



## Standard Test Method for Nonvolatile Content of Latexes<sup>1</sup>

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### 1. Scope

1.1 This test method covers a quality control test for nonvolatile content of latex vehicles. The specified time-temperature conditions (180°C, 20 min) were selected to allow test completion 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 a lower temperature and other bake time will more accurately reflect the effective nonvolatile content (Note 1). Alternative time-temperature conditions should be agreed upon between the producer and user.

NOTE 1—The test conditions of Test Method D 2369 (110°C, 60 min) have been found suitable for use with many latex vehicles.

1.2 This test method is not intended to be employed for determining the volatile organic content (VOC) of formulated coatings.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is responsibility of the user of this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 2369 Test Method for Volatile Content of Coatings<sup>2</sup>

E 145 Specification for Gravity-Convection and Forced-Ventilation Ovens<sup>3</sup>

E 300 Practice for Sampling Industrial Chemicals<sup>4</sup>

### 3. Significance and Use

3.1 This test method is designed to quantify the weight percent of a commercial, synthetic latex product that, when incorporated into a coating product, constitutes the binder content of the applied coating.

### 4. Apparatus

4.1 *Oven*, forced-ventilation Type IIB, as specified in Specification E 145, with closed vent.

4.2 *Balance*, sensitive to 0.1 mg.

4.3 *Desiccator*.

4.4 *Weighing dish*, aluminum, approximately 57 mm in diameter by 18 mm deep.

4.5 *Syringe*, 5-mL disposable.

### 5. Sampling

5.1 Procedures described in the Slurry Sampling section of Practice E 300 shall be used for sampling latexes.

### 6. Procedure

6.1 For each latex to be tested, wash two aluminum dishes with a suitable reagent grade solvent (for example, toluene) or heat to constant weight to assure that volatile contaminants are removed. Determine the tare weight of the aluminum dishes to 0.1 mg.

6.2 Thoroughly mix the sample on a mechanical shaker or can roller to assure homogeneity.

6.3 Draw 3.5 mL of the sample into the syringe and weigh to 0.1 mg.

6.4 Transfer  $1.5 \pm 0.1$  mL of the latex into a tared weighing dish and reweigh the syringe to 0.1 mg. Calculate the latex specimen weight,  $S$ , as follows:

$$S = w_1 - w_2 \quad (1)$$

where:

$w_1$  = initial weight of syringe and latex, g,

$w_2$  = weight of syringe and latex remaining after discharging specimen, g.

6.5 Repeat 6.4 for the duplicate determination.

6.6 Transfer the aluminum dishes to an oven operating at  $180 \pm 4^\circ\text{C}$  and heat for  $20.0 \pm 1$  min. (Note 2). Remove from the oven, cool in a desiccator for 5 min at room temperature and weigh to 0.1 mg. Determine the weight of residue,  $N$ , in each dish as follows:

$$N = W_1 - W_2 \quad (2)$$

where:

$W_1$  = weight of dish and residue, g,

$W_2$  = tare weight of aluminum dish, g.

<sup>1</sup> This test method 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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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 06.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>4</sup> *Annual book of ASTM Standards*, Vol 15.05.