

INTERNATIONAL STANDARD

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

Part 7: Assessment of degree of chalking by velvet method

*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 —*

*Partie 7: Évaluation du degré de farinage selon la méthode du
morceau de velours*



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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test method for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 4628-7:2003), which has been technically revised with the following changes:

- a) the pictorial reference standard for numerical chalking ratings 1 to 5 have been copied from ISO 4628-6:2011;
- b) a normative reference to ISO 13076 for illumination for the assessment has been added.

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 or other artificial defect*
- *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 7:

Assessment of degree of chalking by velvet method

1 Scope

This part of ISO 4628 specifies a method suitable, in particular, for rating the degree of chalking on white or coloured exterior coatings and coating systems on rough surfaces (i.e. those having a roughness greater than segment 4 of the reference comparator G as described in ISO 8503-1).

The test method specified can also be used for the assessment of the degree of chalking of coatings and coating systems on smooth surfaces, but the method specified in ISO 4628-6:2011 is preferable for this purpose.

The test method is applicable to coatings and coating systems on mineral substrates, e.g. fibre cement, brick, concrete, and renderings, independent of the structure of the surface. The method can be used quite effectively by experienced operators and is recommended for laboratory use as well as for on-site evaluation.

NOTE 1 When a reference to this test method is included in specifications, the test conditions (i.e. weathering method and substrate) have to be agreed between the interested parties.

NOTE 2 The method described in this part of ISO 4628 is a relative ranking method and is therefore not suitable for use in agreements between parties. See, however, the Note to [Table 1](#).

NOTE 3 Refer to ISO 4628-1 for the designation system for quantity and size of defects and the intensity of changes in appearance of coatings, as well as general principles of the system.

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.

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

3 Terms and definitions

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

3.1

chalking

appearance of a loosely adherent fine powder on the surface of a film arising from the degradation of one or more of its constituents

4 Principle

Loosely adherent powder is removed from the coating under test, using a suitable fabric. The degree of chalking is assessed with reference to a rating scale.

5 Materials

5.1 Fabric, as agreed between the interested parties, to rub against the surface being tested. Black wool felt, velvet, and velveteen have proven particularly effective for light coatings and a white fabric for dark coatings.

6 Assessment

Carry out the assessment under good illumination, as specified in ISO 13076.

Carry out the assessment in duplicate, unless otherwise agreed.

Using the index finger, press the fabric against the coating being tested with firm pressure. Rotate the fabric once through an angle of 180°. Remove the fabric and assess the degree of chalking under diffuse light in reference to the rating scheme shown in [Table 1](#).

A mechanical apparatus should be preferred if comparable results are obtained; the coating may also be wiped once with the fabric.

Table 1 — Rating scheme for designating the degree of chalking (derived from ISO 4628-1:2016, Table 3)

