



Designation: D7911 – 19

Standard Guide for Using Reference Material to Characterize Measurement Bias Associated with Volatile Organic Compound Emission Chamber Test¹

This standard is issued under the fixed designation D7911; 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.

1. Scope

1.1 This guide provides procedures for using a reference material with a known emission rate of a volatile organic compound (VOC) to estimate the bias associated with a VOC emission chamber test.

1.2 This guide may be used to assess measurements of VOC emissions conducted in a variety of environmental chambers, such as small-scale chambers, full-scale chambers, emission cells, and micro-scale chambers.

1.3 This guide may be used to assess measurements of VOC emissions from a variety of sources including “dry” materials (for example, carpet, floor tile and particleboard) and “wet” materials (for example, paint and cleaning products).

1.4 This guide can be used to support quality control efforts by emissions testing laboratories, third party accreditation of testing laboratories participating in emissions testing programs, and quality control efforts by manufacturers of building and other materials.

1.5 This guide may be used to support the determination of precision and bias of other commonly used VOC emission standards including Guide [D5116](#), Test Method [D6007](#), ISO 16000-9, ANSI/BIFMA M7.1, and CDPH/EHLB/Standard Method V1.2.

1.6 This guide also describes the attributes of a suitable emission reference material and the different methods available to independently determine the reference material’s VOC emission rate.

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

1.8 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[D1356 Terminology Relating to Sampling and Analysis of Atmospheres](#)

[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 Compounds in Atmospheres \(Canister Sampling Methodology\)](#)

[D6007 Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small-Scale Chamber](#)

[D6196 Practice for Choosing Sorbents, Sampling Parameters and Thermal Desorption Analytical Conditions for Monitoring Volatile Organic Chemicals in Air](#)

[D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance](#)

[D6330 Practice for Determination of Volatile Organic Compounds \(Excluding Formaldehyde\) Emissions from Wood-Based Panels Using Small Environmental Chambers Under Defined Test Conditions](#)

[D6617 Practice for Laboratory Bias Detection Using Single](#)

¹ This guide 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.