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Standard Specification for Liquefied Petroleum (LP) Gases¹

This standard is issued under the fixed designation D1835; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This specification covers those products commonly referred to as liquefied petroleum gases, consisting of propane, propene (propylene), butane, and mixtures of these materials. Four basic types of liquefied petroleum gases are provided to cover the common use applications.

1.2 This specification is applicable to products intended for use as domestic, commercial and industrial heating, and engine fuels.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided 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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

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

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

D1657 Test Method for Density or Relative Density of Light Hydrocarbons by Pressure Hydrometer

D1837 Test Method for Volatility of Liquefied Petroleum (LP) Gases

D1838 Test Method for Copper Strip Corrosion by Liquefied Petroleum (LP) Gases

D2158 Test Method for Residues in Liquefied Petroleum (LP) Gases

D2163 Test Method for Analysis of Liquefied Petroleum (LP) Gases and Propene Concentrates by Gas Chromatography

D2420 Test Method for Hydrogen Sulfide in Liquefied Petroleum (LP) Gases (Lead Acetate Method)

D2598 Practice for Calculation of Certain Physical Properties of Liquefied Petroleum (LP) Gases from Compositional Analysis

D2713 Test Method for Dryness of Propane (Valve Freeze Method)

D2784 Test Method for Sulfur in Liquefied Petroleum Gases (Oxy-Hydrogen Burner or Lamp)

D3700 Practice for Obtaining LPG Samples Using a Floating Piston Cylinder

D6667 Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence

D6897 Test Method for Vapor Pressure of Liquefied Petroleum Gases (LPG) (Expansion Method)

2.2 ~~Other Document:~~ *Gas Processors Association Standard:*³

GPA Standard 2140³—Liquefied Petroleum Gas Specifications and Test Methods

3. Terminology

3.1 *Definitions:*

3.1.1 ~~commercial butane~~ commercial butane, *n*—a hydrocarbon product for use where low volatility is required.

3.1.2 ~~commercial PB mixtures~~ commercial PB mixtures, *n*—mixtures of propane and butane for use where intermediate volatility is required.

3.1.3 ~~commercial propane~~ commercial propane, *n*—a hydrocarbon product for use where high volatility is required. Commercial

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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 Available from Gas Processors Association, 6526 E. 60th St., Tulsa, OK 74145. www.gasprocessors.com

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

propane is suitable for certain low severity internal combustion engine applications.

~~3.1.4 *special-duty propane*—a high-quality product composed chiefly of propane, which exhibits superior antiknock characteristics when used as an internal combustion engine fuel.~~

3.1.4 *special-duty propane, n*—a product composed chiefly of propane which exhibits superior antiknock characteristics and was specifically developed for use as fuel in spark ignition internal combustion engines.

4. Sampling

~~4.1 Proper~~ 4.1 Proper sampling of liquefied gases is extremely important if the test results are to be significant. Obtain representative samples in accordance with Practice D1265 or Practice D3700. In the event of a dispute involving sample integrity when sampling for testing against D1835 requirements, Practice D3700 shall be used as the referee sampling procedure.

5. Detailed Requirements

5.1 The four types of liquefied petroleum gases shall conform to the requirements prescribed in Table 1.

6. Keywords

6.1 butane; HD-5 propane; liquefied petroleum (LP) gases specifications; LPG; propane; special duty propane

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