



Designation: D8569 – 26

Standard Practice for Surface Sampling of Non-Volatile and Semi-Volatile Organic Chemicals for Worker Protection¹

This standard is issued under the fixed designation D8569; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This practice covers criteria to be used in defining strategies for sampling nonvolatile and semi-volatile organic chemicals on surfaces for workplace health and safety monitoring. Guidance is also given for the use of direct reading techniques, such as colorimetric measurement.

1.2 Relevant laboratory analysis techniques, such as gas or liquid chromatography with (a) suitable detector(s), are referenced (see [Table X1.1](#)).

1.3 Guidance provided by this practice is intended for sampling of non-volatile and semi-volatile organic compounds on surfaces. Samples can be collected in a manner permitting the use of direct reading methods for site characterization (for example, colorimetric measurement, or a lateral flow immunochemical assay (LFIA)) or solvent extraction of the organic compound(s) of interest from the sampling media, with subsequent analysis using methods such as gas chromatography, mass spectrometry, or high-performance liquid chromatography.

1.4 Sampling for volatile organic chemicals (organic compounds with a saturation vapor pressure greater than 10^{-2} kPa at 25 °C) is not within the scope of this practice.

1.5 Sampling to determine levels of the selected organic chemicals on the skin is not within the scope of this practice.

1.6 Sampling for airborne particulate matter is not within the scope of this practice. Guide [E1370](#) provides information on air sampling strategies.

1.7 Where surface sampling is prescribed by law or regulation, this practice is not intended to take the place of any requirements that may be specified in such laws or regulations.

1.8 This practice does not address the sampling design criteria (that is, a sampling plan which includes the number and location of samples) that are used for hazard evaluation, exposure assessment, risk assessment, clearance, and other purposes. To provide for valid conclusions, sufficient numbers

of samples shall be obtained as directed by a sampling plan, for example as described in Guide [D7659](#).

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

1.10 *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.*

1.11 *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](#)
- [D4687 Guide for General Planning of Waste Sampling](#)
- [D4840 Guide for Sample Chain-of-Custody Procedures](#)
- [D5337 Practice for Setting and Verifying the Flow Rate of Personal Sampling Pumps](#)
- [D5438 Practice for Collection of Floor Dust for Chemical Analysis](#)
- [D6333 Practice for Collection of Dislodgeable Pesticide Residues from Floors](#)
- [D6661 Practice for Field Collection of Organic Compounds from Surfaces Using Wipe Sampling](#)
- [D6966 Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals](#)
- [D7144 Practice for Collection of Surface Dust by Microvacuum Sampling for Subsequent Determination of Metals and Metalloids](#)

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 Jan. 1, 2026. Published January 2026. DOI: 10.1520/D8569-26.

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.

- D7659** Guide for Strategies for Surface Sampling of Metals and Metalloids for Worker Protection
- D7910** Practice for Collection of Fungal Material From Surfaces by Tape Lift
- E122** Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process
- E1216** Practice for Sampling for Particulate Contamination by Tape Lift
- E1370** Guide for Air Sampling Strategies for Worker and Workplace Protection
- E1402** Guide for Sampling Design

3. Terminology

3.1 For definitions of terms used in this practice and not defined below, refer to Terminology **D1356**.

3.2 Definitions:

3.2.1 *batch, n*—a group of field or quality control (QC) samples that are collected or processed together at the same time using the same reagents and equipment.

3.2.2 *clearance, n*—net effect of the cleaning processes by which substances are removed from a surface area, determined by a surface sampling method.

3.2.3 *field blank, n*—a blank medium that is exposed to the same handling as field samples except that no sample is collected (no surface is wiped when wipe sampling is performed or air is drawn through it when vacuum sampling is used).

3.2.3.1 *Discussion*—Analysis results from field blanks provide information on the analyte background level in the blank sampling medium, combined with the potential contamination experienced by samples collected within the batch (see 3.2.1) resulting from handling.

NOTE 1—A sampling medium for surface sampling may be dry or moistened with a wetting agent.

3.2.4 *surface sampling media, n*—material on which surface contaminants are collected by wiping, rolling, stripping or vacuum sampling for subsequent analysis, or treatment with a chemical reaction solution and disclosing solution for direct reading results.

4. Summary of Practice

4.1 Samples of nonvolatile and semi-volatile organic chemicals are collected on surfaces from areas of known dimensions by wiping with surface sampling media satisfying certain requirements (Practices **D6661** and **D6966**, and Guide **D7659**). Alternative sampling techniques entail transfer to an annular ring of polyurethane foam (PUF) (Practice **D6333**), or tape lift techniques also known as tape lifting and tape stripping techniques (Practices **D7910** and **E1216**), or sampling by means of vacuum collection techniques (Practices **D5438** and **D7144**).

4.2 The collected surface sampling media (plus collected sample) are then ready for subsequent sample preparation and analysis for the detection or measurement of nonvolatile and semi-volatile organic chemicals of interest.

5. Significance and Use

5.1 This practice is intended for the collection of samples on surfaces for the subsequent measurement of target nonvolatile and semi-volatile organic chemicals. The practice is meant for use in the collection of samples that are of interest in hazard evaluation, exposure assessment, risk assessment, clearance, and other purposes.

5.2 If the contamination is spread over surfaces of different structures, it is recommended to take the sample on a hard, smooth and non-porous surface and to estimate the contamination in the sense of a worst-case scenario.

5.3 Wipe sampling techniques are generally recommended for the collection of samples from hard, smooth, nonporous surfaces, such as glass, ceramic tiles, stainless steel, aluminum, PVC, or plexiglass (Practice **D6661**).

5.4 Vacuum sampling or tape lift techniques are generally recommended for collecting samples from surfaces with substantial textures such as rough concrete, brickwork, textured ceilings, and soft fibrous surfaces such as upholstery and carpeting (Practices **D5438**, **D7144**, **E1216**, and **D7910**).

5.5 As an alternative, dislodgeable organic compounds on surfaces can be collected using a roller, in accordance with Practice **D6333**.

5.6 The NIOSH Manual of Analytical Methods chapter on surface sampling provides additional guidance to support the selection of appropriate collection methods (for example, surface sampling medium, wetting agent, and sampling technique), determination of sampling locations, and the number of samples to collect. **(1)**³

6. Apparatus

6.1 *Sampling Templates*—One or more of the following: reusable or disposable aluminum, or inert plastic templates, (full-square, rectangular, square “U-shaped,” rectangular “U-shaped,” or “L-shaped,” or both); or templates of alternative areas having accurately known dimensions. Surfaces to be sampled will not always be flat. In such instances, “bendable” templates are sometimes available. Where surfaces are not flat, estimate the surface area as closely as possible. Templates shall not interact with the sampling medium itself or with the chemicals used to wet the sampling medium.

6.1.1 For most surfaces, it is recommended to collect samples from a minimum surface area of 100 cm² to provide sufficient material for subsequent laboratory analysis. However, larger areas (for example, 30 cm by 30 cm) may be appropriate for surfaces having little or no visible contamination with nonvolatile or semi-volatile organic chemicals, while a smaller sampling area (for example, 2 cm by 5 cm) may be appropriate for surfaces with high levels of visible contamination with nonvolatile or semi-volatile organic chemicals. It is recommended to have a suite of templates with various sampling dimensions. Larger areas can be sampled by using vacuum sampling methods (Practices **D5438** and **D7144**) or

³ The boldface numbers in parentheses refer to a list of references at the end of this standard.