



Standard Test Method for Leaching Solid Material in a Column Apparatus¹

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1. Scope

1.1 This test method is a standard laboratory procedure for generating aqueous leachate from materials using a column apparatus. It provides a leachate suitable for organic analysis of semivolatile and nonvolatile compounds as well as inorganic analyses.

1.2 The column apparatus is designed and constructed of materials chosen to enhance the leaching of low concentrations of semivolatile and nonvolatile organic constituents as well as to maximize the leaching of metallic species from the solid. Analysis of column effluent provides information on the leaching characteristics of material under the conditions used in the test.

1.3 This test method provides for the passage of an aqueous fluid through materials of known mass in a saturated up-flow mode.

1.4 It is intended that the sample used in the procedure be physically, chemically, and biologically representative of the material.

1.5 This test method does not produce results that can be used as the sole basis for (1) engineering design of a disposal site, or (2) the characterization of wastes based on their leaching characteristics.

1.6 *This test method has the following limitations:*

1.6.1 Maximum particle size is 10 mm (0.4 in.). Particle size reduction is not recommended. Large-diameter material (cinders, rocks, and so forth) should be removed prior to packing the column to ensure adequate compaction.

1.6.2 Test materials containing densely immiscible organic material may result in phase separation and lead to column plugging.

1.6.3 This test method does not differentiate between dissolved constituents and sub-70- μm particulates that pass through the pores of the end plates.

1.6.4 This test method is not applicable to the leachability characterization of materials with regard to volatile compounds.

1.6.5 This test method is not applicable to the characterization of materials that dissolve in water to a degree that significantly impacts the void volume in the column or the determination of the specific gravity of the material.

1.7 Application of this test method to materials with initial low permeability, or to those that lose permeability over the course of the test, may result in long testing periods.

1.8 The values stated in SI units are to be regarded as the standard. The values given in parentheses are in approximate inch-pound equivalents.

1.9 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

C819 Test Method for Specific Surface Area of Carbon or Graphite (Withdrawn 1987)³

D422 Test Method for Particle-Size Analysis of Soils

D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³))

D854 Test Methods for Specific Gravity of Soil Solids by Water Pycnometer

D1125 Test Methods for Electrical Conductivity and Resistivity of Water

D1129 Terminology Relating to Water

D1293 Test Methods for pH of Water

D1498 Test Method for Oxidation-Reduction Potential of Water

D1888 Methods Of Test for Particulate and Dissolved Matter in Water (Withdrawn 1989)³

¹ This test method is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.04 on Waste Leaching Techniques.

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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.