Designation: D 4793 – 93 (Reapproved 2004)

Standard Test Method for Sequential Batch Extraction of Waste with Water[1]

This standard is issued under the fixed designation D 4793; 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 test method is a procedure for the sequential leaching of a waste containing at least five % solids to generate solutions to be used to determine the constituents leached under the specified testing conditions.

1.2 This test method calls for the shaking of a known weight of waste with water of a specified purity and the separation of the aqueous phase for analysis. The procedure is conducted ten times in sequence on the same sample of waste and generates ten aqueous solutions.

1.3 This test method is intended to describe the procedure for performing sequential batch extractions only. It does not describe all types of sampling and analytical requirements that may be associated with its application.

1.4 *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.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 75 Practices for Sampling Aggregates

D 420 Practice for Investigating and Sampling Soil and Rock for Engineering Purposes

D 653 Terminology Relating to Soil, Rock, and Contained Fluids

D 1129 Terminology Relating to Water

D 1193 Specification for Reagent Water

D 2216 Test Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures

D 2234 Test Method for Collection of a Gross Sample of Coal

D 2777 Practice for Determination of Precision and Bias of Methods of Committee D-19 on Water

D 3370 Practices for Sampling Water

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, see Terminology D 1129.

3.2 *Symbols:Symbols:*

3.2.1 Variables listed in this test method are defined in the individual sections where they are discussed. A list of defined variables is also given in Section 11.

3.2.2 *Explanation of Variables*:

$\bar{X}_t$ = total mean value

$\bar{X}_a$ = analytical mean value (calculated using data from analysis of standards)

S_{tt} = total standard deviation

S_{ta} = analytical standard deviation

S_{te} = estimated standard deviation due to the extraction procedure

S_{ot} = total single operator standard deviation

S_{oa} = analytical single operator standard deviation

S_{oe} = estimated single operator standard deviation due to the extraction procedure

4. Significance and Use

4.1 This test method is intended as a means for obtaining sequential extracts of a waste. The extracts may be used to estimate the release of certain constituents of the waste under the laboratory conditions described in this test method.

4.2 This test method is not intended to provide extracts that are representative of the actual leachate produced from a waste in the field or to produce extracts to be used as the sole basis of engineering design.

4.3 This test method is not intended to simulate site-specific leaching conditions. It has not been demonstrated to simulate actual disposal site leaching conditions.

4.4 An intent of this test method is that the final pH of each of the extracts reflects the interaction of the extractant with the buffering capacity of the waste.

[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 Ancillary Topics.

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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.

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