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Standard Test Method for Package Stability of Paint[1]

This standard is issued under the fixed designation D1849; 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.

ε[1] NOTE—Editorial changes were made in Section 4, 5.2.3, and Keywords in June 2014.

1. Scope

1.1 This test method covers the change in consistency and certain other properties that may take place when liquid paint of either the solvent-reducible or water-reducible type is stored at a temperature above 0°C (32°F).

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]

D562 Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer

D869 Test Method for Evaluating Degree of Settling of Paint

D3925 Practice for Sampling Liquid Paints and Related Pigmented Coatings

3. Apparatus

3.1 *Spatula,* weighing 45 ± 1 g with square-ended blade 120 mm (4¾ in.) in length and approximately 20 mm (13⁄16 in.) in width as described in Test Method D869.

3.2 *Viscometer*—A Stormer viscometer with the paddle-type rotor as described in Test Method D562.

3.3 *Paint Brush,* 38 mm (1½ in.) polyester or nylon/polyester, 13-mm (½-in.) thick and 63-mm (2½-in.) length out, chisel tip.

3.4 *Test Surface*—A smooth-surfaced paper chart coated with a suitable varnish or lacquer so as to render the surface impervious to paint vehicles.

4. Procedure

4.1 Obtain duplicate samples of the paint in original, unopened containers in accordance with Practice D3925 (Note 1). If a long term test calls for intermediate examinations, obtain an additional duplicate sample for each intermediate examination as agreed upon between laboratories or buyer and seller. Examine one of the samples received for the characteristics listed in 4.2, using the procedures therein described. Weigh the other unopened samples to the nearest 1 g, then hold them undisturbed for specified periods of time and ranges of temperature, as agreed upon between purchaser and seller (Note 2). After storage, reweigh the samples without shaking to determine any loss of weight resulting from faulty closure.

NOTE 1—Containers should preferably be no larger than 1 L (1 qt).

NOTE 2—Storage for 1 month at 52 ± 1°C (125 ± 2°F) simulates some of the effects of storage for 6 months to 1 year at 23 ± 2°C (73 ± 3.5°F). However, it should be recognized that storage at 125°F may not simply accelerate changes occurring at 73°F. With water-borne paints, for example, at 125°F the growth of some putrefying bacteria is inhibited.

4.2 Bring the stored samples to 23 ± 2°C (73 ± 3.5°F). Note any evidence of pressure or vacuum in the unopened container. Open each container and note any skinning, corrosion and odor of putrefaction, rancidity or souring. Disregard other odors. If the sample is in a 1-L (1-qt) or smaller container, measure the character of the lower or settled layer with the spatula as described in Test Method D869. If the sample is larger than 1 qt, omit this step. Hand stir each paint 300 stirs in 2 min with a spatula appropriate to the container, stirring so as to ensure uniform distribution of any settled material (Note 3 and Note 4).

4.3 *Immediately* after stirring, measure the consistency of the paint in accordance with Test Method D562.

4.4 Apply each of the stored paints to its own test panel and the control paint to an other. After the brushed film has

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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.

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completely dried, examine it for grains approximately 0.8 mm (1⁄32 in.) in diameter, even larger gelatinous lumps, and streaks caused by such grains or lumps.

NOTE 3—Avoid the use of a mechanical shaker or syringe-type measuring device that might disperse particles or lumps that would not be dispersed by hand stirring.

5. Report

5.1 For the stored sample only, report the time of storage in days and the temperature of storage in degrees Fahrenheit or Celsius. Report the initial and final sample weight.

5.2 For both the sample tested as received and the stored sample, report the following:

5.2.1 Skinning, pressure, corrosion of the container, and odor of spoilage, each quality separately designated as follows:

10 = none
8 = very slight
6 = slight
4 = moderate
2 = considerable
0 = complete failure

5.2.2 Rigidity of the lower layer as determined in accordance with Test Method D869, if performed;

5.2.3 Consistency as the Stormer viscosity of the paint samples (in accordance with Test Method D562);

5.2.4 Grains, lumps, or streaks in the brushed film, designated as follows:

10 = none
8 = very slight
6 = slight
4 = moderate
2 = considerable
0 = complete failure

NOTE 4—This test method does not purport to fully address resistance to attack by microorganisms, or the sterility of the paint sample.

6. Precision and Bias

6.1 No information is presented about either the precision or bias of this test method since the test result is nonquantitative.

7. Keywords

7.1 elevated temperature stability; high temperature stability; package stability; room temperature stability; shelf stability; stability—package

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