



SLOVENSKI STANDARD
oSIST prEN ISO 13076:2019
01-junij-2019

Barve in laki - Osvetlitev in postopek za vizualno ocenjevanje premazov (ISO/DIS 13076:2019)

Paints and varnishes - Lighting and procedure for visual assessments of coatings (ISO/DIS 13076:2019)

Beschichtungsstoffe - Beleuchtung und Durchführung für visuelle Abmusterungen von Beschichtungen (ISO/DIS 13076:2019)

Peintures et vernis - Éclairage et mode opératoire pour évaluations visuelles des revêtements (ISO/DIS 13076:2019)

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ICS:

87.040 Barve in laki Paints and varnishes

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Paints and varnishes — Lighting and procedure for visual assessments of coatings

Peintures et vernis — Éclairage et mode opératoire pour évaluations visuelles des revêtements

ICS: 87.040

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ISO/DIS 13076:2019(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 13076:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- [Clause 2](#), Normative references, and [Clause 3](#), Terms and definitions, have been added;
- a reference to ISO 4618 on Terms and definitions has been added to [Clause 3](#);
- a new light source, LED, has been added;
- [Table A.1](#) has been added by some new examples of applications of this document;
- the text has been editorially revised and the normative references have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Paints and varnishes — Lighting and procedure for visual assessments of coatings

1 Scope

This document specifies the lighting and procedure for the visual assessment of degraded areas, spots or other defects on or in coatings.

It is not applicable to the visual comparison of colour, which can be assessed using ISO 3668.

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.

ISO 4618, *Paints and varnishes — Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 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 <http://www.iso.org/obp>

4 Principle

The panel is visually assessed under specified conditions of illumination for degraded areas, spots or other defects.

5 Apparatus

5.1 Fluorescent lamp or dull LED (light-emitting diode), comprising a wide-angle light source with an aluminium-coated reflector positioned to reflect the light downwards (see [Figure 1](#)), a colour temperature of 6 500 K and a degree of colour rendering index (CRI) of 9 (corresponding to colour rendering class 1A, i.e. a CRI, R_a , of 90 to 100). This colour temperature is realized in the CIE standard illuminant D65, as described in CIE 15:2004.

NOTE 1 This colour temperature and colour rendering give the light colour 965.

NOTE 2 Physical relationship of luminance and luminous flux: $1 \text{ lx} = 1 \text{ lm/m}^2$ and $1 \text{ lm} = 1 \text{ cd} \cdot \text{sr}$

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6 Procedure for visual assessment

6.1 General

Either natural or artificial daylight may be used for routine assessments. Precisely controlled artificial lighting shall be used for arbitration purposes, however, since the properties of natural daylight are not constant and evaluations in natural daylight can be influenced by the surroundings.

6.2 Assessment in natural daylight

Diffuse daylight, such as that which falls from a partly cloudy sky on a north-facing test panel (south-facing in the southern hemisphere), should preferably be used. The areas to be assessed, and the areas surrounding them, shall be uniformly illuminated with an illuminance which shall be not less than 2 000 lx. Direct sunlight shall be avoided.

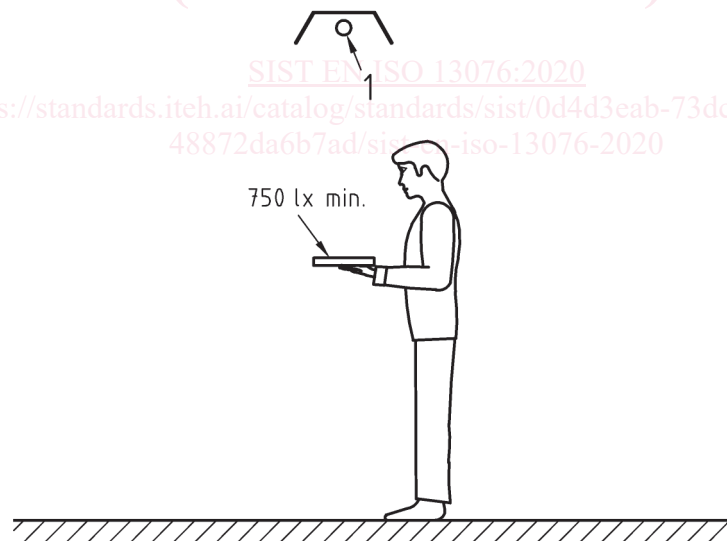
6.3 Assessment under artificial lighting

Assess the coating under a fluorescent lamp or a LED as specified in 5.1. Hold the test panel at a distance from the lamp such that the illuminance at the surface of the coating is not less than 750 lx (see Figure 1).

The illuminance shall be measured after setting up the fluorescent lamp or LED.

The panel being assessed may be inclined in any direction. Degraded areas and spots can best be identified when examined at the light/dark boundary produced by the lamp.

Assessments made for arbitration purposes shall always be carried out under artificial light.



Key

- 1 lamp

Figure 1 — Configuration of lamp, test panel and observer

7 Test report

When the procedure specified in this International Standard is used, the following items shall be added to the test report for the test method standard:

- a) a reference to this document (i.e. ISO 13076);

- b) an indication of the type of lighting (natural or artificial) under which the test panel was assessed, plus, when artificial lighting was used, details of the type of light source.

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Annex A (informative)

Examples of applications

[Table A.1](#) gives examples of visual assessments for which the procedure specified in this document can be used.

Table A.1 — Examples of applications of this document

| Test method | Standard |
|--|---|
| Cross-cut test | ISO 2409 |
| Impact tests | ISO 6272-1, ISO 6272-2 |
| Stone chipping | ISO 20567-1, ISO 20567-2, ISO 20567-3 |
| Chemical resistance, including corrosion tests | ISO 2812-1, ISO 2812-2, ISO 2812-3, ISO 2812-4, ISO 2812-5, ISO 15710 |
| Defects of coatings | ISO 4628-2, ISO 4628-3, ISO 4628-4, ISO 4628-5, ISO 4628-6, ISO 4628-7, ISO 4628-8, ISO 4628-10 |
| Scratch and mar resistance | ISO 1518-1, ISO 1518-2, ISO 12137, ISO 21546 |
| Car-wash test | ISO 20566 |
| Bending tests | ISO 1519, ISO 6860, ISO 17132 |
| Drying tests | ISO 9117-1, ISO 9117-2, ISO 9117-3, ISO 9117-4, ISO 9117-5, ISO 9117-6 |
| Fineness of grind | ISO 1524/6:2020 |
| Adhesion | ISO 4624, ISO 22970 |
| Sag resistance | ISO 16862 |
| Evaluation of properties of coating systems related to the application process | ISO 28199-3 |
| Scrub resistance | ISO 11998 |