



Designation: D6232 – 21

Standard Guide for Selection of Sampling Equipment for Waste and Contaminated Media Data Collection Activities¹

This standard is issued under the fixed designation D6232; 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 criteria which should be considered when selecting sampling equipment for collecting environmental and waste samples for waste management activities. This guide includes a list of equipment that is used and is readily available. Many specialized sampling devices are not specifically included in this guide. However, the factors that should be weighed when choosing any piece of equipment are covered and remain the same for the selection of any piece of equipment. Sampling equipment described in this guide includes automatic samplers, pumps, bailers, tubes, scoops, spoons, shovels, dredges, coring, augering, passive, and vapor sampling devices. The selection of sampling locations is outside the scope of this guide.

1.1.1 Table 1 lists selected equipment and its applicability to sampling matrices, including water (surface and ground), sediments, soils, liquids, multi-layered liquids, mixed solid-liquid phases, and consolidated and unconsolidated solids. The guide does not specifically address the collection of samples of any suspended materials from flowing rivers or streams. Refer to Guide [D4411](#) for more information.

1.2 Table 2 presents the same list of equipment and its applicability for use based on compatibility of sample and equipment; volume of the sample required; physical requirements such as power, size, and weight; ease of operation and decontamination; and whether it is reusable or disposable.

1.3 Table 3 provides the basis for selection of suitable equipment by the use of an index.

1.4 Lists of advantages and disadvantages of selected sampling devices and line drawings and narratives describing the operation of sampling devices are also provided.

1.5 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard. All observed and calculated values shall conform to

the guidelines for significant digits and rounding established in Practice [D6026](#). Reporting of test results in units other than SI shall not be regarded as nonconformance with this standard.

1.6 This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word “Standard” in the title of this document means only that the document has been approved through the ASTM consensus process.

1.7 *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.*

1.8 *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

- [D653 Terminology Relating to Soil, Rock, and Contained Fluids](#)
- [D1452 Practice for Soil Exploration and Sampling by Auger Borings](#)
- [D1586 Test Method for Standard Penetration Test \(SPT\) and Split-Barrel Sampling of Soils](#)
- [D1587 Practice for Thin-Walled Tube Sampling of Fine-Grained Soils for Geotechnical Purposes](#)

¹ This guide is under the jurisdiction of ASTM Committee [D34](#) on Waste Management and is the direct responsibility of Subcommittee [D34.01.01](#) on Planning for Sampling.

Current edition approved Oct. 1, 2021. Published October 2021. Originally approved in 1998. Last previous edition approved in 2016 as D6232 – 16. DOI: 10.1520/D6232-21.

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.

- D3550** Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils
- D4136** Practice for Sampling Phytoplankton with Water-Sampling Bottles (Withdrawn 2020)³
- D4342** Practice for Collecting of Benthic Macroinvertebrates with Ponar Grab Sampler (Withdrawn 2003)³
- D4343** Practice for Collecting Benthic Macroinvertebrates with Ekman Grab Sampler (Withdrawn 2003)³
- D4348** Practice for Collecting Benthic Macroinvertebrates with Holme (Scoop) Grab Sampler (Withdrawn 2003)³
- D4387** Guide for Selecting Grab Sampling Devices for Collecting Benthic Macroinvertebrates (Withdrawn 2003)³
- D4411** Guide for Sampling Fluvial Sediment in Motion
- D4448** Guide for Sampling Ground-Water Monitoring Wells
- D4547** Guide for Sampling Waste and Soils for Volatile Organic Compounds
- D4687** Guide for General Planning of Waste Sampling
- D4696** Guide for Pore-Liquid Sampling from the Vadose Zone
- D4700** Guide for Soil Sampling from the Vadose Zone
- D4823** Guide for Core Sampling Submerged, Unconsolidated Sediments
- D5013** Practices for Sampling Wastes from Pipes and Other Point Discharges
- D5079** Practices for Preserving and Transporting Rock Core Samples (Withdrawn 2017)³
- D5088** Practice for Decontamination of Field Equipment Used at Waste Sites
- D5283** Practice for Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation
- D5314** Guide for Soil Gas Monitoring in the Vadose Zone (Withdrawn 2015)³
- D5358** Practice for Sampling With a Dipper or Pond Sampler
- D5451** Practice for Sampling Using a Trier Sampler
- D5495** Practice for Sampling with a Composite Liquid Waste Sampler (COLIWASA)
- D5633** Practice for Sampling with a Scoop
- D5679** Practice for Sampling Consolidated Solids in Drums or Similar Containers
- D5680** Practice for Sampling Unconsolidated Solids in Drums or Similar Containers
- D5681** Terminology for Waste and Waste Management
- D5730** Guide for Site Characterization for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone and Groundwater (Withdrawn 2013)³
- D5743** Practice for Sampling Single or Multilayered Liquids, with or Without Solids, in Drums or Similar Containers
- D5778** Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils
- D5784** Guide for Use of Hollow-Stem Augers for Geoenvironmental Exploration and the Installation of Subsurface Water Quality Monitoring Devices
- D6001** Guide for Direct-Push Groundwater Sampling for Environmental Site Characterization
- D6009** Guide for Sampling Waste Piles
- D6026** Practice for Using Significant Digits and Data Records in Geotechnical Data
- D6051** Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities
- D6063** Guide for Sampling of Drums and Similar Containers by Field Personnel
- D6151** Practice for Using Hollow-Stem Augers for Geotechnical Exploration and Soil Sampling
- D6169** Guide for Selection of Soil and Rock Sampling Devices Used With Drill Rigs for Environmental Investigations
- D6282** Guide for Direct Push Soil Sampling for Environmental Site Characterizations
- D6286** Guide for Selection of Drilling and Direct Push Methods for Geotechnical and Environmental Subsurface Site Characterization
- D6519** Practice for Sampling of Soil Using the Hydraulically Operated Stationary Piston Sampler
- D6538** Guide for Sampling Wastewater With Automatic Samplers
- D6634** Guide for Selection of Purging and Sampling Devices for Groundwater Monitoring Wells
- D6640** Practice for Collection and Handling of Soils Obtained in Core Barrel Samplers for Environmental Investigations
- D6699** Practice for Sampling Liquids Using Bailers
- D6759** Practice for Sampling Liquids Using Grab and Discrete Depth Samplers
- D6771** Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations
- D6907** Practice for Sampling Soils and Contaminated Media with Hand-Operated Bucket Augers
- D6914** Practice for Sonic Drilling for Site Characterization and the Installation of Subsurface Monitoring Devices
- D7353** Practice for Sampling of Liquids in Waste Management Activities Using a Peristaltic Pump
- D7758** Practice for Passive Soil Gas Sampling in the Vadose Zone for Source Identification, Spatial Variability Assessment, Monitoring, and Vapor Intrusion Evaluations
- D7929** Guide for Selection of Passive Techniques for Sampling Groundwater Monitoring Wells
- D8170** Guide for Using Disposable Handheld Soil Core Samplers for the Collection and Storage of Soil for Volatile Organic Analysis
- E300** Practice for Sampling Industrial Chemicals
- E1391** Guide for Collection, Storage, Characterization, and Manipulation of Sediments for Toxicological Testing and for Selection of Samplers Used to Collect Benthic Invertebrates

³ The last approved version of this historical standard is referenced on www.astm.org.