



Standard Practice for Extraction of Solid Waste Samples for Chemical Analysis Using Soxhlet Extraction¹

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^{ε1} NOTE—Editorial changes were made to 11.4 in December 2008.

1. Scope

1.1 This practice describes standard procedures for extracting nonvolatile and semivolatile organic compounds from solids such as soils, sediments, sludges, and granular wastes using Soxhlet extraction.

1.1.1 The sample must be suitable for being mixed with the sample drying agent, sodium sulfate or magnesium sulfate, to provide drying of all sample surfaces.

1.2 This practice, when used in conjunction with Test Method **D5368** is applicable to the determination of the total solvent extractable content (TSEC) of a soil, sediment, sludge, or granular solid waste and depends upon the solvent chosen for extraction.

1.3 This practice is limited to solvents having boiling points below the boiling point of water at ambient pressure.

1.4 The solvent extract obtained by this practice may be analyzed for total or specific nonvolatile and semivolatile organic compounds but may require sample clean-up procedures prior to specific compound analysis.

1.4.1 This practice provides sample extracts suitable for analysis by various techniques such as gas chromatography with flame ionization detection (GC/FID) or gas chromatography with mass spectrometric detection (GC/MS).

1.5 This practice is recommended only for solid samples that can pass through a 10-mesh sieve (approximately 2-mm openings), or are less than 2 mm in thickness.

1.6 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautions see Section 9.

¹ This practice is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.06 on Analytical Methods.

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2. Referenced Documents

2.1 ASTM Standards:²

D75 Practice for Sampling Aggregates

D420 Guide to Site Characterization for Engineering Design and Construction Purposes (Withdrawn 2011)³

D2234/D2234M Practice for Collection of a Gross Sample of Coal

D2910 Method for Removal of Organic Matter from Water by Activated Carbon Absorption (Withdrawn 1991)³

D3086 Test Method for Organochlorine Pesticides in Water (Withdrawn 1996)³

D3694 Practices for Preparation of Sample Containers and for Preservation of Organic Constituents

D3975 Practice for Development and Use (Preparation) of Samples for Collaborative Testing of Methods for Analysis of Sediments

D3976 Practice for Preparation of Sediment Samples for Chemical Analysis

D4281 Test Method for Oil and Grease (Fluorocarbon Extractable Substances) by Gravimetric Determination

D5368 Test Methods for Gravimetric Determination of Total Solvent Extractable Content (TSEC) of Solid Waste Samples

E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process

2.2 EPA Document:

SW 846 Method 3540 Soxhlet Extraction, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW 846, Third Edition⁴

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

⁴ Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.