Designation: D869 – 85 (Reapproved 2015)

Standard Test Method for Evaluating Degree of Settling of Paint[1]

This standard is issued under the fixed designation D869; 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 U.S. Department of Defense.

1. Scope

1.1 This test method covers the determination of the degree of pigment suspension and ease of remixing a shelf-aged sample of paint to a homogeneous condition suitable for the intended use.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1309 Test Method for Settling Properties of Traffic Paints During Storage

3. Significance and Use

3.1 Paints, if not formulated or processed properly may settle excessively. Paint that settles excessively is difficult to reincorporate into the paint system causing time delays or valuable pigment being left in the drum. This test method is an attempt to evaluate the degree of settling caused by the accelerated Test Method D1309. This very subjective method of evaluation in conjunction with the variables of Test Method D1309 raises questions as to the usefulness of the results for specification compliance.

4. Apparatus

4.1 *Container,* standard 500-mL (1-pt) friction-top can paint container, 85.5 ± 1.5 mm (3⅜ ± 1⁄16 in.) in diameter, and 98.5 ± 1.5 mm (3⅞ ± 1⁄16 in.) in height.

4.2 *Spatula,* weighing 45 ± 1 g with square-end blade 125 mm (4¾ in.) in length and approximately 20 mm (13⁄16 in.) in width, shall be used to examine the paint for pigment settling and reincorporation characteristics.

5. Procedure

5.1 Place the specimen to be tested for pigment suspension in a 500-mL (1-pt) container, filling the can to within 13 mm (½ in.) of the top. Close the can tightly and hold undisturbed for shelf aging for 6 months or for such other periods of time agreed upon between the purchaser and the seller.

5.2 Open the can holding the shelf-aged sample without shaking or agitation, and examine the sample without removal of supernatant vehicle. Use the spatula to determine the extent and character of portions of the paint that may have separated during storage. Prepare a suitable spatula for this purpose by cutting the tip from an ordinary 127-mm (5-in.) flexible steel laboratory spatula to the specified length. Hold the spatula perpendicular to and in the center area of the paint at a height whereby the bottom edge of the spatula is level with the top of the can. Drop the spatula from that position. Rate the condition of the sample in accordance with 5.4.

5.3 After examination of the entire specimen as described in 5.2, if a portion of the pigment has separated out to form a firm cake at the bottom of the container pour the supernatant portion of the liquid off into a clean container and hold for subsequent use. Reincorporate the separate cake by hand stirring with the spatula, adding back the liquid in small amounts until the pigment has been reincorporated to form a homogeneous paint suitable for the intended use or until it is determined that the pigment cake cannot be reincorporated by hand stirring. Rate the condition of the specimen in accordance with 5.4.

5.4 Rate the sample for degree of settling on a scale from 10 to 0 in accordance with the following. Give intermediate conditions the appropriate odd number.

[1] This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.24 on Physical Properties of Liquid Paints and Paint Materials.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Rating	Description of Paint Condition
10	Perfect suspension. No change from the original condition of the paint.
8	A definite feel of settling and a slight deposit brought up on spatula. No significant resistance to sidewise movement of spatula.
6	Definite cake of settled pigment. Spatula drops through cake to bottom of container under its own weight. Definite resistance to sidewise motion of spatula. Coherent portions of cake may be removed on spatula.
4	Spatula does not fall to bottom of container under its own weight. Difficult to move spatula through cake sidewise and slight edgewise resistance. Paint can be remixed readily to a homogeneous state.
2	When spatula has been forced through the settled layer it is very difficult to move spatula sidewise. Definite edgewise resistance to movement of spatula. Paint can be remixed to a homogeneous state.
0	Very firm cake that cannot be reincorporated with the liquid to form a smooth paint by stirring manually.

6. Precision and Bias

6.1 *Precision*—Due to the poor precision of this test method, if it is used in a specification, the maximum deviation from the settling limits specified should be agreed upon between the purchaser and the seller.

6.2 *Bias*—Bias cannot be determined.

7. Keywords

7.1 paint settling; paint testing; settling test pigment suspension