SLOVENSKI STANDARD
oSIST prEN 13523-26:2020

01-november-2020

Prevlečene kovine, ki se navijajo - Preskusne metode - 26. del: Odpornost proti kondenzaciji vode

Coil coated metals - Test methods - Part 26: Resistance to condensation of water

Bandbeschichtete Metalle - Prüfverfahren - Teil 26: Beständigkeit gegen Kondenswasser

Tôles prélaquées - Méthodes d'essai - Partie 26: Résistance à la condensation de l'eau

Ta slovenski standard je istoveten z: **prEN 13523-26**

ICS:

17.040.20	Lastnosti površin	Properties of surfaces
25.220.60	Organske prevleke	Organic coatings

oSIST prEN 13523-26:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 13523-26

November 2020

ICS 25.220.60

Will supersede EN 13523-26:2014

English Version

Coil coated metals - Test methods - Part 26: Resistance to condensation of water

Tôles prélaquées - Méthodes d'essai - Partie 26: Résistance à la condensation de l'eau

Bandbeschichtete Metalle - Prüfverfahren - Teil 26: Beständigkeit gegen Kondenswasser

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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Ref. No. prEN 13523-26:2020 E

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European foreword

This document (prEN 13523-26:2020) 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 13523-26:2014.

The main changes are:

a) ISO 3696 has been added to 5.2 as reference for the deionized water;

b) a remark concerning the assessment of Zn/Al/Mg-coated steel substrates has been added to Clause 9;

c) the list of the existing parts of EN 13523 has been updated;

d) the text has been editorially revised 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 and metamerism — 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 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: 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 (Cataplasm test)*

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

1 Scope

This document specifies a procedure for evaluating the resistance to continuous condensation of an organic coating on a metallic substrate, by means of exposure in a humidity cabinet under controlled conditions.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Coil coated metals — Test methods — Part 0: General introduction*

EN 13523-2, *Coil coated metals — Test methods — Part 2: Gloss*

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

EN 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 4628-2)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

A test panel is exposed to continuous water condensation for a pre-determined time and at a specified temperature. The test panel is evaluated for any changes such as blistering or corrosion, e.g. red rust, white rust. Optionally, changes in colour and/or gloss are evaluated as well.

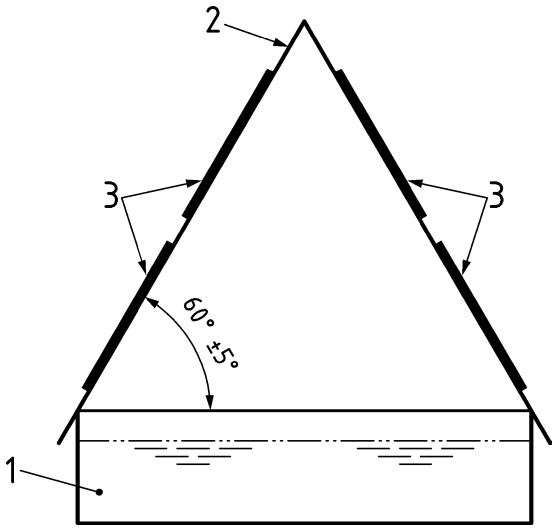
5 Apparatus and materials

Ordinary laboratory apparatus and glassware, together with the following:

5.1 Cabinet.

The apparatus consists essentially of an electrically heated water bath with temperature control and a cover designed to support the test panels which are placed at an angle of (60 ± 5)° to the horizontal, The tested face of the samples is facing down, the other face being exposed to the environment. If necessary, suitable inert blanking samples may be used to ensure the tightness of the chamber. The insulation of the cabinet shall be enough to guarantee constant temperature of the air space below the panels.

An example for cabinet design is given in Figure 1.



Key

1 heated water bath

2 cover

3 test panel

Figure 1 — Principle design of the humidity cabinet (cross view)

5.2 Deionised water, having a conductivity not greater than 0,5 mS/m, as specified in ISO 3696:1987, Grade 3.

6 Sampling

Sampling shall be in accordance with EN 13523-0.

7 Test panels

Test panels shall be in accordance with EN 13523-0.

The panels (usually 150 mm × 100 mm) shall be flat and free from contamination.

8 Procedure

8.1 Exposure

If specified, determine the gloss and colour before exposure.

Position the test panels in the frame at an angle of (60 ± 5)° to the horizontal with the test surface facing down.

Control the temperature of the water so that the temperature in the air space above the water is maintained at (38 ± 2) °C.

Use deionised water (5.2) having a conductivity not greater than 0,5 mS/m and maintain the quantity of the water throughout the test.

Ambient temperature around the cabinet shall not exceed 23 °C.

Expose the test panels for 500 h, 1 000 h or 1 500 h, unless otherwise agreed.

8.2 Evaluation

At the end of the required exposure period remove the panels from the cabinet, carefully wipe off surface moisture with a soft tissue and immediately conduct the final evaluation.

If required, take pictures to record any change caused by exposure.

Inspect the surface for blisters in accordance with EN ISO 4628-2. If specified, evaluate the gloss difference in accordance with EN 13523-2 and the colour difference in accordance with EN 13523-3.

NOTE Edges are not evaluated, as they could be affected by the frame.

9 Expression of results

Express the results as follows:

— blistering in accordance with EN ISO 4628-2;

— gloss difference in accordance with EN 13523-2;

— colour difference in accordance with EN 13523-3.

For Zn/Al/Mg-coated steel substrates filiform type corrosion may be observed. The assessment in this case shall be agreed between the interested parties.

10 Precision

No precision data are currently available.

11 Test report

The test report shall contain at least the following information:

a) all details necessary to identify the product tested;

b) a reference to this document, i.e. EN 13523-26;

c) the duration of the exposure, in hours;

d) the results of the test, as indicated in Clause 9;

e) any deviation from the test method specified;

f) any unusual features (anomalies) observed during the test;

g) the date of the test.

Bibliography

[1] EN 1396, *Aluminium and aluminium alloys — Coil coated sheet and strip for general applications — Specifications*

[2] EN 10169:2010+A1:2012, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*

[3] EN ISO 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Continuous condensation (ISO 6270-1)*