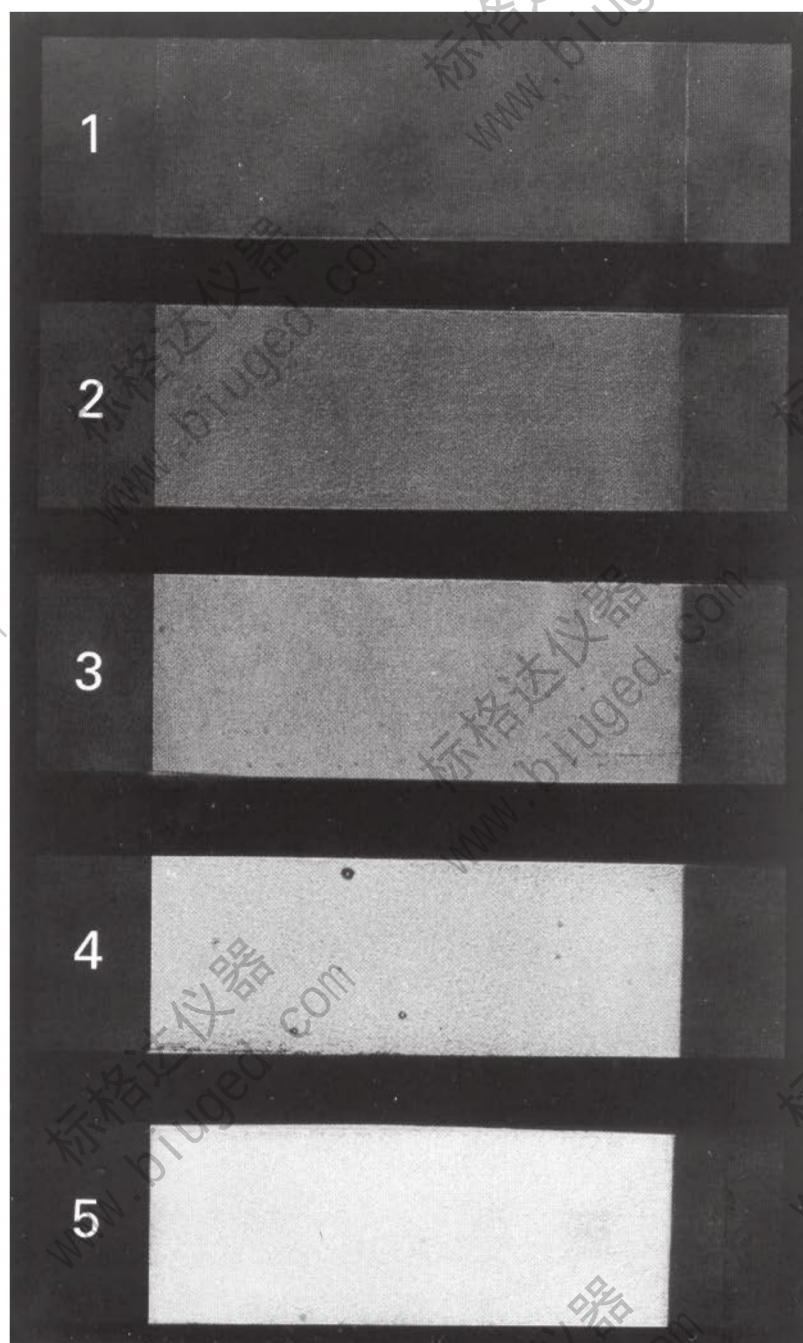
Rating	Degree of chalking
0	unchanged, i.e. no perceptible chalking
1	very slight, i.e. just perceptible chalking
2	slight, i.e. clearly perceptible chalking
3	moderate, i.e. very clearly perceptible chalking
4	considerable, i.e. pronounced chalking
5	severe, i.e. intense chalking

NOTE If specified or agreed, a simpler rating system can be used. However, in such cases, the meanings of the ratings in this table which are used shall not be changed in order to avoid confusion.

Examples of pictorial standards for assessing the degree of chalking are given in [Figure 1](#). The figure is obtained with the tape method specified in ISO 4628-6:2011, but the degrees of chalking 1 to 5 are comparable to those specified in this part of ISO 4628.

The amount of powder may vary over a given area. Therefore, the test shall be carried out at an average location on the coating. On large surfaces, the assessment shall be made at several locations, and the mean and range reported.

Ratings obtained with coatings exposed to natural weathering shall be treated with caution, as dirt from the atmosphere deposited on the surface can give abnormally high values of the degree of chalking.



NOTE The right-hand end of each tape corresponds to chalking rating of 0.

Figure 1 — Pictorial reference standards for numerical chalking ratings 1 to 5

7 Test report

The test report shall contain at least the following information:

- a) all details necessary to identify the coating tested;
- b) a reference to this part of ISO 4628, i.e. ISO 4628-7;
- c) the type of surface examined, its size and, if appropriate, its location;

- d) the numerical rating of the degree of chalking in accordance with [Clause 6](#) (mean value, range, and number of assessments);
- e) all details necessary to identify the fabric used;
- f) whether the result was obtained using the index finger or a particular apparatus (details to be indicated);
- g) details of any deviation from the procedure specified;
- h) any unusual features (anomalies) observed during the assessment;
- i) the date of the examination.

Bibliography

- [1] 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*
- [2] ISO 4628-6, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 6: Assessment of degree of chalking by tape method*
- [3] ISO 8503-1, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces*

