



Standard Practice for Testing and Sampling of Volatile Organic Compounds (Including Carbonyl Compounds) Emitted from Paint Using Small Environmental Chambers¹

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1. Scope

1.1 This practice provides procedures for preparing test samples of alkyd primer, alkyd paint, latex primer, or latex paint applied to building materials such as gypsum wallboard, wood, or engineered wood products and procedures for sampling volatile organic compounds (VOCs) emitted from those test samples. Emissions are sampled from small environmental chambers operated under controlled conditions.

1.2 This practice describes procedures for preparation of test specimens by application of primer or paint to common building materials. Use of the procedures described in this practice for tests with other application methods or substrates may affect the results and not meet the criteria recommended in the practice.

1.3 This practice describes procedures for collection of VOCs on sorbent tubes and carbonyl compounds on silica gel treated with 2,4-dinitrophenylhydrazine (DNPH) that require analytical methods for measurement of individual organic compound concentrations. This practice does not describe the detailed procedures of analytical methods, but refers to published methods for these analyses.

1.4 This practice describes procedures for testing and sampling VOCs emitted from paint under controlled conditions. The test conditions, when combined with analytical data, can be used to calculate emission rates. This practice does not recommend a method for the calculations.

1.5 Values stated in the International System of Units (SI) are to be regarded as the standard.

1.6 *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
- D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
- D1212 Test Methods for Measurement of Wet Film Thickness of Organic Coatings
- D1356 Terminology Relating to Sampling and Analysis of Atmospheres
- D3686 Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method)
- D3687 Practice for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method
- D5116 Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products
- D5197 Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)
- D5466 Test Method for Determination of Volatile Organic Chemicals in Atmospheres (Canister Sampling Methodology)
- D6196 Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air
- D6345 Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air
- D6886 Test Method for Determination of the Individual Volatile Organic Compounds (VOCs) in Air-Dry Coatings by Gas Chromatography
- E355 Practice for Gas Chromatography Terms and Relationships

¹ This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.05 on Indoor Air.

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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.