



Standard Test Methods for Bleeding of Pigments¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 These test methods cover procedures for determining the bleeding characteristics of dry pigments by direct solvent extraction of the pigment and by overstripping a film with a white coating and observing for the color migration from the base coat containing the pigment.

1.2 *This standard does not purport to address all of the safety problems, 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. Summary of Test Methods

2.1 *Test Method A*—The pigment is shaken with toluene, filtered, and the filtrate observed for color.

2.2 *Test Method B*—A coating using the pigment under test is prepared and applied to one half of a panel. A white finish is applied over the dried colored coating and extended to the uncoated portion of the panel. The dried overstripe coating is examined for color migration from the base coat.

3. Significance and Use

3.1 Test Method A determines the amount of color produced when the pigment is in direct contact with a selected solvent such as toluene. It is useful as a rapid, easily conducted test of the general bleeding characteristics of pigments.

3.2 Test Method B determines the amount of color migration into a white film applied over a base coat containing the pigment. It may give a more practical evaluation of whether a pigment will meet specific requirements for bleed resistance.

3.3 Both Test Method A and Test Method B measure the extent of bleed.

TEST METHOD A, DIRECT SOLVENT CONTACT WITH PIGMENT

4. Procedure

4.1 Place 0.50 g of pigment (Note 1) in a 25-mL test tube and add 20-mL of reagent grade toluene (Note 2). Close with

a stopper, shake well for 10 s, and let stand 15 min. Repeat the 10-s shake and let stand 45 min.

NOTE 1—Additional amounts of pigment may be used by prior agreement for denser inorganic pigments. A maximum of 1.5 g is recommended for even the dense lead chromate pigments.

NOTE 2—Other solvents may be used, by mutual agreement between the parties involved, in place of toluene in a specific pigment bleed evaluation.

4.2 Filter through a glass funnel using double filter paper that has first been wet with toluene and collect approximately 10 mL of filtrate. If the filtrate is cloudy, refilter to get a clear filtrate.

NOTE 3—In the case of colloidal particles, it may be necessary to centrifuge the filtrate.

4.3 Hold the test tube containing the filtrate above a white background and look down through the filtrate for coloration caused by pigment bleed. Describe the degree or severity of bleed according to the following terminology:

4.3.1 *None*—No perceptible color (that is, no bleed).

4.3.2 *Slight*—A faint but distinct coloration.

4.3.3 *Moderate*—A pronounced but not severe coloration.

4.3.4 *Severe*—An intense coloration.

TEST METHOD B, WHITE OVERSTRIPE OF A PIGMENTED FILM

5. Procedure

5.1 Prepare a coating of agreed upon composition, using the pigment under test, and prepare a film of this coating by any method that will give a smooth and uniform film of normal coating thickness (that is, in the range from 2 to 3 mils) (50 to 75 μm) leaving a portion of the substrate uncoated. Cure the film under conditions appropriate to the end use. For air dry films, dry at room temperature, approximately 25°C (77°F) for a minimum of 24 h.

5.2 Pretreatments of the colored coating, such as sanding or solvent wipe, or both, may be used before the overstripe, as agreed upon by the purchaser and seller.

5.3 Overstripe with a white finish of agreed upon composition. Ensure that the overstripe film is of uniform thickness and applied at complete hiding; otherwise, color show-through may be erroneously interpreted as bleed.

5.4 Extend the overstripe film to the uncoated portion of the panel. Dry the overstripe under conditions mutually agreed upon by the involved parties.

¹ These test methods are under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.31 on Pigment Specifications.

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