
**Paints and varnishes — Evaluation of
degradation of coatings — Designation of
quantity and size of defects, and of
intensity of uniform changes in
appearance —**

**Part 5:
Assessment of degree of flaking**

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*Peintures et vernis — Évaluation de la dégradation des revêtements —
Désignation de la quantité et de la dimension des défauts, et de
l'intensité des changements uniformes d'aspect —*

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Partie 5: Évaluation du degré d'écaillage



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 4628-5 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 4628-5:1982), of which it constitutes a mainly editorial revision.

ISO 4628 consists of the following parts, under the general title *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance*:

- *Part 1: General introduction and designation system*
- *Part 2: Assessment of degree of blistering*
- *Part 3: Assessment of degree of rusting*
- *Part 4: Assessment of degree of cracking*
- *Part 5: Assessment of degree of flaking*
- *Part 6: Assessment of degree of chalking by tape method*
- *Part 7: Assessment of degree of chalking by velvet method*
- *Part 8: Assessment of degree of delamination and corrosion around a scribe*
- *Part 10: Assessment of degree of filiform corrosion*

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

Part 5: Assessment of degree of flaking

1 Scope

This part of ISO 4628 describes a method for assessing the degree of flaking of coatings by comparison with pictorial standards, using the designation system defined in ISO 4628-1.

ISO 4628-1 defines 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.

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2 Normative references

[ISO 4628-5:2003](#)

The following referenced documents are indispensable for the application 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 4628-1, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 1: General introduction and designation system*

3 Terms and definitions

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

3.1

degree of flaking

rating characterizing flaked areas in a coating in terms of quantity, size and depth

4 Assessment

Assess the quantity of flaking by reference to Table 1 and using as an example Figure 1 or 2, depending on the type of flaking.

NOTE Figure 1 shows flaking without preferential direction and Figure 2 shows flaking in one preferential direction due to anisotropy of the substrate.

Table 1 — Rating scheme for designating the quantity of flaking

Rating	Flaked area %
0	0
1	0,1
2	0,3
3	1
4	3
5	15

Assess the average size of the individual areas exposed by flaking in accordance with Table 2.

Table 2 — Rating scheme for designating the size of areas exposed by flaking

Rating	Size of flaked areas (largest dimension)
0	not visible under × 10 magnification
1	up to 1 mm
2	up to 3 mm
3	up to 10 mm
4	up to 30 mm
5	larger than 30 mm

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Where a test area exhibits flaked areas of various sizes, quote as the size rating that of the largest areas which are numerous enough to be typical of the test area.

If possible, indicate the depth of flaking by reference to the level in the coating system where failure occurs. A distinction is made between two main types of failure by flaking:

- a) coat(s) flaking from an underlying coat;
- b) the whole coating system flaking from the substrate.

Carry out the assessment under good illumination.

5 Expression of results

Express the the numerical ratings of the quantity and size of flaking, where possible together with the depth of flaking (a or b), shown in Figures 1 and 2 together with the approximate dimensions of the area concerned, or its proportion of the total area, expressed as a percentage.

For example, for quantity 3, size 2, with the whole coating system flaking from the substrate, report the result as:

flaking; degree of flaking 3(S2)b

If necessary, the assessment may be amplified in words.

