

Coil coated metals — Test methods —

Part 19: Panel design and method of atmospheric exposure testing

The European Standard EN 13523-19:2004 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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Summary of pages

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Bandbeschichtete Metalle - Prüfverfahren - Teil 19: Probenplatten und Verfahren zur Freibewitterung

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

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Foreword

This document (EN 13523-19:2004) 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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.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.

Introduction

In the past it has been common practice in the northern hemisphere to expose test panels at 45° facing South.

Whilst this orientation is appropriate for degradation of the organic coating, investigations have shown that it has little bearing on the overall corrosion performance of the product when used in building applications.

For example, the 45° facing South exposure takes no account of

- overhangs which produce unwashed areas;
- sheet overlaps;
- low pitched roofing, etc.

The Outdoor Exposure Committee of European Coil Coating Association (ECCA) designed an exposure system which aligns more closely with "real life" situations and which is the basis of this part of EN 13523

Three panel orientations are specified:

- a) PANEL 1: 45° to horizontal facing South. The traditional orientation for evaluation of organic coatings: colour change, gloss change, chalking, etc.;
- b) PANEL 2: 90° to horizontal facing North, with an overhang for evaluating general corrosion on side cladding particularly in unwashed areas;
- c) PANEL 3: 5 ° to horizontal facing South. This panel which includes an overlap is principally for evaluating general corrosion in roofing applications.

The selection of one or more panel designs and their corresponding orientations will be chosen according to the exposure data required.

1 Scope

This part of EN 13523 specifies the panel design and describes the procedure for determining the resistance to outdoor exposure 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 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 13523-7:2001, *Coil coated metals — Test methods — Part 7: Resistance to cracking on bending (T-bend test)*.

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

EN 13523-21, *Coil coated metals — Test methods — Part 21: Evaluation of outdoor exposed panels*.

3 Terms and definitions

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

4 Apparatus

4.1 Rack design

The typical rack configuration accommodating the three elevations is shown in Figures 4 and 5. The actual design and material of manufacture is at the discretion of the individual taking into consideration the corrosivity on the exposure site. Similarly the method of fixing the panels to the rack is up to the individual, but they shall be fixed in such a way as to avoid bimetallic corrosion. The material to provide the overhang on the North-facing panel shall be manufactured from an inert rigid material such as polymethyl methacrylate ¹⁾ and shall give an overhang on the panel of 65 mm.

4.2 Apparatus to prepare 90° variable radius bends

Forming the 90° variable radius bends can be made either manually or by an automatic press fitted with a variable radius forming tool and die. The typical design of a suitable tool and die is illustrated in Figure 6 and defined in EN 13523-7:2001, 8.2.2.

1) e.g. Perspex