



Designation: ~~D5200-92 (Reapproved 1997)~~ Designation: D 5200 – 03 (Reapproved 2008)<sup>ε1</sup>

## Standard Test Method for Determination of Weight Percent Volatile Content of Solvent- Borne Paints in Aerosol Cans<sup>1</sup>

This standard is issued under the fixed designation D 5200; 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.

~~$\epsilon^1$  NOTE—Editorial changes were made in the footnotes in September 1997.~~

~~The units statement in subsection 1.2 was corrected editorially in November 2008.~~

### 1. Scope

1.1 This test method is for the determination of the weight percent volatile organic compounds of solvent-borne paints in aerosol cans. It offers a unique way to obtain paint specimens from aerosol cans.

~~1.2~~

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 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. A specific hazard statement is given in Note 16.7.

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

E 145 Specification for Gravity-Convection and Forced-Ventilation Ovens

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals

2.2 *Other Standard:*

Method 35 Determination of Percent Volatile Organic Compounds (VOC) in Solvent Based Aerosol Paints<sup>3</sup>

### 3. Summary of Test Method

3.1 A designated quantity from an aerosol coating is sprayed into an adapter glass tube assembly and heated in an oven at  $110 \pm 5^\circ\text{C}$  for 60 min. The percent volatile is calculated from the loss in weight.

### 4. Significance and Use

~~4.1~~ 4.1 This test method is the procedure of choice for determining the volatile content in aerosol coatings under specified test conditions modeled after Method 35.<sup>3</sup> The inverse value, nonvolatile, is used to determine the weight percent solids content. This information is useful to the paint producer, user, and to environmental interests for determining the grams of volatile organic compounds per gram of solids emitted from aerosol cans.

### 5. Apparatus

5.1 *Adapter Glass Tube Assembly*, (Fig. 1).

5.1.1 *Sample Adapter Tube*, straight connecting with 35/25 spherical joints. Loosely fill with glass wool and precondition for 30 min in an oven at  $110 \pm 5^\circ\text{C}$  and store in a desiccator prior to use.<sup>4,5</sup>

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D-10 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.21 on Chemical Analysis of Paints and Paint Materials.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards*, Vol 14.02, volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Annual Book of ASTM Standards, Vol 15.05.

<sup>4</sup> Bay Area Air Quality Management District, (BAAQMD) *Manual of Procedures*, Vol III, 939 Ellis St., San Francisco, CA 94109.

<sup>5</sup> Bay Area Air Quality Management District, (BAAQMD) *Manual of Procedures*, Vol III, 939 Ellis St., San Francisco, CA 94109.

<sup>4</sup> The sole source of supply of the adapter tube, No. 5035-35 known to the committee at this time is Ace Glass Inc., P.O. Box 688, 1430 Northwest Blvd., Vineland, NJ 08360.

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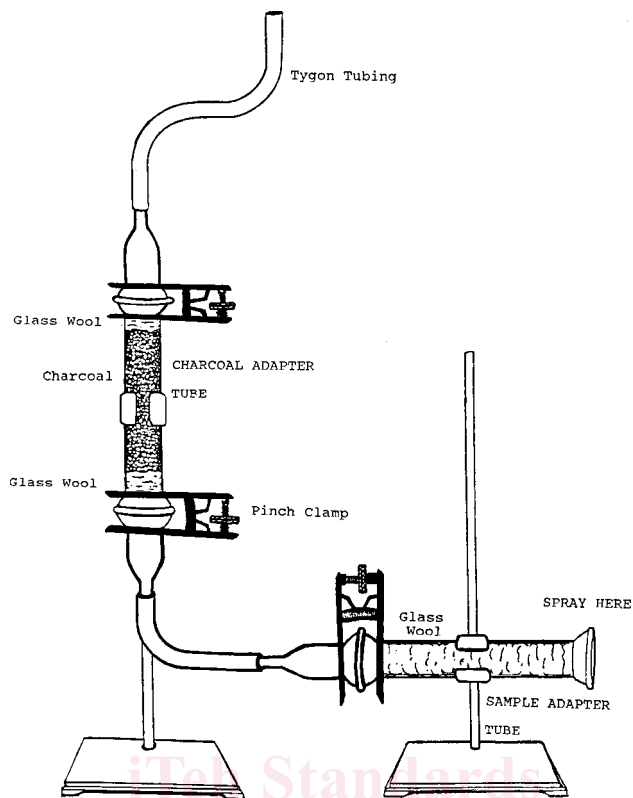


FIG. 1 Adapter Glass Tube Assembly

5.1.2 *Charcoal Adapter Tube*, straight connecting with 35/25 spherical joints. Fill with activated charcoal and plug both ends with glass wool. This tube is used to prevent the solvent vapors from contaminating the vacuum pump.<sup>5,6</sup>

5.1.3 *Adapters*, connecting hose with 35/25 socket joints.<sup>5,7</sup>

5.1.4 *Adapter*,<sup>5,8</sup> connecting hose with 35/25 ball joint.

5.1.5 *Clamps*, pinch type, with screw-locking device.<sup>5,9</sup>

5.1.6 *Glass Wool*, medium-fine silk.

5.1.7 *Activated Charcoal*, coconut, 8 to 12 mesh.

5.1.8 *Tygon Tubing*.

5.1.9 *Iron Stands*.

5.1.10 *Utility Clamps*.

5.2 *Vacuum Pump*.

5.3 *Forced Draft Oven*, Type II A or Type II B as specified in Specification E 145.

5.4 *Actuators (Valves)*, with extension tubes.

5.5 *Top-Loading Balance*, capable of weighing to 0.01 g.

5.6 *Shaker*, similar to the Eberbach shaker in Fig. 2.

## 6. Procedure

6.1 Mix the aerosol can thoroughly using a shaker, similar to the Eberbach shaker in Fig. 2, for 15 min at the low-speed setting. It is essential that the samples be well mixed to obtain valid results.

6.2 Weigh accurately to 0.01 g, a preconditioned sample adapter tube. Use a pair of gloves at all times when handling the adapter glass tube.

6.3 Remove the cap and actuator from the mixed can. Replace the actuator with one having an extension tube.

<sup>5</sup> If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,<sup>1</sup> which you may attend.

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<sup>7</sup> The sole source of supply of the charcoal adapter tube, No. 5035-3 known to the committee at this time is Ace Glass Inc.

<sup>8</sup> The sole source of supply of the charcoal adapter tube-adapters (socket joints) No. 5035-35217-35 known to the committee at this time is Ace Glass Inc.

<sup>9</sup> The sole source of supply of the adapters (socket joints) adapter (ball joint) No. 5217-355216-35 known to the committee at this time is Ace Glass Inc.

<sup>9</sup> The sole source of supply of the adapter (ball joint) clamps, No. 5216-357669-14 known to the committee at this time is Ace Glass Inc.