



Designation: D7072 – 04

## Standard Practice for Evaluating Accelerated Efflorescence of Latex Coatings<sup>1</sup>

This standard is issued under the fixed designation D7072; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This practice covers the evaluation of the degree to which a latex paint resists the formation of efflorescence and alkali burnout on the exposed paint surface.

1.2 This practice is designed primarily to relate efflorescence originating in the substrate to the deposit appearing on the surface of latex paints. This practice relates chiefly to the painting of masonry-type substrates such as concrete block, brick, mortar, stucco, poured concrete and similar materials.

1.3 The values in SI units are to be regarded as the standard. The values in parenthesis are for information only.

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

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

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

**D1734** Practice for Making Cementitious Panels for Testing Coatings

**D4585** Practice for Testing Water Resistance of Coatings Using Controlled Condensation

**D5068** Practice for Preparation of Paint Brushes for Evaluation

### 3. Terminology Terminology (Specific to this Practice)

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *efflorescence, n*—the deposition of soluble salts on the exposed paint surface. Efflorescence is characterized by a light

colored, nonuniform, powdery incrustation which detracts from the paint film appearance. The discoloration occurs when soluble salts in the substrate or paint migrate to the surface by the leaching and evaporating action of the water carrier. The efflorescence originating within the substrate is that with which this method is concerned.

3.1.2 *alkali burnout, n*—the premature fading or decomposition of paints that are sensitive to the high pH of the substrate. The high alkaline content of the substrate can alter the color.

### 4. Summary of Practice

4.1 Panels known to have a level of salts capable of being easily and quickly transported to the paint surface are used. Since tinted paints show the efflorescence most clearly, all white paints should be tinted before application. The panel is placed face down over the surface of the test chamber which contains heated water, so that moisture condenses and remains on the painted surface of the panel for a period of 48 h. After drying at ambient conditions, the panels are rated for the degree of efflorescence which has formed.

### 5. Significance and Use

5.1 Latex paints are sometimes applied over substrates that contain a high level of water soluble salts that result in efflorescence. This practice evaluates a coating's vulnerability to efflorescence.

### 6. Apparatus

6.1 *Condensation Test Chamber*—As described in Practice **D4585**.

6.2 *Test Substrate*—Fiber-cement siding<sup>3</sup> or a substrate agreed upon by the purchaser and seller. The substrate size would depend on the number of test paints.

6.3 White Portland Cement and Graded Standard Sand (as described in Practice **D1734**).

6.4 Trowel (as described in Practice **D1734**).

6.5 *Paint Brush*—Nylon/polyester brush of good quality.

<sup>1</sup> This practice is under the jurisdiction of 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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<sup>2</sup> 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.

<sup>3</sup> Hardieplank, a registered trademark of James Hardie, was found to be acceptable but others may be used.