SLOVENSKI STANDARD

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Prevlečene kovine, ki se navijajo - Preskusne metode - 18. del: Odpornost proti nastanku madežev

Coil coated metals - Test methods - Part 18: Resistance to staining

Bandbeschichtete Metalle - Prüfverfahren - Teil 18: Beständigkeit gegen Fleckenbildung

Tôles prélaquées - Méthodes d'essai - Partie 18 : Résistance aux taches

Ta slovenski standard je istoveten z: EN 13523-18:2020

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25.220.60	Organske prevleke	Organic coatings

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EUROPEAN STANDARD

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English Version

Coil coated metals - Test methods - Part 18: Resistance to staining

Tôles prélaquées - Méthodes d'essai - Partie 18 : Résistance aux taches

Bandbeschichtete Metalle - Prüfverfahren - Teil 18: Beständigkeit gegen Fleckenbildung

This European Standard was approved by CEN on 3 May 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 13523-18:2020) 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of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

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 13523-18:2002.

The main changes are:

a) the required supplementary information (former Clause 10) has been integrated in the test report;

b) 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 — 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 (Cataplasm test)*

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies test procedures for assessing the effect of chemicals on the characteristics of an organic coating on a metallic substrate. It covers testing by using defined substances and to assess the change in characteristics such as discoloration, change in gloss, blistering, softening, swelling and loss of adhesion. Assessment of other phenomena can be agreed between the interested parties.

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 23270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing (ISO 3270)*

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:

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

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

4 Principle

A coated test panel or a flat surface on a fabricated article is exposed to an individual substance for an agreed period of time. Three different test procedures can be used:

a) **Spot test (covered):** The substance is placed on the test panel and immediately covered with a watch glass.

b) **Spot test (open):** The substance is placed on the test panel and left open to the atmosphere.

c) **Immersion test:** The test panel is partly immersed in the substance.

5 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

5.1 Watch glass, of diameter 50 mm.

5.2 Pipette, of capacity 5 ml, graduated in 0,1 ml.

5.3 Glass beaker, of capacity 600 ml, with a suitable cover.

5.4 Hotplate, with thermostatic control.

6 Substances

The type of substance, its composition and concentration to be used shall be agreed between the interested parties.

EXAMPLES of possible substances are:
- distilled water (cold);
- distilled water (hot);
- alkaline solution;
- diluted mineral acid;
- acetic acid;
- soap solution;
- detergent solution;
- ethanol, with a volume fraction of 50 %;
- lighter fluid and other volatile reagents;
- fruit;
- oil and fats - butter, margarine, lard, vegetable oils, etc.;
- condiments - mustard, tomato puree, curry, etc.;
- beverages - coffee, tea, cola, etc.;
- lubricating oils and greases;
- shoe polish;
- lipstick;
- marker pens;
- other substances as agreed between the interested parties.

7 Sampling

Sampling shall be in accordance with EN 13523-0.

8 Test panels

Preparation and conditioning of test panels shall be in accordance with EN 13523-0.

A representative panel shall be selected from the organic coating under test. Spot and direct application techniques may be carried out on the fabricated article coated with the finishing system to be tested, if flat surface is available. For immersion tests and tests where the finished article is not available, panels shall be prepared after consultation and agreement between the interested parties.

9 Procedure

9.1 General

The individual procedure (9.2, 9.3 or 9.4) to be used shall be agreed between the interested parties.

9.2 Spot test (covered)

Unless otherwise agreed between the interested parties, carry out the test on a single test panel at ambient temperature. In case of dispute, the ambient temperature shall be defined as (23 ± 2) °C and the relative humidity as (50 ± 5) %, in accordance with EN 23270.

Deposit the agreed substance (see the note in Clause 6) on the horizontal test panel or flat test surface of the fabricated article. For fluid substances, apply approximately 1 ml, using the pipette (5.2). For other substances, apply to an area approximately one half of the watch glass (5.1). Cover immediately with the watch glass.

After the agreed period of time, wipe gently to remove any residues of the substance and examine immediately for any change of the coating characteristics as described in Clause 1.

A typical test period is 24 h. If an intermediate examination is needed, a series of additional spots of the same substance is required. If desired and agreed, the panel may be allowed to recover for a specified time period and then examined for the return of the original properties.

9.3 Spot test (open)

Unless otherwise agreed between the interested parties, carry out the test on a single test panel at ambient temperature. In case of dispute, the ambient temperature shall be defined as (23 ± 2) °C and the relative humidity as (50 ± 5) %, in accordance with EN 23270.

Place a small portion of the agreed substance (see the note in Clause 6) on the test panel or test surface which is in horizontal position. In case of test on fruit, place a freshly cut surface in contact with the test coating.

After the agreed time period, wipe gently to remove any residues of the substance and examine immediately for any change of the characteristics as described in Clause 1.

A typical test period is 24 h. If an intermediate examination is needed, a series of additional spots of the same substance is required. If desired and agreed, the panel may be allowed to recover for a specified time period and then examined for the return of the original properties.

9.4 Immersion test

Immerse a suitably agreed and prepared test panel of dimensions typically 70 mm × 100 mm to half of its length in the agreed substance contained in the glass beaker (5.3) at the test temperature. After the agreed time period, withdraw the panel, wipe gently to remove any residues of the substance, dry with absorbent paper and examine immediately for any change of the characteristics as described in Clause 1.

If desired and agreed, the panel may be allowed to recover before examination. It is normally not necessary to seal the edges of the panel, but if the substance markedly effects the edge condition of the panel, the test should be repeated with the edges sealed, the sealer being agreed between the interested parties.

10 Expression of results

The results shall be expressed as the type of effect observed such as discoloration (staining), change in gloss, blistering, softening, swelling, loss of adhesion or any other phenomena as agreed between the interested parties.

11 Precision

No precision data are currently available.