

Coil coated metals — Test methods —

Part 21: Evaluation of outdoor exposed panels

The European Standard EN 13523-21:2003 has the status of a
British Standard

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee STI/27, Paint systems for metallic substrates, which has the responsibility to:

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English version

Coil coated metals - Test methods - Part 21: Evaluation of outdoor exposed panels

Tôles prélaquées - Méthodes d'essai - Partie 21 :
Evaluation des panneaux exposés en extérieur

Bandbeschichtete Metalle - Prüfverfahren - Teil 21 :
Bewertung von freibewitterten Probenplatten

This European Standard was approved by CEN on 10 July 2003.

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Foreword

This document (EN 13523-21:2003) 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of an identical text or by endorsement, at the latest by February 2004, and conflicting national standards shall be withdrawn at the latest by February 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

1 Scope

This Part of this European Standard specifies the procedure for evaluating the behaviour of an organic coating on a metallic substrate during and after outdoor exposure. Panel design, preparation and the procedure for outdoor exposure are to be performed in accordance with prEN 13523-19.

After washing of the panel some dirt can remain on the panel. This remaining dirt can influence the accuracy and precision of readings of gloss and colour, performed on exposed panels, although carried out in accordance with the standards. Unlike other precise measurements, the objective of this Part of this European Standard is to report on trends in the corrosion and/or paint degradation behaviour of coil coated panels.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

EN 13523-2, *Coil coated metals — Test methods — Part 2: Specular gloss*.

EN 13523-3, *Coil coated metals — Test methods — Part 3: Colour difference — Instrumental comparison*.

EN 13523-14, *Coil coated metals — Test methods — Part 14: Chalking (Helmen method)*.

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

prEN ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering (ISO/FDIS 4628-2:2003)*.

prEN ISO 4628-3, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting (ISO/FDIS 4628-3:2003)*.

prEN ISO 4628-4, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking (ISO/FDIS 4628-4:2003)*.

prEN ISO 4628-5, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 5: Assessment of the degree of flaking (ISO/FDIS 4628-5:2003)*.

3 Terms and definitions

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

4 Principle

The behaviour of the test panels exposed in accordance with prEN 13523-19 is evaluated. Any degradation in the relevant area is reported, using the relevant Parts of EN 13523 and appropriate International Standards.

In cases where the inspection area is limited (e.g. at screws and bends), the evaluation method described in the prEN ISO 4628 series is replaced by an easier and more suitable measurement of the degradation in millimetres.

Where possible, the results of symmetrical areas, e.g. left and right edges, are combined and the mean value is reported.

The inspection of the 45° panel (panel 1) will focus on paint degradation, whereas the 90° panel (panel 2) and the 5° panel (panel 3) are mainly evaluated for corrosion.

NOTE 1 Panel designations (1, 2, 3) are as defined in prEN 13523-19.

NOTE 2 Due to restrictions in the available flat area, the number of recommended readings may vary from the Parts of EN 13523 and relevant International Standards.

NOTE 3 It is strongly recommended to take a photograph of each exposed panel at each inspection.

5 Apparatus and materials

5.1 Gloss meter, in accordance with EN 13523-2.

5.2 Apparatus for colour measurement, in accordance with EN 13523-3.

5.3 Apparatus for measurement of chalking, in accordance with EN 13523-14.

5.4 Washing solution, containing a mass fraction of 0,5 % of a mild non-reactive detergent (pH value of 6 to 7) in water.

5.5 Cloth or sponge, non-abrasive and smooth.

6 Sampling

See EN 13523-0.

7 Test panels

See EN 13523-0.

8 Procedure

8.1 General

Evaluate the coating properties at ambient temperature.

It is recommended that the panels are inspected not less than every six months in the first year and yearly afterwards. Colour measurements on metallics as well as gloss and colour measurements on textured and embossed surfaces are only indicative.