6 Test report

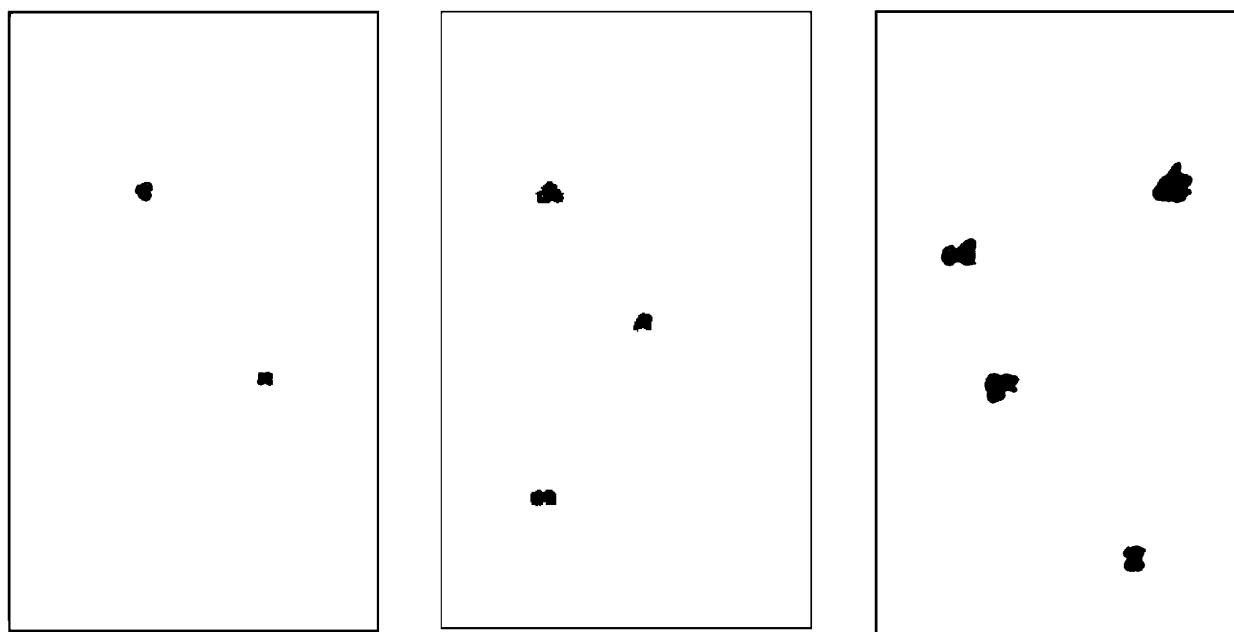
The test report shall contain at least the following information:

- a) all details necessary to identify the coating examined;
- b) a reference to this part of ISO 4628 (ISO 4628-5:2003);
- c) the type of surface examined, its size and, if appropriate, its location;
- d) the result of the assessment in accordance with Clause 5;
- e) an indication of the illumination under which the assessment was carried out;
- f) any unusual features (anomalies) observed during the assessment;
- g) the date of the examination.

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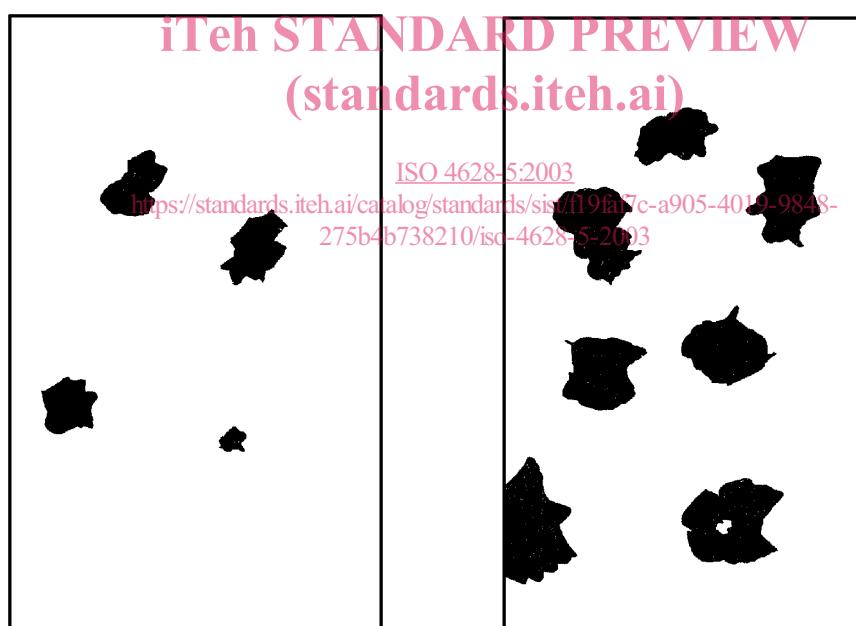
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Quantity (density) 1

