



Designation: D6177 – 19 (Reapproved 2024)

Standard Practice for Determining Emission Profiles of Volatile Organic Chemicals Emitted from Bedding Sets¹

This standard is issued under the fixed designation D6177; 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 practice covers the procedures for estimating emission profiles of volatile organic chemicals (VOCs) from bedding sets when a new bedding set is first brought into a house, based on emissions testing in environmental chambers.

1.2 Emission profiles from bedding sets are determined from air concentrations measured in environmental chambers.

1.3 VOC emissions from bedding sets, as in the case of other household furnishings, usually are highest when the products are new. Procedures described in this practice also are applicable to used bedding sets.

1.4 The practice is applicable to VOCs and not to semi-volatile organic chemicals or nonvolatile organic chemicals.

1.5 This practice summarizes procedures for sample selection and handling. This practice also refers to pertinent sampling procedures and analytical methods for emission testing, but does not include technical details on selection of appropriate collection media and analytical methods or on sampling and analytical equipment and associated procedures.

1.6 Emission profiles based on this practice may be used for estimating human exposures to VOCs.

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

D5157 Guide for Statistical Evaluation of Indoor Air Quality Models

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, Mass Spectrometry Analysis Methodology)

D6196 Practice for Choosing Sorbents, Sampling Parameters and Thermal Desorption Analytical Conditions for Monitoring Volatile Organic Chemicals in Air

D6670 Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products

E355 Practice for Gas Chromatography Terms and Relationships

E1333 Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber

3. Terminology

3.1 Definitions:

3.1.1 For definitions and terms used in this practice, refer to Terminology **D1356**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *air change rate, n*—the volumetric flow rate (volume per unit time) of air entering a space or enclosure divided by the net volume of air in that space or enclosure (1/s, 1/h).

3.2.1.1 *Discussion*—The entering air may be outdoor air or conditioned air. The space may be an entire building, a room or

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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.