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**Prevlečene kovine, ki se navijajo - Preskusne metode - 3. del: Barvna razlika - Primerjava z merilnim instrumentom**

Coil coated metals - Test methods - Part 3: Colour difference - Instrumental comparison

Bandbeschichtete Metalle - Prüfverfahren - Teil 3: Farbabstand - Farbmetrischer Vergleich

Tôles prélaquées - Méthodes d'essai - Partie 3 : Différence de couleur - Comparaison au moyen d'instruments

**Ta slovenski standard je istoveten z: FprEN 13523-3**

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17.180.20	Barve in merjenje svetlobe	Colours and measurement of light
25.220.60	Organske prevleke	Organic coatings

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**FINAL DRAFT**  
**FprEN 13523-3**

February 2014

ICS 25.220.60

Will supersede EN 13523-3:2001

English Version

**Coil coated metals - Test methods - Part 3: Colour difference -  
Instrumental comparison**

Tôles prélaquées - Méthodes d'essai - Partie 3 : Différence  
de couleur - Comparaison au moyen d'instruments

Bandbeschichtete Metalle - Prüfverfahren - Teil 3:  
Farbabstand - Farbmetrischer Vergleich

This draft European Standard is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 139.

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

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## Foreword

This document (FprEN 13523-3:2014) 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 Formal Vote.

This document will supersede EN 13523-3:2001.

The main technical changes are:

- a) the definitions were aligned with those in EN ISO 4618;
- b) the scope and procedure were amended.

EN 13523, *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*

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- *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)*

## 1 Scope

This part of EN 13523 specifies procedures for determining the instrumental colour difference (CIELAB) of an organic coating on a metallic substrate.

Establishing a standard as well as the magnitude of an acceptable colour difference are not covered by this method.

Two methods are given in this part of EN 13523:

- a) instrumental colour difference measurement using a tristimulus colorimeter;
- b) instrumental colour difference measurement using a spectrophotometer or equivalent.

Care shall be taken when measuring e.g.

- textured surfaces;
- fluorescent coatings;
- metamerism coatings;
- multi-coloured, pearlescent, metallic or special colour effect coatings.

In order to determine whether metamerism is present, the metamerism index is determined (see EN 13523-15) and/or a visual examination (see EN 13523-22) is performed with different artificial light sources.

## 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.

prEN 13523-0:2013, *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)*

EN ISO 11664-4, *Colorimetry — Part 4: CIE 1976 L\*a\*b\* Colour space (ISO 11664-4)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 13523-0:2013 and the following apply.

### 3.1

#### **colour**

sensation resulting from the perception of light of a given spectral composition by the human eye

[SOURCE: prEN ISO 4618:2013, 2.58]

**FprEN 13523-3:2014 (E)****3.2****embossed coating**

coating which, when dried, has been mechanically impressed with a pattern

**3.3****metamerism**

phenomenon perceived when two specimens have the same colour under the lighting of an illuminant, but different spectral reflection and transmission curves

[SOURCE: prEN ISO 4618:2013, 2.157]

**3.4****textured coating**

coating which, after drying, is characterized by a regularly structured surface

[SOURCE: prEN ISO 4618:2013, 2.255]

**4 Principle**

The tristimulus values  $X$ ,  $Y$  and  $Z$  (see EN ISO 11664-3) of both standard colour reference panel (called “standard” through the text) and specimen are measured. Colour differences between the two measurements are calculated from these tristimulus values.

**5 Apparatus**

Ordinary laboratory apparatus, together with the following:

**5.1 Tristimulus colorimeter.**

**5.2 Recording spectrophotometer** or equivalent. The instrument shall provide the possibility of obtaining the tristimulus values either for the 2°-standard colorimetric observer and source  $C$  or for the 10°-supplementary standard colorimetric observer and source D65. The latter conditions of 10° observer and D65 source are preferred.

Preferably the measured area shall have a minimum diameter of 10 mm. If a smaller diameter is used, this shall be stated in the test report.

**6 Sampling**

See EN 13523-0.

**7 Specimens**

See EN 13523-0.

The surfaces to be measured shall be at least as large as the area of the measuring aperture and shall be flat against the measuring aperture.