



Designation: D5337 – 23

Standard Practice for Setting and Verifying the Flow Rate of Personal Sampling Pumps¹

This standard is issued under the fixed designation D5337; 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 describes the setting and verification of flow rate for sampling pumps commonly used for monitoring personal airborne exposures in the workplace.

1.2 This practice includes procedures for using working standard flow meters that are traceable to national or international standards, as well as those that are not. Traceable standards are preferred.

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

1.4 *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.*

1.5 *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

¹ This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.04 on Workplace Air Quality. Current edition approved May 1, 2023. Published June 2023. Originally approved in 1992. Last previous edition approved in 2016 as D5337 – 11 (2016). DOI: 10.1520/D5337-23.

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.

D4532 Test Method for Respirable Dust in Workplace Atmospheres Using Cyclone Samplers

2.2 ISO Standards:³

ISO/IEC 17011 Conformity assessment – Requirements for accreditation bodies accrediting conformity assessment bodies

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories

ISO 13137 Workplace atmospheres – Pumps for personal sampling of chemical and biological agents – Requirements and test methods

2.3 NIOSH and OSHA Documents:

HSM-99-71-31 Personal Sampling Pump for Charcoal Tubes; Final Report⁴

NIOSH Manual of Analytical Methods (NMAM) 0600, 5th ed.⁵

OSHA Analytical Methods Manual⁶

OSHA Technical Manual (OTM)⁷

3. Terminology

3.1 *Definitions of Terms Specific to This Practice* (otherwise, refer to Terminology **D1356**):

3.1.1 *traceability, n*—property of a measurement result whereby the result can be related to a reference through a

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from the U.S. Department of Commerce, National Technical Information Service, Port Royal Road, Springfield, VA 22161.

⁵ Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), Cincinnati, Ohio (1994); Available from NIOSH Publications, 4676 Columbia Parkway, Cincinnati, Ohio 45226; www.cdc.gov/niosh/nmam/default.html.

⁶ Occupational Safety and Health Administration, Salt Lake Technical Center, Salt Lake City, Utah (1985); Available from OSHA Analytical Laboratory, 8660 S. Sandy Parkway, Sandy, UT 84070; www.osha.gov/dts/sltc/methods.

⁷ Occupational Safety and Health Administration, Washington DC; Available from OSHA website; www.osha.gov/otm/section-2-health-hazards/chapter1#appendix_II_6.