



Designation: D4143 – 89 (Reapproved 2001)

## Standard Guide for Testing Latex Vehicles<sup>1</sup>

This standard is issued under the fixed designation D4143; 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 guide covers methods suitable for testing latex vehicles. Certain of these methods were developed expressly for testing latex vehicles. Others were developed for testing or analyzing formulated water- or solvent-based coatings but would be equally applicable for testing lattices.

1.2 *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:*<sup>2</sup>

**D562** Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer<sup>3</sup>

**D1417** Test Methods for Rubber Latices—Synthetic<sup>2</sup>

**D1475** Test Method For Density of Liquid Coatings, Inks, and Related Products<sup>2</sup>

**D2196** Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer<sup>4</sup>

**D2354** Test Method for Minimum Film Formation Temperature (MFFT) of Emulsion Vehicles<sup>5 2</sup>

**D2369** Test Method for Volatile Content of Coatings<sup>2</sup>

**D3168** Practice for Qualitative Identification of Polymers in Emulsion Paints<sup>2</sup>

**D3792** Test Method for Water Content of Coatings by Direct Injection Into a Gas Chromatograph<sup>2</sup>

**D3925** Practice for Sampling Liquid Paints and Related Pigmented Coatings<sup>2</sup>

**D4017** Test Method for Water in Paints and Paint Materials by Karl Fischer Method<sup>4</sup>

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.33 on Polymers and Resins.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 06.01. DOI: 10.1520/D4143-89R01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 09.01.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 06.03.

<sup>5</sup> Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

TABLE 1 Methods for Testing Latex Vehicles

Test Method	Section	ASTM Designation
Latex sampling methods	3	D3925
Nonvolatile content	3.1	D2369; D4758
Minimum film formation temperature (MFT)	5	D2354
Qualitative polymeric analysis	6	D3168
Density	7	D1475
Viscosity	8	D2196
Consistency	9	D562
Water content	10	D3792; D4017
pH	11	E70
Surface tension	12	D1417

**D4758** Test Method for Nonvolatile Content of Latexes<sup>5 6</sup>

**E70** Test Method for pH of Aqueous Solutions With the Glass Electrode

### 3. Latex Sampling Methods

3.1 Practice **D3925** describes sampling procedures for formulated (pigmented) coatings that are equally applicable to latex vehicles.

### 4. Nonvolatile Content

4.1 Test Method **D2369** has been found suitable for the determination of the volatile content of many latex vehicles. Nonvolatile content is obtained by subtracting the results from 100.

NOTE 1—Determinations of the volatile content using a shorter bake time than the 60 min recommended in Test Method **D2369** should be noted in the report of the results.

4.2 The nonvolatile content of latexes may also be determined for quality control purposes with Test Method **D4758** which specifies baking at 180°C for 20 min, conditions selected to allow completion of testing in 1 h or less. For latex vehicles used in certain air-dry or low temperature bake coatings, as well as for those that contain temperature-sensitive materials, the use of the milder test conditions of Test Method **D2369** (see 4.1) will more accurately reflect the effective nonvolatile content.

4.2.1 Test Method **D4758** is not intended to be employed for determining the volatile organic content (VOC) of formulated coatings.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 15.05.