



Designation: D6897 – 24

Standard Test Method for Vapor Pressure of Liquefied Petroleum Gases (LPG) (Expansion Method)¹

This standard is issued under the fixed designation D6897; 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 use of automatic vapor pressure instruments to determine the vapor pressure of liquefied petroleum gas products at a temperature of 37.8 °C, vapor to liquid ratio of 0.5:1, and pressures from 200 kPa to 1550 kPa on a sample volume of 3.33 mL.

1.2 This test method is applicable to the determination of vapor pressures of liquefied petroleum gas products at temperatures from 37.8 °C to 70 °C, vapor to liquid ratios of 0.1:1 to 4:1, and pressures up to 3500 kPa; however, the precision of the test method (see Section 15) has only been determined for a vapor to liquid ratio of 0.5:1, at a temperature of 37.8 °C, and a pressure range from 300 kPa to 1500 kPa.

NOTE 1—This test method is not intended to determine the true vapor pressure of LPG samples, but rather determine and report the vapor pressure of LPG at the 37.8 °C temperature and 0.5:1 vapor to liquid ratio as the Test Method D1267 method.

NOTE 2—This test method is not a true vapor pressure method and will not measure the full contribution from any dissolved gases such as nitrogen or helium if they are present. The contribution of light gases to the measured vapor pressure is highly dependent on the test temperature, type of gas, and V/L ratio of the test.

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

1.3.1 *Exception*—Non-SI units are included in parentheses 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific warning statements, see Appendix X2.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

D1265 Practice for Sampling Liquefied Petroleum (LP) Gases, Manual Method

D1267 Test Method for Gauge Vapor Pressure of Liquefied Petroleum (LP) Gases (LP-Gas Method)

D2892 Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)

D3700 Practice for Obtaining LPG Samples Using a Floating Piston Cylinder

D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

D5191 Test Method for Vapor Pressure of Petroleum Products and Liquid Fuels (Mini Method)

D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance

2.2 Energy Institute Standards:³

IP 181 Sampling Petroleum Gases

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, refer to Terminology D4175.

3.1.2 *liquefied petroleum gas (LP Gas, LPG)*, *n*—a narrow boiling range mixture of hydrocarbons consisting of propane, propylene, butanes and butylenes, individually or in specified combinations, with limited amounts of other hydrocarbons (such as ethane) and may contain naturally occurring, petroleum-derived, non-hydrocarbons.

3.1.3 *platinum resistance thermometer*, *n*—temperature measuring device with platinum wire, whose electrical resistance changes in relation to temperature.

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.08 on Volatility.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Energy Institute, 61 New Cavendish St., London, WIG 7AR, U.K., <http://www.energyinst.org.uk>.

*A Summary of Changes section appears at the end of this standard