Manual of Petroleum Measurement Standards Chapter 8.5

Standard Practice for Manual Piston Cylinder Sampling for Volatile Crude Oils, Condensates, and Liquid Petroleum Products

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Contents

Designation: D8009 – 15

Manual of Petroleum Measurement Standards (MPMS), Chapter 8.5

Standard Practice for Manual Piston Cylinder Sampling for Volatile Crude Oils, Condensates, and Liquid Petroleum Products[1]

This standard is issued under the fixed designation D8009; 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 practice includes the equipment and procedures for obtaining a representative sample of "live" or high vapor pressure crude oils, condensates, and/or liquid petroleum products from low pressure sample points, where there is insufficient sample point pressure to use a Floating Piston Cylinder (FPC) as described in Practice D3700.

1.2 This practice is intended for use with sample types, such as UN Class 3 Flammable Liquids, that might have been collected and transported using open containers. The use of a manual piston cylinder in place of open containers is intended to prevent the loss of volatile (light end) components, which can impact subsequent test results.

1.3 This practice is suitable for sampling crude oils, condensates, and/or liquid petroleum products having true vapor pressures less than 300 kPa (43 psia nominal) at 50 °C. This practice applies to samples that will typically fall between Practices D4057 (API *MPMS* Chapter 8.1) and D3700. This practice shall not be used for materials classified as UN Class 2 Gases[2] ("…having a vapor pressure greater than 300 kPa at 50 °C or is completely gaseous at 20 °C at 101.3 kPa.").

1.4 This practice allows for sampling of crude oils that flow freely at the conditions of sampling.

1.5 It is the responsibility of the user to ensure that the sampling point is located so as to obtain a representative sample.

1.6 The values stated in SI units are to be regarded as standard.

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

1.7 *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:*[3]

D3700 Practice for Obtaining LPG Samples Using a Floating Piston Cylinder

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D6377 Test Method for Determination of Vapor Pressure of Crude Oil: $VPCR_x$ (Expansion Method)

D6378 Test Method for Determination of Vapor Pressure (VP_X) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)

D7975 Test Method for Determination of Vapor Pressure of Crude Oil: $VPCR_x$-F(Tm°C) (Manual Expansion Field Method)

2.2 *API Standards:*[4]

MPMS Chapter 8.1 Manual Sampling of Petroleum and Petroleum Products

MPMS Chapter 8.2 Automatic Sampling of Petroleum and Petroleum Products

3. Terminology

3.1 *Definitions:*

[1] This practice 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 the joint ASTM-API Committee on Hydrocarbon Measurement for Custody Transfer (Joint ASTM-API). This practice has been approved by the sponsoring committees and accepted by the Cooperating Societies in accordance with established procedures. This practice was issued as a joint ASTM-API standard in 2015.

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[2] UN Recommendations of the Transportation of Dangerous Goods, Chapter 2.2.1.1.

[3] 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.

[4] Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, http://www.api.org.