



Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products¹

This standard is issued under the fixed designation D 6670; 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 is intended for determining volatile organic compound (VOC) emissions from materials and products (building materials, material systems, furniture, consumer products, etc.) and equipment (printers, photocopiers, air cleaners, etc.) under environmental and product usage conditions that are typical of those found in office and residential buildings.

1.2 This practice is for identifying VOCs emitted and determining their emission rates over a period of time.

1.3 This practice describes the design, construction, performance evaluation, and use of full-scale chambers for VOC emission testing.

1.4 While this practice is limited to the measurement of VOC emissions, many of the general principles and procedures (such as methods for evaluating the general performance of the chamber system) may also be useful for the determination of other chemical emissions (for example, ozone, nitrogen dioxide). Determination of aerosol and particle emissions is beyond the scope of this document.

2. Referenced Documents

2.1 ASTM Standards:

- D 1356 Terminology Relating to Sampling and Analysis of Atmospheres²
- D 1914 Practice for Conversion Units and Factors Relating to Sampling and Analysis of Atmospheres²
- D 3686 Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method)²
- D 5116 Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products²
- D 5197 Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)²
- D 5466 Test Method for Determination of Volatile Organic

Chemicals in Atmospheres (Canister Sampling Methodology)²

D 6196 Practice for Selection of Sorbents and Pumped Sampling/Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air²

D 6345 Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air²

E 779 Test Method for Determining Air Leakage Rate by Fan Pressurization³

E 1333 Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber⁴

IEEE/ASTM SI 10 - Standard for Use of the International System of Units (SI): The Modern Metric System⁵

2.2 Other Documents:

ACGIH 1995 (American Conference of Governmental Industrial Hygienists), Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents in the Work Environment and Biological Exposure Indices. Cincinnati, OH

ASHRAE 1999, ASHRAE 62-99 “Ventilation for Acceptable Indoor Air Quality,” American Society of Heating, Refrigerating, and Air-Conditioning Engineers. Atlanta, GA

CMEIAQ (Consortium for Material Emissions and Indoor Air Quality) Final Report 1.1 A Method for Sampling and Analysis of Volatile Organic Compounds in Emission Testing of Building Materials. Institute for Research in Construction, National Research Council Canada, Ottawa, Ontario K1A 0R6, Canada

CMEIAQ Final Report 3.1 Models for Predicting Volatile Organic Compound (VOC) Emissions from Building Materials, Institute for Research in Construction, National Research Council Canada, Ottawa, Ontario K1A 0R6, Canada

ECA-IAQ (European Collaborative Action) “Indoor Air Quality and Its Impact on Man,” 1997. Total volatile organic compounds (TVOCs) in indoor air quality investigations. Report No. 19. EUR 17675 EN. Luxembourg:

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

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² Annual Book of ASTM Standards, Vol 11.03.

³ Annual Book of ASTM Standards, Vol 04.11.

⁴ Annual Book of ASTM Standards, Vol 04.10.

⁵ Annual Book of ASTM Standards, Vol 14.04.