



BSI Standards Publication

Coil coated metals — Test methods

Part 27: Resistance to humid poultice (Cataplasm test)

National foreword

This British Standard is the UK implementation of BS EN 13523-27:2017. It supersedes BS EN 13523-27:2009, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee STI/21, Paint systems and surface preparation for metallic substrates.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected
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English Version

Coil coated metals - Test methods - Part 27: Resistance to humid poultice (Cataplasma test)

Tôles prélaquées - Méthodes d'essai - Partie 27 :
Résistance à la corrosion sous cataplasme (essai au
cataplasme)

Bandbeschichtete Metalle - Prüfverfahren - Teil
27: Beständigkeit gegen feuchte Verpackung
(Kataplasma-Test)

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European foreword

This document (EN 13523-27:2017) 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of an identical text or by endorsement, at the latest by October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

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

This document supersedes EN 13523-27:2009.

The main changes are:

- a) the description of the buffer solution was amended;
- b) the text has been revised editorially 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 — 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: 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 (Cataplasma test)*
- *Part 29: Resistance to environmental soiling (Dirt pick-up and striping)*

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1 Scope

This part of the EN 13523 series specifies a procedure for evaluating the resistance of an organic coating on a metallic substrate (coil coating) in conditions of extreme humidity (acid, alkaline and/or neutral).

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.

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

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)*

EN 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 4628-3)*

EN 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 degree of flaking (ISO 4628-5)*

EN ISO 4628-10, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 10: Assessment of degree of filiform corrosion (ISO 4628-10, Corrected version 2016-06-01)*

3 Terms and definitions

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

4 Principle

A test specimen is exposed to an enclosed humid environment for a pre-determined time, at a specified temperature. The test panel is evaluated for any uniform or local change such as blistering or corrosion (e.g. red rust, white rust).

5 Apparatus and materials

5.1 Purified absorbent cotton-wool, single layer, of rectangular shape of about 250 mm × 650 mm and weighing $(22,5 \pm 2,5)$ g.

5.2 Heat resistant and thermally sealable waterproof plastics bag and the relevant sealing equipment.

The plastics bag can be made of polyethylene, for example, and should be at least 0,22 mm thick.

5.3 Specific solution.

- For a neutral humid environment, deionised water with an electrical conductivity less than 0,5 mS/m (see also EN ISO 3696);
- for an acid humid environment, a standard buffer solution of pH 4;
- for an alkaline humid environment, a standard buffer solution of pH 9.

The composition of the standard buffer solutions shall be agreed prior to testing, because it may influence the test result. It shall be stated in the test report.

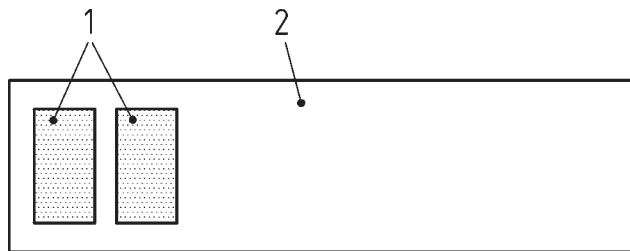
5.4 **Oven**, capable of maintaining a temperature of $(70 \pm 3) ^\circ\text{C}$.

6 Sample preparation

Four test specimens, typically $75 \text{ mm} \times 150 \text{ mm}$, are necessary for the material under test in each humid environment. They shall be flat and free from contamination. Sampling shall be performed according to EN 13523-0. If not otherwise specified, the edges of exposed panels shall be sheared with the burrs away from the test surface.

Wrap the test specimens in the cotton-wool as follows:

Place the first two test specimens on the cotton-wool, with the test surface facing down (see [Figure 1](#)):



Key

- 1 test specimens
- 2 cotton-wool

Figure 1 — 1st layer

Fold the cotton-wool and place the last two test specimens, with the test surface facing up (see [Figure 2](#)):

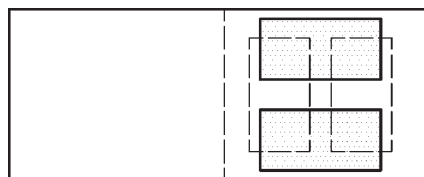
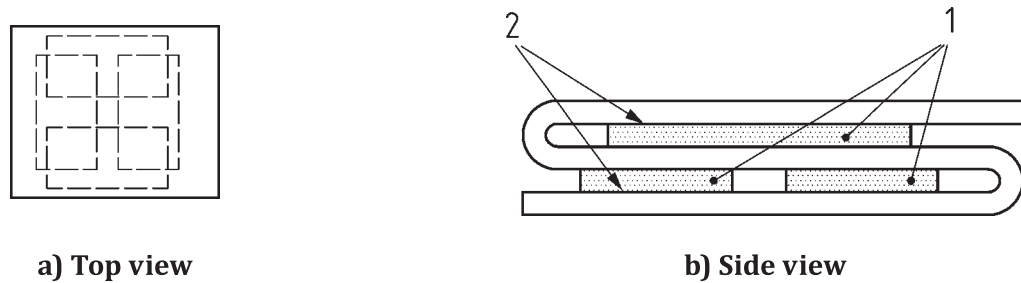


Figure 2 — 2nd layer

Fold the cotton-wool over the last test specimens (see [Figure 3](#)):



Key

- 1 test specimens
- 2 coating to be tested

Figure 3 — 3rd layer

Place the test specimens wrapped in the cotton-wool in the plastics bag and add (270 ± 5) g (i.e. $12 \times$ the mass of the cotton wool) of the solution (5.3). Carefully flatten the bag manually and seal it thermally in order to minimize losses.

7 Procedure

7.1 Exposure

Pre-heat the oven to (70 ± 3) °C. Place the plastic bag with specimens horizontally inside the oven. Maintain the oven temperature at (70 ± 3) °C for the duration of the test (7 or 14 days, as agreed or specified), during which time the bag shall not be opened.

7.2 Evaluation

Remove the bag from the oven and allow it to cool down to ambient temperature. Once cooled, open the bag as soon as possible. Remove the specimens and wipe away surface moisture with a soft tissue. Evaluate the specimens without further delay.

8 Expression of results

8.1 Overall surface (flat test surface)

Inspect the overall surface for blistering in accordance with EN ISO 4628-2.

8.2 Edges

Describe and measure the type of defect (blistering, white or red rust, flaking, filiform corrosion) in accordance with EN ISO 4628-2, EN ISO 4628-3, EN ISO 4628-5 and EN ISO 4628-10.

9 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 part of the EN 13523 series (EN 13523-27);
- c) the applied test conditions (composition of standard buffer solutions);

- d) the test duration;
- e) the results of the test, as indicated in [Clause 8](#);
- f) any deviation from the test procedure described;
- 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, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*
- [3] EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

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