

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

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NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13523-19:2011 sisaldab Euroopa standardi EN 13523-19:2011 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 29.07.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.06.2011.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13523-19:2011 consists of the English text of the European standard EN 13523-19:2011.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 29.07.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 15.06.2011.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

Coil coated metals - Test methods - Part 19: Panel design and method of atmospheric exposure testing

Tôles prélaquées - Méthodes d'essai - Partie 19: Modèles de panneaux et méthode d'essai pour les essais d'exposition à l'extérieur

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

This European Standard was approved by CEN on 4 May 2011.

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Contents

Page

Foreword.....	3
Introduction.....	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Apparatus	6
5 Sampling.....	7
6 Test panels	7
7 Procedure	9
8 Expression of results	9
Annex A (informative) Parameters that can influence exposure results.....	15
Annex B (informative) ECCA outdoor exposure sites.....	17
Bibliography.....	18

Foreword

This document (EN 13523-19:2011) 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of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

This document supersedes EN 13523-19:2004.

The main technical changes are:

Annex B has been amended with the actual ECCA exposure sites.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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: Specular 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*
- *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 (Cataplasm test)*
- *Part 29: Resistance to environmental soiling (Dirt pick-up and striping)*

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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*

EN ISO 17872, *Paints and varnishes — Guidelines for the introduction of scribe marks through coatings on metallic panels for corrosion testing (ISO 17872:2007)*

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 a), 4 b) 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 approximately 65 mm (see 2 in Figure 4 a)).

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. Perspex is the trade name of a product supplied by Perspecs Distribution Ltd. This information is given for the convenience of users of this document and does not constitute an endorsement of the product named. Equivalent products may be used if they can be shown to lead to the same results.