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AMERICAN SOCIETY FOR TESTING AND MATERIALS
100 Barr Harbor Dr., West Conshohocken, PA 19428
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Standard Guide for Testing Latex Vehicles[1]

This standard is issued under the fixed designation D 4143; 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.

ε[1] NOTE—Keywords were added editorially in October 1996.

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:*

D 562 Test Method for Consistency of Paints Using the Stormer Viscometer[2]

D 1417 Test Methods for Rubber Latices—Synthetic[3]

D 1475 Test Method for Density of Paint, Varnish, Lacquer, and Related Products[2]

D 2196 Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer[2]

D 2354 Test Method for Minimum Film Formation Temperature (MFT) of Emulsion Vehicles[4]

D 2369 Test Method for Volatile Content of Coatings[2]

D 3168 Practice for Qualitative Identification of Polymers in Emulsion Paints[2]

D 3792 Test Method for Water Content of Water-Reducible Paints by Direct Injection Into a Gas Chromatograph[2]

D 3925 Practice for Sampling Liquid Paints and Related Pigmented Coatings[2]

D 4017 Test Method for Water in Paints and Paint Materials by Karl Fischer Method[2]

D 4758 Test Method for Nonvolatile Content of Latexes[4]

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode[5]

TABLE 1 Methods for Testing Latex Vehicles

Test Method	Section	ASTM Designation
Latex sampling methods	3	D 3925
Nonvolatile content	3.1	D 2369; D 4758
Minimum film formation temperature (MFT)	5	D 2354
Qualitative polymeric analysis	6	D 3168
Density	7	D 1475
Viscosity	8	D 2196
Consistency	9	D 562
Water content	10	D 3792; D4017
pH	11	E 70
Surface tension	12	D 1417

3. Latex Sampling Methods

3.1 Practice D 3925 describes sampling procedures for formulated (pigmented) coatings that are equally applicable to latex vehicles.

4. Nonvolatile Content

4.1 Test Method D 2369 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 D 2369 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 D 4758 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 D 2369 (see 4.1) will more accurately reflect the effective nonvolatile content.

4.2.1 Test Method D 4758 is not intended to be employed for determining the volatile organic content (VOC) of formulated coatings.

[1] This guide is under the jurisdiction of ASTM Committee D-1 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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[2] *Annual Book of ASTM Standards*, Vol 06.01.

[3] *Annual Book of ASTM Standards*, Vol 09.01.

[4] *Annual Book of ASTM Standards*, Vol 06.03.

[5] *Annual Book of ASTM Standards*, Vol 15.05.