SLOVENSKI STANDARD
oSIST prEN ISO 4628-3:2023

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Barve in laki - Vrednotenje obsega in velikosti poškodb ter intenzitete enakomernih sprememb videza - 3. del: Ocenjevanje stopnje rjavenja (ISO/DIS 4628-3:2023)

Paints and varnishes - Evaluation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO/DIS 4628 -3:2023)

Beschichtungsstoffe - Beurteilung der Menge und der Größe von Schäden und der Intensität von gleichmäßigen Veränderungen im Aussehen - Teil3: Bewertung des Rostgrades (ISO/DIS 4628-3:2023)

Peintures et vernis - Évaluation de la quantité et de la dimension des défauts, et de l'intensité des changements uniformes d'aspect - Partie 3: Évaluation du degré d'enrouillement (ISO/DIS 4628-3:2023)

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87.040	Barve in laki	Paints and varnishes

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Paints and varnishes — Evaluation of quantity and size of defects, and of intensity of uniform changes in appearance —

Part 3:
Assessment of degree of rusting

ICS: 87.040

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation of 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 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 fourth edition cancels and replaces the third edition (ISO 4628-3:2016), which has been technically revised.

The main changes are as follows:

- the title has been shortened to “Paints and varnishes — Evaluation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting”;
- the scope has been opened for the evaluation of uncoated metal;
- a definition for white rust has been added;
- a note on the original size of the figures has been added to Clause 4;
- a table for designating the size of rusting has been added;
- the percentage of the rusted area in Figure A.5 has been corrected;
- the assessment of white rust together with new pictorial standards has been added;
- the assessment by estimating the rusted area in percent has been added;
- Annex B with an example for a test panel after ISO 9227 NSS salt spray test with a degree of rusting Ri 4 has been added;
- the correlation with the ASTM rust scale in Annex C has been adjusted to the 2008 edition of ASTM D610;
- the text has been revised editorially and the normative references have been updated.

A list of all parts in the ISO 4628 series can be found on the ISO website.

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 — Evaluation of quantity and size of defects, and of intensity of uniform changes in appearance —

Part 3: Assessment of degree of rusting

1 Scope

This document specifies a method for assessing the degree of rusting of surfaces coated

— with paints and varnishes (organic coatings),

— with metallic coating plus an organic coating (duplex coating) and

— with metallic coatings only (e.g. hot-dip galvanized steel)

by comparison with pictorial standards.

The standard can also be used for bare metal surfaces.

The pictorial standards provided in this document show surfaces which have deteriorated to different degrees by a combination of rust broken through the coating and visible under-rusting.

The assessing of the degree of rusting of this document is only an estimation of the affected area on specimen. Edges are not included.

NOTE 1 The pictorial standards have been selected from the "European rust scale" published by the European Confederation of Paint, Printing Ink and Artists' Colours Manufacturers' Associations (CEPE), Brussels. The correlation between the ISO scale and the "European rust scale" is given in Annex C, Table C.1.

NOTE 2 The correlation between the ISO scale and the rating system of ASTM D610-08 is given in Annex C, Table C.2.

ISO 4628-1 describes the system used for designating the quantity and size of defects and the intensity of changes in appearance of coatings and outlines the general principles of the system. This system is intended to be used, in particular, for defects caused by ageing and weathering, and for uniform changes such as colour changes, for example yellowing.

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*

ISO 13076, *Paints and varnishes — Lighting and procedure for visual assessments of coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 4618 and the following apply.

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

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

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

3.1
red rust
rating characterizing the degree of rust formation on uncoated iron/steel substrates or rust broken through and visible under-rusting on coated substrates

Note 1 to entry: A typical red layer of corrosion products on an iron/steel substrate is formed. The red rust layer is generally porous, brittle and/or powdery.

3.2
white rust
rating characterizing the degree of rust formation on uncoated zinc-coated steel, zinc alloys, aluminium alloys, magnesium alloys substrates or rust broken through and visible under-rusting on coated substrates

Note 1 to entry: A typical white/grey layer of corrosion products from certain metals is formed. These metals or alloys can exist as a coating on another substrate like steel. The white rust layer is generally porous, brittle and/or powdery.

4 Symbols and abbreviations

R	Red rust
Ri	Degree of red rust by comparison with pictorial standards
R%	Degree of red rust by estimating the rusted area in percent
WR	White rust
WRi	Degree of white rust by comparison with pictorial standards
WR%	Degree of white rust by estimating the rusted area in percent

5 Assessment of red rust

5.1 Method 1: Assessment of the degree of red rust by comparison with pictorial standards (Ri)

Assess the degree of red rust by means of the pictorial standards (Ri) given in Figure 1 to Figure 5. The original pictures are only examples of organic coated steel surfaces after natural weathering and don't show the rust reactions of surfaces after short time corrosion tests. Annex B shows an example for a test panel after ISO 9227 NSS salt spray test with a degree of rusting Ri 4. Rust water and rundowns shall not be assessed.

Figure 1 — Degree of rusting Ri 1