



Designation: D 6050 – 97 (Reapproved 2003)<sup>ε1</sup>

## Standard Test Method for Determination of Insoluble Solids in Organic Liquid Hazardous Waste<sup>1</sup>

This standard is issued under the fixed designation D 6050; 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.

<sup>ε1</sup> NOTE—Equations 1 and 2 were corrected editorially in June 2003.

### 1. Scope

1.1 This test method covers the determination of the approximate amount of insoluble, suspended solid material in organic liquid hazardous waste (OLHW).

1.2 This test method is intended to be used in approximating the amount of insoluble, suspended solids in determining the material handling characteristics and fuel quality of OLHW. It is not intended to replace more sophisticated procedures for the determination of total solids.

1.3 *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:*

**D 96** Test Methods for Water and Sediment in Crude Oil by Centrifuge Method (Field Procedure)<sup>2</sup>

### 3. Summary of Test Method

3.1 A 10-mL aliquot of OLHW sample is decanted into a 15-mL graduated centrifuge tube and centrifuged for 3 min. The separated liquid phase of the OLHW is decanted into an appropriate waste vessel. The centrifuge tube with the separated solid material is brought back to its original 10-mL volume with a user-selected blend of clean solvents and agitated to mix the solid and liquid phases. The tube is centrifuged for 2 min, and the amount of remaining solid material is read.

### 4. Significance and Use

4.1 Facilities utilizing bulk liquid hazardous waste fuels are concerned about material handling characteristics and the overall quality of the fuel. A high percentage of insoluble,

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<sup>2</sup> Withdrawn.

suspended solid material can create pumping, filtering, or grinding difficulties in the off-loading of bulk shipments of OLHW and can contribute to excessive wear on processing equipment. High solids can also decrease the quality and consistency of commingled fuel by decreasing the effectiveness of agitation in storage tanks.

### 5. Apparatus

5.1 *Centrifuge*—Capable of spinning two or more centrifuge tubes at a speed controlled to give a relative centrifugal force of between 1200 to 1400. The speed to achieve this is generally between 3100 to 3600 rpm. The rotation speed necessary to achieve the relative centrifugal force can be determined from one of the following equations:

$$rpm = 1335 \sqrt{\frac{rcf}{d}} \quad (1)$$

$$rpm = 265 \sqrt{\frac{rcf}{d}} \quad (2)$$

where:

*rpm* = rotation speed, in revolutions per min,

*rcf* = relative centrifugal force,

*d* = diameter of swing, in mm (Eq 1) or in. (Eq 2), measured between the tips of opposite tubes when the tubes are in rotating position.

NOTE 1—Eq 1 and Eq 2 are described in Test Method **D 96**.

5.2 *Centrifuge Tubes*— Centrifuge tubes shall be cone shaped, made of glass or a solvent resistant plastic or polymer, have a minimum capacity of 15 mL when filled to volume, and graduated with minimum subdivisions of 0.5 mL. Class A centrifuge tubes are recommended. If any grade other than Class A is used, refer to the section on Calibration and Standardization.

### 6. Reagents and Materials

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where