



Designation: D 5057 – 90 (Reapproved 1996)

Standard Test Method for Screening Apparent Specific Gravity and Bulk Density of Waste¹

This standard is issued under the fixed designation D 5057; 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 covers the determination of apparent specific gravity and bulk density in waste. For the purpose of this test method, materials to be measured will be classified into three groups:

1.1.1 *Group A*—Free-flowing liquids; apparent specific gravity (ASG),

1.1.2 *Group B*—Granules, powders and water reactive liquids, solids or sludges; bulk density (BD), and

1.1.3 *Group C*—Bulk solids (such as gravel, paper or wood, etc.); apparent specific gravity (ASG).

1.2 This test method is designed and intended as a preliminary test to complement the more sophisticated quantitative analytical techniques that may be used to determine specific gravity. This test method offers to the user the option and the ability to screen waste for apparent specific gravity or bulk density when the more sophisticated techniques are not available and the total waste composition is unknown.

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 prior to use. For a specific hazard statement, see Section 9.*

2. Referenced Documents

2.1 ASTM Standards:

D 1192 Specification for Equipment for Sampling Water and Steam²

D 1193 Specification for Reagent Water²

D 3370 Practices for Sampling Water²

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³

3. Terminology

3.1 Definition of Term Specific to This Standard:

3.1.1 *screening*—a preliminary qualitative or semi-quantitative test, developed from classical qualitative and

quantitative techniques, that is designed to efficiently give the user specific information about a waste that will aid in determining waste identification, process compatibility, and safety in handling.

4. Summary of Test Method

4.1 The specific gravity of a material is the ratio of the masses of equal volumes of a waste and reagent water. The apparent specific gravity of materials in Groups A and C is determined by comparing the mass of a sample to the mass of the same volume of reagent water. The bulk density of wastes in Group B is determined as a direct mass/volume ratio of the sample alone and should be used for determinations on water reactive materials. The weights are used in determining mass.

5. Significance and Use

5.1 This test method is intended for use by those in the waste management industries for the determination of apparent specific gravity and bulk density of waste.

5.2 The apparent specific gravity and bulk density determined by this test method can be used for the conversion of measured volumes to weights.

5.3 The apparent specific gravity and bulk density, when correlated with other properties, can be used to indicate the character of the waste.

6. Interferences

6.1 Excessive temperatures causing loss of sample components due to vaporization could result in erroneous readings.

6.2 Large, obvious void spaces interfere in this test method and will give inaccurate results because of the false volume measured.

7. Apparatus

7.1 *Weighing Bottle*— Specific gravity bottle or equivalent container is needed.

7.2 *Spatulas*.

7.3 *Top Loader Balance*, with a sensitivity of 0.01 g is required.

8. Reagents and Materials

8.1 *Purity of Water*— Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type IV of Specification D 1193.

¹ This test method is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.05 on Screening Methods.

Current edition approved May 25, 1990. Published July 1990.

² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 05.03.