



Designation: D5058-90 (Reapproved 2007)

## Standard Test Methods for Designation: D5058 – 12

### Standard Practices for Compatibility of Screening Analysis of Waste<sup>1</sup>

This standard is issued under the fixed designation D5058; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

#### 1. Scope

1.1 These ~~test methods~~ practices cover assessment of the compatibility/reactivity of waste. The individual ~~test methods~~ practices are as follows:

	Sections
<del>Test Method A—Commingled Waste Compatibility</del>	<del>8-12</del>
<del>Practice A—Commingled Waste Compatibility</del>	<del>8-12</del>
<del>Test Method B—Polymerization Potential (Reaction with</del>	
<del>Practice B—Polymerization Potential (Reaction with</del>	
<del>Triethylamine)</del>	13-18
<del>Test Method C—Water Compatibility</del>	19-25
<del>Practice C—Water Compatibility</del>	19-25

1.2 These ~~test methods~~ practices are applicable to waste liquids, sludges, semi-solids, and solids.

1.3 These ~~test methods~~ practices are designed and intended as a preliminary or supplementary test to complement the more sophisticated quantitative analytical techniques that should be used to determine waste composition and compatibilities. This standard offers the user the option and the ability to screen wastes for potentially hazardous reactions when the more sophisticated techniques are not available and the total waste composition is unknown and to screen compatibility when the composition is known. (**Warning**—Delayed or slow reactions of wastes may go unnoticed.)

~~1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.~~

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4.1 Exception—The values given in parentheses are for information only.

1.5 *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.* For specific hazard and warning statements, see Sections 1.3, 6.1, 10, 11.2.3, 11.5.2, 16 and 23.

#### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D1193 [Specification for Reagent Water](#)

D5681 [Terminology for Waste and Waste Management](#)

E1 [Specification for ASTM Liquid-in-Glass Thermometers](#)

E200 [Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis](#)

#### 3. Terminology

3.1

3.1 Definitions—For definitions of terms used in this screening practice, refer to [Terminology D5681](#).

3.2 Definition of Term Specific to This Standard:

<sup>1</sup> These ~~test methods~~ practices are under the jurisdiction of ASTM Committee D34 on Waste Management and are the direct responsibility of Subcommittee D34.01.05 on Screening Methods.

~~Current edition approved Feb. 1, 2007. Published March 2007. Originally approved in 1990. Last previous edition approved in 2001 as D5058-90(2001). DOI: 10.1520/D5058-90R07.~~

Current edition approved Jan. 1, 2012. Published February 2012. Originally approved in 1990. Last previous edition approved in 2007 as D5058-90 (2007). DOI: 10.1520/D5058-12.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.1

3.2.1 *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 Methods—Summary of Practices**

4.1 *Test Method A—Practice A*— Representative samples of waste are added to each other. The generation of heat or violent reaction is noted. In addition, the production of mists, fumes, dusts, gases, layering, polymerization, precipitation, emulsification or increase in viscosity and other chemical or physical changes are noted.

4.2 *Test Method B—Practice B*— Reactivity of wastes is determined by adding an aliquot of a sample to an equal volume of reagent and observing any characteristic reaction, such as temperature increase, gas evolution, gelling, or polymerization.

4.3 *Test Method C—Practice C*— Water and the waste are mixed in an approximate 10 + 1 ratio to test for compatibility. A thermometer is used to measure heat generation when applicable. Qualitative solubility and relative apparent density are observed concurrently.

#### **5. Purity of Reagents**

5.1 *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 such specifications are available.<sup>3</sup> Other grades may be used provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination (see Practice E200).

5.2 *Purity of Water*— Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type III of Specification D1193.

#### **6. Sampling**

6.1 **Warning**—Avoid inhalation of or skin contact with any hazardous waste.

6.2 Obtain representative samples of waste. If composite samples are taken, report any generation of heat, gases or solids during compositing. If reactions are observed during compositing, then individual samples should be taken. If the waste is suspected of containing varying proportions of reactive compounds, take individual samples and conduct tests on each sample.

6.3 Allow all samples to stabilize to room temperature and analyze as soon as possible.

6.4 Always perform this procedure in a hood with the sash down as far as possible.

#### **7. Quality Assurance**

7.1 Thermometers are evaluated and verified at a frequency specified by the laboratory (see Specification E1).

7.2 Care is taken to ensure that samples are representative of the total wastes involved.

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### **~~TEST METHOD A—COMMINGLED WASTE COMPATIBILITY~~**

### **PRACTICE A—COMMINGLED WASTE COMPATIBILITY**

#### **8. Significance and Use**

8.1 This ~~test method~~practice is intended for use by those in the waste management industries to aid in determining the compatibility of hazardous wastes before they are commingled.

#### **9. Apparatus**

9.1 *Graduated Cylinders*, 100 mL.

9.2 *Thermometer*, 20 to 110°C or equivalent with 0.5°C divisions.

9.3 *Disposable Pipet*.

9.4 *Spatula*.

9.5 *Beakers*, 500 mL.

9.6 *Funnels*.

9.7 *Vortex Mixer* (optional).

#### **10. Hazards**

10.1 **Warning**—Avoid inhalation of and skin and eye contact with any hazardous material.

10.2 **Warning**—This procedure must be performed within a laboratory fume hood with the sash down as far as possible.

<sup>3</sup> "Reagent Reagent Chemicals, American Chemical Society Specifications," Am. Chemical Soc., Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see "Reagent Reagent Chemicals and Standards," by Joseph Rosin, D. Van Nostrand Co., Inc., New York, NY, and the "United States Pharmacopeia."