



Designation: D4062 – 24

Standard Test Method for Leveling of Paints by Draw-Down Method¹

This standard is issued under the fixed designation D4062; 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 method² covers the laboratory determination of the relative leveling of water and solvent-reducible architectural paints in white and light tints by comparing the ridges produced in a draw-down film to a series of photographic leveling standards (see [Annex A1](#)).

1.2 Unpigmented, texture, and deep-tint coatings cannot be readily evaluated with the shadowing produced by oblique lighting employed in this test method. Such coatings may be rated by comparing them with the plastic standards at various angles of reflection. For this purpose ordinary room lighting is satisfactory.

1.3 Since other factors may influence the tendency of liquid paints to sag, this test method is not intended to measure sagging.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.5 *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.*

1.6 *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. Terminology

2.1 Definitions of Terms Specific to This Standard:

2.1.1 *leveling, n*—a measure of a paint's ability to flow out after application and smooth out any surface irregularities such as brush marks, orange peel, peaks, or craters that have been produced by the mechanical process of application.

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 This test method was essentially developed by the Leneta Company.

3. Summary of Test Method

3.1 The material to be tested is presheared and then applied to a sealed chart by means of a special leveling test blade designed to lay down a film with parallel ridges simulating brush marks. After allowing the completed draw-down to dry in a horizontal position, leveling of the test paint is rated by viewing the draw-down under a strong, oblique light source and comparing the contrast of lightness and shadow caused by the paint ridges to that of a series of photographic leveling standards under the same lighting conditions.

4. Significance and Use

4.1 Leveling can affect the hiding and appearance of applied architectural coatings, the presence of brushmarks and surface irregularities being more conspicuous with gloss and semi-gloss finishes than with flat finishes. Instrumental evaluations of leveling by this test method have been shown to correlate with those made by brush application.

5. Apparatus

5.1 *Leveling Test Blade*³—A grooved draw-down blade designed to lay down a wet film with parallel ridges (see [Fig. 1](#)).

5.2 *Draw-Down Plate*,⁴ with two parallel, smooth-faced straightedges to guide the blade during film application and ensure that the ridges are straight.

5.3 *Syringe and Needle*—A 10 mL Luer-Lok⁵ syringe and 38 mm (1½ in.) No. 15 gauge needle for placing a fixed amount of the paint in front of the blade while simultaneously preshearing it (as during brushing) prior to drawing-down. Either glass or disposable plastic syringes may be used with water-reducible paints. Glass syringes may be used with solvent-reducible paints due to possible swelling of disposable syringes by the solvent.

³ Precision Gage & Tool, 375 Gargrave Road, Dayton, Ohio 45449, (937) 866-9666, is the sole manufacturer of the test blade. It was formerly produced and sold by Leneta Company, Inc.

⁴ A suitable draw-down plate may be constructed from the description given in [5.2](#) of this test method.

⁵ Luer-Lok is a trademarked product of Becton, Dickinson and Co. located in Franklin Lakes, New Jersey.