



Designation: D4941 – 06

Standard Practice for Preparing Drawdowns of Artists' Paste Paints¹

This standard is issued under the fixed designation D4941; 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 production of uniform films of artists' tube paints and other nonflowing pigmented paints using paint applicators designed for less viscous paints.

1.2 Information on how to achieve opaque specimens from these paints is included.

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

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

2. Referenced Documents

2.1 *ASTM Standards:*²

D16 Terminology for Paint, Related Coatings, Materials, and Applications

D4838 Test Method for Determining the Relative Tinting Strength of Chromatic Paints

E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation

3. Terminology

3.1 *Definitions*—See Terminology **D16** for definitions of terms used in this practice.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *drawdown, n*—a layer of paint deposited on a substrate by use of a drawdown bar for the evaluation of paint characteristics.

3.2.2 *drawdown bar, n*—a metal applicator with a specified gap designed to deposit a wet paint film uniformly on a specified test panel (for example, an opacity chart) or other substrate.

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 **D01.57** on Artists' Paints and Related Materials.

Current edition approved April 1, 2006. Published April 2006. Originally approved in 1989. Last previous edition approved in 2004 as D4941 – 89 (2004). DOI: 10.1520/D4941-06.

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. Summary of Practice

4.1 The paint is spread over the area of the test panel to be covered by the drawdown and the bar is pulled down with pressure just sufficient to avoid lifting of the bar from the chart surface.

4.2 Test panels are allowed to dry in a dust-free environment.

4.3 If complete hiding (opacity) is needed and not produced by a single paint film, a second film is applied at a 90° angle to the first. If required, additional layers may be applied using a narrower drawdown bar.

5. Significance and Use

5.1 Quality standards for artists' paints require the evaluation of various appearance characteristics of paint films. Tinting strength determination (Test Method **D4838**) specifically requires the preparation of drawdowns for colorimetric measurement. Other evaluations such as color designation, transparency, gloss, and color difference measurements also require drawdown samples.

5.2 Artists' tube paints have a paste consistency that makes the use of traditional film application methods difficult, especially for drying oil paints.

5.3 Artists' paints vary in two properties important to the preparation of films, that is, transparency and drying time. Colorimetric determination and some other types of evaluation require paint specimens that completely hide the substrate. Very transparent paints require such a thick film to produce complete hiding that drying times is excessively long or the specimen surface is blemished. When complete hiding is necessary, this practice is designed to provide opaque films without these defects through application of a series of thin films.

6. Apparatus

6.1 *Drawdown Bars*, two, of different widths with a clearance of 0.152 mm (0.006 in.). Recommended widths are 7.6 cm (3 in.) and 15.2 cm (6 in.). The second bar is required to prepare drawdowns with more than two layers. Wire wound drawdown bars have been found to be unsuitable.

6.2 *Drawdown Charts*, sealed paper type, half black and half white if transparency is being evaluated or opacity is necessary.