



## Standard Practice for Sampling Liquefied Petroleum (LP) Gases, Manual Method<sup>1</sup>

This standard is issued under the fixed designation D 1265; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This practice covers equipment and procedures for obtaining a representative sample of specification Liquefied Petroleum Gas (LPG), such as specified in Specification D 1835D 1835, GPA 2140, and comparable international standards.

1.2 This practice is suitable for obtaining representative samples for all routine tests for LP gases required by Specification D 1835D 1835. In the event of a dispute involving sample integrity when sampling for testing against Specification D 1835D 1835 requirements, Practice D 3700 shall be used as the referee sampling procedureD 3700.

1.3 This practice may also be used for other Natural Gas Liquid (NGL) products that are normally single phase (NGL mix, field butane, etc.), defined in other industry specifications or contractual agreements. It is not intended for non-specification products that contain significant quantities of undissolved gases ( $N_2$ ,  $CO_2$ ), free water or other separated phases, such as raw or unprocessed gas/liquids mixtures and related materials. The same equipment can be used for these purposes, but additional precautions are generally needed to obtain representative samples of multiphase products (see Appendix A of Practice D 3700D 3700).

NOTE 1—Practice D 3700 describes a recommended practice for obtaining a representative sample of a light hydrocarbon fluid and the subsequent preparation of that sample for laboratory analysis when dissolved gases are present. Use of Practice D 1265 will result in a small but predictable low bias for dissolved gases due to the liquid venting procedure to establish the 20 % minimum ullage.

1.4 This practice includes recommendations for the location of a sample point in a line or vessel. It is the responsibility of the user to ensure that the sampling point is located so as to obtain a representative sample.

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1.6 *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 appro-*

*priate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D 1835 Specification for Liquefied Petroleum (LP) Gases

D 3700 Practice for Obtaining LPG Samples Using a Floating Piston Cylinder

### 3. Terminology

3.1 *Definitions:*

3.1.1 *high pressure sample cylinder*—a receptacle used for storage and transportation of a sample obtained at pressures above atmospheric pressure. Also referred to as a “pressurized sample container” or “sample bomb.” The term “sample bomb” is not preferred.

3.1.2 *maximum fill density (reduced fill density)*—the volume of a container occupied by the sample, usually expressed as a percentage of the total capacity. Transportation legislation such as U.S. CFR 49, Canadian Transportation of Dangerous Goods Regulations and IATA regulations limit the percent fill of containers used for shipping LPG, and may quote this requirement as a reduced fill density or maximum fill density (normally 80 % maximum liquid fill at 15°C). Lower percent fill (lower fill density) may be required if sampling at lower temperatures.

### 4. Summary of Practice

4.1 A liquid sample of LPG is transferred from the source into a sample container by purging the container and filling it with liquid, then providing a minimum 20 % outage by venting liquid, so that 80 % or less of the liquid volume remains.

### 5. Significance and Use

5.1 Samples of liquefied petroleum gases are examined by various test methods to determine physical and chemical characteristics and conformance with specifications.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D02 on Petroleum and Petroleum Products and is the direct responsibility of Subcommittee D02.H0 on Liquefied Petroleum Gas.

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<sup>2</sup> 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.

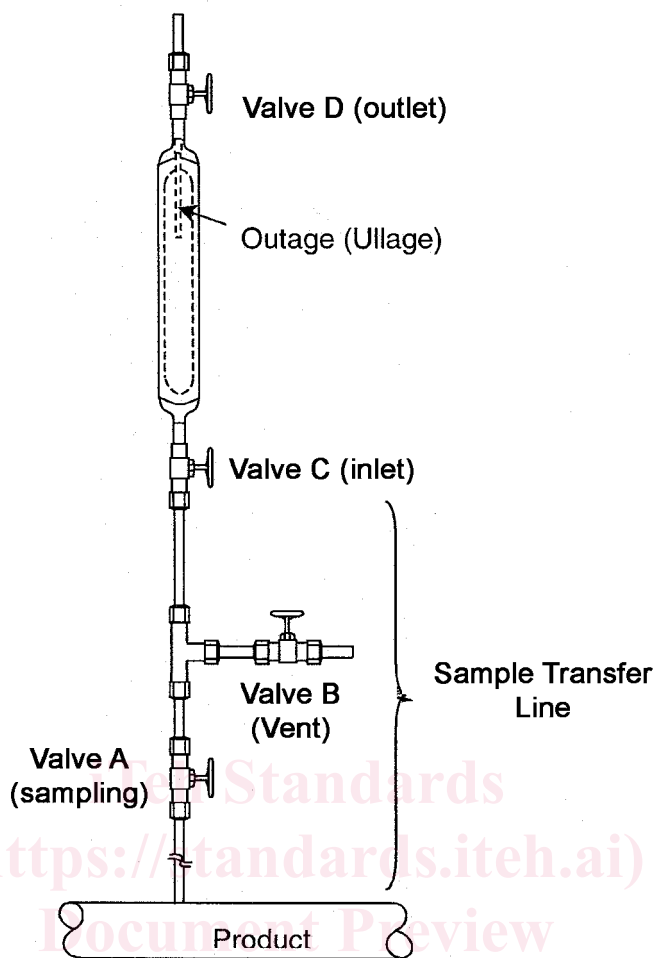


FIG. 1 Typical Sample Container and Sampling Connections

5.2 Equipment described by this practice may be suitable for transportation of LPG samples, subject to applicable transportation regulations.

## 6. General Information

6.1 Considerable effort is required to obtain a representative sample, especially if the material being sampled is a mixture of liquefied petroleum gases. The following factors must be considered:

6.1.1 Obtain samples of the liquid phase only.

6.1.2 When it is definitely known that the material being sampled is composed predominantly of only one liquefied petroleum gas, a liquid sample may be taken from any part of the vessel.

6.1.3 When the material being sampled has been mixed or circulated until it is homogeneous, a liquid sample may be taken from any part of the vessel.

6.1.4 Because of wide variation in the construction details of containers for liquefied petroleum gases, it is difficult to specify a uniform method for obtaining representative samples of heterogeneous mixtures. If it is not practicable to homogenize a mixture to ensure uniformity, obtain liquid samples by a procedure which has been agreed upon by the contracting parties.

6.1.5 Directions for sampling cannot be made explicit enough to cover all cases. They must be supplemented by judgment, skill and sampling experience. Extreme care and good judgment are necessary to ensure samples which represent the general character and average condition of the material. Because of the hazards involved, liquefied petroleum gases should be sampled by, or under the supervision of, persons familiar with the necessary safety precautions.

NOTE 2—Samples to be tested for presence of corrosive compounds or sulfur compounds should be taken in inert containers equipped with stainless steel valves; otherwise, determinations of mercaptans and hydrogen sulfide, for example, can be misleading. Internal surfaces of sample containers and associated lines and fittings may be surface coated to reduce bare metal surfaces reacting with trace reactive components.

6.1.6 Hydrocarbon vapors vented during sampling must be controlled to ensure compliance with applicable safety and environmental regulations.

## 7. Apparatus

7.1 *Sample Container*—Use corrosion resistant metal sample containers certified by the authority having jurisdiction for pressure vessels with adequate pressure rating for the product being sampled. Suitable materials include stainless steel, Monel, and possibly other materials. The size of the