



Designation: D6306 – 17 (Reapproved 2024)

Standard Guide for Placement and Use of Diffusive Samplers for Gaseous Pollutants in Indoor Air¹

This standard is issued under the fixed designation D6306; 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 covers the placement and use of diffusive samplers in an indoor environment.

1.2 The primary use of diffusive samplers is to measure the exposure concentrations of specific gaseous air contaminants for occupants in a variety of indoor environments.

1.3 Diffusive samplers within this guide are used to measure concentrations of air contaminants in residences, public buildings, offices, and other non-industrial environments. A diffusive sampler is any air sampler that does not utilize electrical or mechanical power in order to supply air to the sorbent media or chemical reactant within the sampler and that samples according to Fick's first law of diffusion.

1.4 The purpose of this guide is to ensure uniformity of sampling within a variety of indoor environments and to facilitate comparison of results.

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D1357 Practice for Planning the Sampling of the Ambient Atmosphere

D3614 Guide for Laboratories Engaged in Sampling and Analysis of Atmospheres and Emissions

D4840 Guide for Sample Chain-of-Custody Procedures

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

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology **D1356**.

4. Summary of Guide

4.1 Contaminants in air are sampled by collection with a sorbent or chemically reactive medium in order to undergo subsequent analysis for determination of concentration. Contaminants in air are transported to the sorption medium or reacting chemical through vapor or gas diffusion. During the sampling process, the compounds, in a molecular state, diffuse from the environment adjacent to the sampler through a first region of defined geometric structure and into a second adsorbing region containing the sorbent. Samplers are resealed at the end of the exposure period and sent to a laboratory for analysis.

4.2 Guidance is provided for the placement, handling, and use of diffusive samplers within an indoor environment.

5. Significance and Use

5.1 Diffusive samplers provide a useful sampling option for studying time-weighted average indoor air concentrations of

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