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Designation: D 772 – 86 (Reapproved 1993)

Standard Test Method for Evaluating Degree of Flaking (Scaling) of Exterior Paints[1]

This standard is issued under the fixed designation D 772; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers the evaluation of the degree of flaking (scaling) of exterior paints by comparison with photographic standards.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1150 Single and MultiPanel Forms for Recording Results of Exposure Tests of Paints[2]

2.2 *Other Standards:*

Pictorial Standards of Coating Defects Handbook[3]

3. Terminology Definition

3.1 *flaking (scaling)*—that phenomenon manifested in paint films by the actual detachment of pieces of the film itself either from its substrate or from paint previously applied. Flaking (scaling) is generally preceded by cracking or checking or blistering, and is the result of loss of adhesion, usually due to stress-strain factors coming into play.

4. Significance and Use

4.1 Flaking (scaling) failure of paint films can occur in use. This test method provides a means of evaluating the degree of failure by comparing to pictorial standards.

5. Type of Flaking (Scaling)

5.1 Only one type of flaking (scaling) is recognized, as defined in Section 3.

6. Use of Photographic Reference Standards

6.1 The photographic reference standards that are part of this test method and are provided in the *Pictorial Standards of Coating Defects Handbook* are representative of the degree of cracking of exterior paint films. Fig. 1 is for illustration purposes only and should not be used for evaluation.

6.2 The use of the photographic reference standards[2] illustrated in Fig. 1 requires the following precautions:

6.2.1 Care must be taken not to confuse various types of failure that may be present on the same surface.

6.2.2 It must be realized that degree of failure will vary over any given area. Therefore, an average portion of the film should be used for comparison. On larger surfaces it is recommended that ratings be made at several locations and the mean and range reported.

6.2.3 In technical literature, a distinction is sometimes made between flaking and scaling. In most cases, however, flaking and scaling refer to the same phenomenon. In some instances, the term flaking is used to describe the detachment of pieces of film less than ¼ in. (6.4 mm) in size, and scaling, the detachment of pieces over ¼ in. in size. In other instances, the term flaking is used to describe the detachment of pieces of film from the immediate undercoat (intercoat failure) and scaling the detachment of pieces from the base (complete failure). It should be kept in mind that the flakes may vary widely in size and shape from those illustrated by the reference standards in Fig. 1, varying from a fraction of an inch to several inches in size.

6.2.4 Peeling is frequently due to a moisture condition and when this is evident it should be taken into consideration in any evaluation.

6.2.5 For convenience in recording the data obtained, the records may be kept on forms such as Standard D 1150.[4]

7. Precision and Bias

7.1 No precision or bias statement has been established for this test method.

[1] This test method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.25 on Pictorial Standards of Coating Defects.

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[2] Discontinued; see 1992 *Annual Book of ASTM Standards*, Vol 06.01.

[3] Copies of the pictorial photographic reference standards are contained in the publication *Pictorial Standards of Coatings Defects* and may be obtained from the Federation of Societies for Coatings Technology, 492 Norristown Rd., Blue Bell, PA 19422. The silver halide-gelatin photographs are intended to be the only primary reference standards for this method. The reproductions of them in this test method are for the purpose of illustration only.

[4] These record sheets may be obtained from ASTM Headquarters (order Adjunct No. 12-41150-11 and 12-41150-21) and from the Federation of Societies for Coatings Technology.

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FIG. 1 Degrees of Flaking (Scaling)

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