



Standard Practice for Sampling and Handling of Fuels for Volatility Measurement¹

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1. Scope

1.1 This practice covers procedures and equipment for obtaining, mixing, and handling representative samples of volatile fuels for the purpose of testing for compliance with the standards set forth for volatility related measurements applicable to light fuels. The applicable dry vapor pressure equivalent range of this practice is 13 to 105 kPa (2 to 16 psia).

1.2 This practice is applicable to the sampling, mixing, and handling of reformulated fuels including those containing oxygenates.

1.3 The values stated in acceptable metric units are to be regarded as the standard except in some cases where drawings may show English measurements which are customary for that equipment.

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.*

2. Referenced Documents

2.1 ASTM Standards:

D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)²

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³

D 4953 Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)³

D 5190 Test Method for Vapor Pressure of Petroleum Products (Automatic Method)³

D 5191 Test Method for Vapor Pressure of Petroleum Products (Mini Method)³

2.2 API Documents:⁴

MPMS Chapter 8—Definitions

MPMS Chapter 8.1—Standard Practice for Manual Sampling of Petroleum and Petroleum Products

MPMS Chapter 8.2—Standard Practice for Automatic Sampling of Liquid Petroleum and Petroleum Products

MPMS Chapter 8.3—Standard Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *bottom sample*—a sample obtained from the material at the bottom of the tank, container, or line at its lowest point.

3.1.1.1 *Discussion*—In practice the term bottom sample has a variety of meanings. As a result, it is recommended that the exact sampling location (for example, 15 cm [6 in.] from the bottom) should be specified when using this term.

3.1.2 *dead legs*—sections of pipe that, by design, do not allow for the flow of material through them.

3.1.2.1 *Discussion*—Dead legs are not suitable for obtaining representative samples.

3.1.3 *relief lines*—sections of pipe that lead to a pressure/vacuum relief valve.

3.1.3.1 *Discussion*—Relief lines are not suitable for obtaining representative samples.

3.1.4 *stand pipes*—vertical sections of pipe or tubing extending from the gaging platform to near the bottom of tanks that are equipped with external or internal floating roofs. Stand pipes also may be found on ships and barges.

3.1.4.1 *Discussion*—Stand pipes which are not slotted or perforated will not yield representative samples. Further information on proper stand pipe design is given in 6.4.3.

3.1.5 Other sample definitions are given in Practice D 4057.

4. Summary of Practice

4.1 It is necessary that the samples be representative of the fuel in question. The basic principle of each sampling procedure involves obtaining a sample in such a manner and from such locations in the tank or other container that the sample will be representative of the fuel. A summary of the sampling procedures and their application is presented in Table 1. Each

¹ This practice is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.02 on Static Petroleum Measurement.

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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 05.02.

⁴ Available from the American Petroleum Institute, 1220 L St., NW, Washington, DC 20005.