



Designation: D7190 – 10 (Reapproved 2023)

Standard Practice to Evaluate Leaching of Water-Soluble Materials from Latex Paint Films¹

This standard is issued under the fixed designation D7190; 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 practice covers the ability of a latex paint film to resist staining caused by the leaching of water-soluble materials when contacted with water shortly after application.

1.2 Water staining is attributed to the leaching of surfactants or other water-soluble materials from a paint film.

1.3 The values stated in SI units are to be regarded as standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems

D3924 Specification for Standard Environment for Conditioning and Testing Paint, Varnish, Lacquer, and Related Materials

3. Summary of Practice

3.1 Water droplets are placed on a paint film that is in its early stages of drying. Stains left behind are evaluated for intensity and how the appearance of the coating has changed.

¹ This practice 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.

4. Significance and Use

4.1 Surfactant staining is a common problem with exterior house paints, particularly when subjected to humid environments (such as morning dew) shortly after application.

4.2 Interior paints used in humid areas such as kitchens and bathrooms may also experience surfactant staining.

4.3 Leaching of water-soluble materials may be dependent on colorant dispersions that are mixed into tint base paints. Other paint components may also affect the leaching of water-soluble materials.

5. Apparatus

5.1 *Film Applicator*, suitable to obtain a wet film thickness typically in the range of 125 μm to 250 μm (5 mils to 10 mils), or as agreed upon between manufacturer and supplier.

6. Materials

6.1 *Black plastic panels.*³

6.2 *Distilled water.*

6.3 *Syringe, 1.0 cc.*

7. Procedure

7.1 Apply the test paint along the long dimension of the black plastic panel using the selected film applicator. Allow to dry for 4 hours at standard atmospheric conditions of $23^\circ\text{C} \pm 2^\circ\text{C}$ ($73.5^\circ\text{F} \pm 3.5^\circ\text{F}$) and relative humidity of $50\% \pm 5\%$ as specified in Specification D3924. Use the same film thickness when comparing a series of latex paint films.

7.2 Divide the test panel into three sections, labeling them 4 Hours, 1 Day, and 4 Days or times agreed upon by the manufacturer and supplier. (Fig. 1)

7.3 Place a row of four droplets of distilled water at room temperature across the top of the first designated section of the test paint. Each droplet shall be approximately 0.1 cc in volume.

³ Dull black plastic panels, P-121-10N, 165 by 432 (6½ in. by 17 in.), 0.25 mm (10 mils) thickness, manufactured by the Leneta Co., 15 Whitney Rd., Mahwah, NJ 07430, have been found suitable for this purpose.