Quantity (density) 2

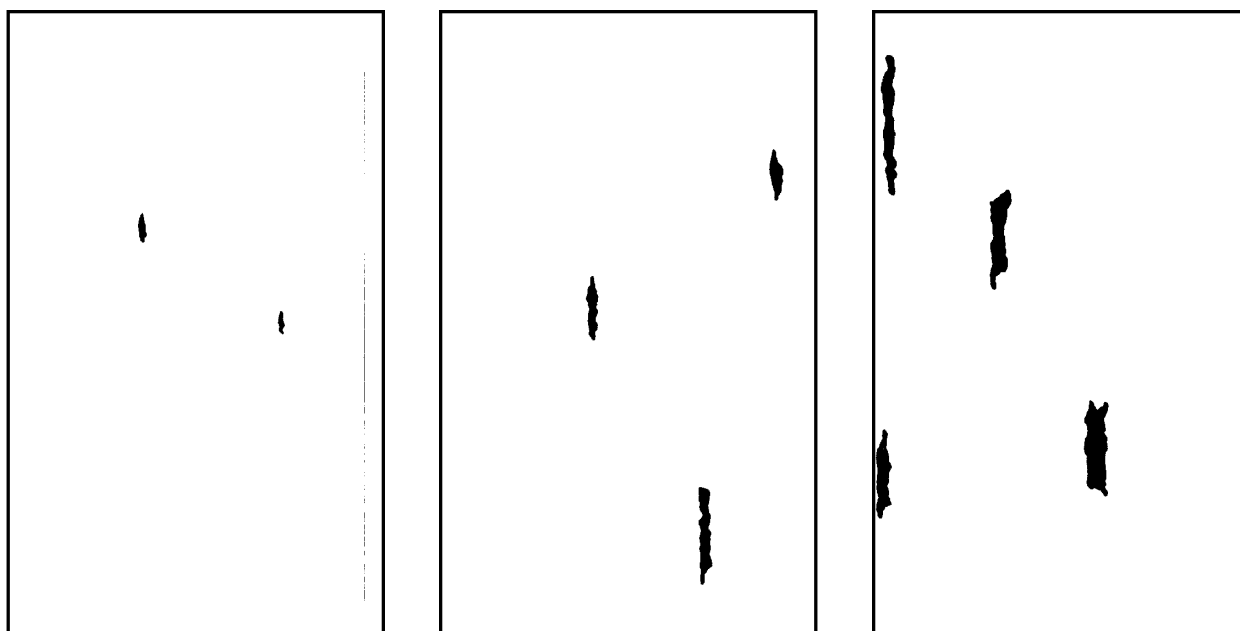
Quantity (density) 3



Quantity (density) 4

Quantity (density) 5

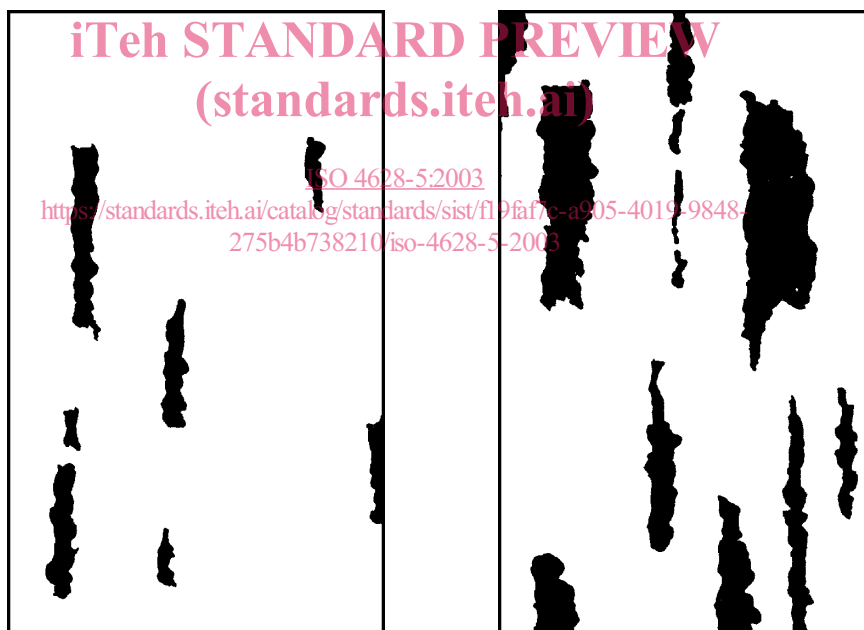
Figure 1 — Flaking without preferential direction
(panels of area 1 dm² to 2 dm²)



Quantity (density) 1

Quantity (density) 2

Quantity (density) 3



Quantity (density) 4

Quantity (density) 5

Figure 2 — Flaking in a preferential direction
(panels of area 1 dm² to 2 dm²)