
International Standard



4628/1

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**Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect —
Part 1 : General principles and rating schemes**

Peintures et vernis — Évaluation de la dégradation des surfaces peintes — Désignation de l'intensité, de la quantité et de la dimension des types courants de défauts — Partie 1 : Principes généraux et modes de cotation

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4628/1 was developed by Technical Committee ISO/TC 35, *Paints and varnishes*.

This International Standard results from the division into separate parts of International Standard ISO 4628/1-1978, which had been approved by the member bodies of the following countries :

Australia	India	Romania
Austria	Iran	South Africa, Rep. of
Brazil	Italy	Sweden
Canada	Korea, Rep. of	Switzerland
Chile	Mexico	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	New Zealand	Yugoslavia
Germany, F. R.	Portugal	

No member body had expressed disapproval of the document.

This International Standard cancels and replaces section one of International Standard ISO 4628/1-1978.

Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect —

Part 1 : General principles and rating schemes

0 Introduction

This International Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

The other parts of ISO 4628 already published or in course of preparation are :

Part 2 : Designation of degree of blistering.

Part 3 : Designation of degree of rusting.

Part 4 : Designation of degree of cracking.

Part 5 : Designation of degree of flaking.

Part 6 : Designation of degree of chalking.¹⁾

Parts 2 to 6 provide auxiliary pictorial or other reference scales for rating particular types of defect. As far as possible, the scales are based on existing well-established schemes.

The schemes given in this part of ISO 4628 are intended to provide a system for describing, in a standard manner, test areas showing the common types of defects of coatings, in particular the defects caused by ageing and weathering.

1 Scope and field of application

This part of ISO 4628 establishes a general system for designating the intensity, quantity and size of common types of defects of paint coatings and outlines the basic principles of the system in respect of designation of the intensity, quantity and size of defects.

2 Reference

ISO 4540, *Metallic coatings — Coatings cathodic to the substrate — Rating of electroplated test specimens subjected to corrosion tests.*

3 Designation of intensity and quantity of defects

A uniform convention has been adopted for designating the intensity and quantity of defects by means of ratings on a numerical scale ranging from 0 to 5; "0" denoting no defects, and "5" denoting defects so severe that further discrimination has no practical meaning.

The other ratings, corresponding to the numbers 1, 2, 3, and 4, are so defined that they give an optimal discrimination over the whole range of the scale.

The use of intermediate half-steps is permissible, if required, to give a more detailed report of the defects observed.

A general description of each of the ratings is given in tables 1 and 2.

Table 1 refers to defects consisting of a uniform deterioration of the visual appearance of the coating.

Table 2 applies to defects in the form of discontinuities or other local irregularities of the coating, scattered over the test area in a more or less even pattern.

NOTE — If appropriate, the quantity of small defects scattered over the test area can be assessed in terms of their frequency by means of a grid method. Details of such a method are described in ISO 4540.

1) At present at the stage of draft.

Table 1 — Uniform deterioration — Rating scheme for designating the intensity of deterioration consisting of a uniform change in the visual appearance of the paint coating

Rating	Intensity of change
0	unchanged, i.e. no perceptible change
1	very slight, i.e. just perceptible change
2	slight, i.e. clearly perceptible change
3	moderate, i.e. very clearly perceptible change
4	considerable, i.e. pronounced change
5	severe, i.e. intense change

Table 2 — Scattered defects — Rating scheme for designating the quantity of defects consisting of discontinuities or other local imperfections of the paint coating

Rating	Quantity of defects (relative to a test surface area of 1 to 2 dm ²)
0	none, i.e. no detectable defects
1	very few, i.e. some just significant defects
2	few, i.e. small but significant amount of defects
3	moderate, i.e. medium amount of defects
4	considerable, i.e. serious amount of defects
5	dense, i.e. dense pattern of defects

Table 3 — Rating scheme for designating the size (order of magnitude) of defects

Class	Size of defect
0	not visible under X 10 magnification
1	only visible under magnification up to X 10
2	just visible with normal corrected vision
3	clearly visible with normal corrected vision (up to 0,5 mm)
4	range 0,5 to 5 mm
5	larger than 5 mm

4 Designation of size of defects

The average size of defects shall be designated, if required and meaningful, according to the classification given in table 3.

5 Rating

Rate the intensity or quantity of the observed defects on the basis of the schemes given in table 1 or 2, depending on the type of phenomenon in question.

If applicable, also rate the average size of the individual defects on the basis of the scheme given in table 3.

6 Test report

The test report shall contain at least the following information :

- a) the type and identification of the product tested;
- b) a reference to this International Standard (ISO 4628/1);
- c) the type of defect;
- d) the intensity of the defect (table 1) or,
- e) the quantity of the defect (table 2);
- f) the rating, if any, of the size of the defect in parentheses, preceded by the letter "S".

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 Examples : cratering of top coat : 2 (S3)
 whitening : 4
 rivelling : 3 (S2)

If necessary, the test report may be amplified in words, for example "confined to edges" or "blistering of top coat down to the undercoat". The use of such comments shall, however, be avoided wherever possible.

- g) the date of the examination.