



Designation: D3687 – 19

Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method¹

This standard is issued under the fixed designation D3687; 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 test method describes the extraction and gas chromatographic determination of organic vapors that have been adsorbed from air in sampling tubes packed with activated charcoal.

1.2 This test method is complementary to Practice **D3686**.

1.3 This test method is applicable for analysis of samples taken from workplace or other atmospheres provided that the contaminant adsorbs onto charcoal, that it can be adequately extracted from the charcoal, and that it can be analyzed by gas chromatography (GC). Other adsorbents and other extraction techniques are described in Practice **D6196**.

1.4 Organic compounds of multicomponent samples may mutually interfere during analysis. Methods to resolve interferences are given in Section 6.

1.5 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific precautions are given in **8.5**, **9.2**, and in **X1.2.3**.

1.7 *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.*

¹ This test method is under the jurisdiction of ASTM Committee **D22** on Air Quality and is the direct responsibility of Subcommittees **D22.04** on Workplace Air Quality.

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2. Referenced Documents

2.1 *ASTM Standards*:²

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D3686 Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method)

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

E355 Practice for Gas Chromatography Terms and Relationships

2.2 *ISO Standards*:³

ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories

2.3 *National Institute for Occupational Safety and Health (NIOSH) Documents*:

CDC-99-74-45 Documentation of NIOSH Validation Tests⁴
NIOSH Manual of Analytical Methods (NMAM)⁵

2.4 *Occupational Safety and Health Administration (OSHA) Standards*:

29 CFR 1910 Code of Federal Regulations, Regulations Relating to Labor, Occupational Safety and Health Administration, Department of Labor⁶

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.

³ Available from International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <http://www.iso.org>.

⁴ Available from the U.S. Department of Commerce, National Technical Information Service, 5301 Shawnee Road, Alexandria, VA 22312, <https://www.ntis.gov>.

⁵ Available from the Centers for Disease Control and Prevention (CDC), <https://www.cdc.gov/niosh/nmam>.

⁶ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.