



Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases and Natural Gas by Ultraviolet Fluorescence¹

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1. Scope

1.1 This test method covers the determination of total volatile sulfur in gaseous hydrocarbons, Liquefied Petroleum Gases (LPG) and Liquefied Natural Gas (LNG). It is applicable to analysis of natural gaseous fuels, process intermediates, final product hydrocarbons and generic gaseous fuels containing sulfur in the range of 1 to 200 mg/kg. Samples can also be tested at other total sulfur levels using either pre-concentration methods or sample dilution using a diluent gas. The methodology for pre-concentration and dilution techniques is not covered in this test method. The precision statement does not apply if these techniques are used in conjunction with this test method. The diluent gas, such as UHP nitrogen, zero nitrogen or zero air, shall not have a significant total sulfur concentration.

1.2 This test method may not detect sulfur compounds that do not volatilize under the conditions of the test.

1.3 This test method covers the laboratory determination and the at-line/on-line determination of total volatile sulfur in gaseous fuels, LPG, and LNG.

1.4 This test method is applicable for total volatile sulfur determination in gaseous hydrocarbons, LPG, and LNG containing less than 0.35 mole % halogen(s).

1.5 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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 appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. See Sections 4.1, 7.3, 7.4, 11.2, and Section 8.*

¹ This test method is under the jurisdiction of ASTM Committee D03 on Gaseous Fuels and is the direct responsibility of Subcommittee D03.05 on Determination of Special Constituents of Gaseous Fuels.

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2. Referenced Documents

2.1 ASTM Standards:²

- D1070 Test Methods for Relative Density of Gaseous Fuels
- D1072 Test Method for Total Sulfur in Fuel Gases by Combustion and Barium Chloride Titration
- D1265 Practice for Sampling Liquefied Petroleum (LP) Gases, Manual Method
- D3588 Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels
- D3609 Practice for Calibration Techniques Using Permeation Tubes
- D4150 Terminology Relating to Gaseous Fuels
- D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
- D4784 Specification for LNG Density Calculation Models
- D5287 Practice for Automatic Sampling of Gaseous Fuels
- D5503 Practice for Natural Gas Sample-Handling and Conditioning Systems for Pipeline Instrumentation
- D5504 Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence
- D6228 Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection
- D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance
- D7166 Practice for Total Sulfur Analyzer Based On-line/At-line for Sulfur Content of Gaseous Fuels
- E617 Specification for Laboratory Weights and Precision Mass Standards
- E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method
- F307 Practice for Sampling Pressurized Gas for Gas Analysis

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.