

Standard Test Method for Sediment in Crude Oil by Membrane Filtration¹

This standard is issued under the fixed designation D4807; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method covers the determination of sediment in crude oils by membrane filtration. This test method has been validated for crude oils with sediments up to approximately 0.15 mass %.

1.2 The accepted unit of measure for this test method is mass %, but an equation to convert to volume % is provided (see [Note 6](#)).

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

1.4 *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 warning statements, see [6.1](#) and [Annex A1](#).*

2. Referenced Documents

2.1 ASTM Standards:²

[D473](#) Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method

[D4057](#) Practice for Manual Sampling of Petroleum and Petroleum Products

[D4177](#) Practice for Automatic Sampling of Petroleum and Petroleum Products

[D4865](#) Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems

[D5854](#) Practice for Mixing and Handling of Liquid Samples

of Petroleum and Petroleum Products

2.2 API Standards:³

[MPMS Chapter 8.1](#) Manual Sampling of Petroleum and Petroleum Products (ASTM Practice [D4057](#))

[MPMS Chapter 8.2](#) Automatic Sampling of Petroleum and Petroleum Products (ASTM Practice [D4177](#))

[MPMS Chapter 8.3](#) Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products (ASTM Practice [D5854](#))

[MPMS Chapter 10.1](#) Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method (ASTM Test Method [D473](#))

2.3 ISO Standard:⁴

[ISO 5272:1979](#) Toluene for Industrial Use—Specifications

3. Summary of Test Method

3.1 A portion of a representative crude oil sample is dissolved in hot toluene and filtered under vacuum through a 0.45 μm porosity membrane filter. The filter with residue is washed, dried, and weighed to give the final result.

4. Significance and Use

4.1 A knowledge of the sediment content of crude oil is important both in refinery operations and in crude oil commerce.

5. Apparatus

5.1 *Funnel and Filter Support Assembly*—Use an assembly designed to hold 47 mm diameter filters as was used in the development of this test method (see [Fig. 1](#)).⁵

5.1.1 *Filter Funnel*—Use a filter funnel with a 250 mL minimum capacity. The lower part of the funnel has a 40 mm inside diameter and is designed to secure the 47 mm diameter

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and the API Committee on Petroleum Measurement, and is the direct responsibility of Subcommittee D02.02/COMQ on Hydrocarbon Measurement for Custody Transfer (Joint ASTM-API).

Current edition approved April 1, 2015. Published May 2015. Originally approved in 1988. Last previous edition approved in 2010 as D4807 – 05 (2010). DOI: 10.1520/D4807-05R15.

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 Published as *Manual of Petroleum Measurement Standards*. Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, <http://www.api.org>.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁵ The following filtration assembly was used in generating the precision: Millipore Corp., Ashly Rd., Bedford, MA 01730. Other filtration assemblies also may be acceptable.