows: x % transmission is equivalent to $(100 - x)$ % chalking.

5 Apparatus and materials

5.1 Portable chalking apparatus, giving a direct reading for chalking, commercially available such as the Helmen chalking tester, or **60° glossmeter** or **multi-angle glossmeter** with 60° adjustment, in accordance with EN ISO 2813, both with chalking adaptor.

The type of light detector can influence the readings. A silicon photocell is therefore recommended.

NOTE Differences in the light path between the light source and the photocell can influence readings.

5.2 Transparent pressure-sensitive adhesive tape, 25 mm wide, with an adhesion strength of (10 ± 1) N per 25 mm width when tested in accordance with EN 60454-2, and checked as described in 8.2.

5.3 Plastic spatula, typically of 25 mm width, with a smooth surface.

6 Sampling

See EN 13523-0.

7 Test specimens

See EN 13523-0, EN 13523-10, and EN 13523-19.

8 Procedure

8.1 General

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

As dirt collection can influence readings, outdoor weathered test specimens shall be measured after gentle cleaning of the area to be measured. The cleaning procedure shall be agreed between the interested parties but shall not remove any degradation products.

8.2 Checking the adhesive tape

Measure the transmission of the adhesive tape (5.2) on an appropriate support. If the transmission is less than 90 %, that roll of adhesive tape shall not be used.