Designation: D6686 – 01 (Reapproved 2013)

Standard Test Method for Evaluation of Tannin Stain Resistance of Coatings[1]

This standard is issued under the fixed designation D6686; 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.

1. Scope

1.1 This test method is an accelerated procedure to determine the effectiveness of latex coatings at preventing the migration of tannin stains from wood substrates.

1.2 The values in SI units are to be regarded as the standard. The values in parenthesis 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]

D1475 Test Method For Density of Liquid Coatings, Inks, and Related Products

D4585 Practice for Testing Water Resistance of Coatings Using Controlled Condensation

D5068 Practice for Preparation of Paint Brushes for Evaluation

3. Terminology

3.1 *Definitions:*

3.1.1 *tannin stain resistance, n*—the ability of a coating to prevent the migration of tannins or other wood-based chromospheres to the surface of a film.

4. Summary of Test Method

4.1 This test method utilizes a condensation test chamber to determine the tannin stain resistance of latex paints. The test paints are applied to substrates that contain tannin extractives and are placed on or in the test chamber. CIELAB L* and b* values as well as subjective ratings are recorded after exposure.

5. Significance and Use

5.1 Tannins and other chromophoric extractives are naturally occurring materials in wood and wood-based substrates. Tannins are prevalent to a high degree in cedar, redwood, oak and to a lesser degree in white and yellow pine. Tannins are also present in varying amounts in wood composition products. These extractives are solubilized and darkened in color by aqueous coatings, resulting in unsightly yellow or brown discolorations. This test method is designed to show the relative ability of paints to prevent tannin bleed-through. Typically cedar or redwood panels are used for this test.

6. Apparatus

6.1 *Test Chamber,* as described in Practice D4585.

6.2 *Test Substrate,* 15.2 by 121.9 cm (6 by 48 in.) substrate or of a size agreed upon by the purchaser and seller of the coating being tested.

6.3 *Paint Brush,* nylon/polyester brush of good quality.

6.4 *Spectrophotometer.*

6.5 *Electronic Balance.*

6.6 *Conditioned Room,* at 18 to 29.5°C (65 to 85°F) and 40 to 60 % relative humidity.

7. Reagents and Materials

7.1 *Wood Panels*—Such as cedar, redwood, oak, white pine, yellow pine or other substrate as agreed upon between the purchaser and the seller of the coating being tested.

7.2 *Control Paint*—An agreed-upon paint of known tannin stain resistance.

7.3 *Test Paints*—Since there are no standard panels, photographs, or paints for this test method, an agreed-upon control paint (7.2) should be included as one of the test paints.

8. Procedure

8.1 Choose a substrate with a consistent grain pattern. Patterns vary greatly from panel to panel, so try to select a board that has consistent wood grain across the length of the substrate. Results may vary from panel to panel because of different growth rates, grain angles, colors and species of wood. If necessary, panels may be sanded to remove raised grain. Substrates with areas of rough spots should be avoided,

[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 D01.42 on Architectural Coatings.

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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.