



Designation: D7621 – 16

IP 570

Standard Test Method for Determination of Hydrogen Sulfide in Fuel Oils by Rapid Liquid Phase Extraction^{1,2}

This standard is issued under the fixed designation D7621; 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 procedures (A and B) for the determination of the hydrogen sulfide (H_2S) content of fuel oils such as marine residual fuels and blend stocks, with viscosity up to $3000\text{ mm}^2\text{s}^{-1}$ at 50°C , and marine distillate fuels, as measured in the liquid phase.

NOTE 1—Specification fuels falling within the scope of this test method are: ASTM Specification [D396](#), MIL-DTL-16884, and ISO 8217.

1.2 Procedure A has been shown to eliminate interferences such as thiols (mercaptans) and alkyl sulfides. Procedure B can give elevated results if such interferences are present (see [Annex A2](#)).

NOTE 2—A procedure for measuring the amount of hydrogen sulfide in crude oil can be found in [Appendix X1](#). Full precision for [Appendix X1](#) has not yet been determined.

1.3 Valid ranges for the precision are given in Table 2 and Table 3. Measurements can be made outside these ranges however precision has not been determined.

1.4 Samples containing FAME do not affect the measurement of hydrogen sulfide by this test method.

1.5 The values stated in SI units are to be regarded as standard. Non-SI units given in parentheses are for information only.

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.*

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 [D02.14](#) on Stability and Cleanliness of Liquid Fuels.

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² This test method has been developed through the cooperative effort between ASTM and the Energy Institute, London. The IP and ASTM logos imply that the ASTM and IP standards are technically equivalent, but their use does not imply that both standards are editorially identical.

2. Referenced Documents

2.1 ASTM Standards:³

[D396 Specification for Fuel Oils](#)

[D4057 Practice for Manual Sampling of Petroleum and Petroleum Products](#)

[D5705 Test Method for Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils](#)

[D6021 Test Method for Measurement of Total Hydrogen Sulfide in Residual Fuels by Multiple Headspace Extraction and Sulfur Specific Detection](#)

[D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products and Lubricants](#)

2.2 ASTM Adjuncts:⁴

[ADJ6300 D2PP Determination of Precision and Bias data for Use in Test Methods for Petroleum Products](#)

2.3 ISO Standards:⁵

[ISO 4259 Petroleum Products—Determination and Application of Precision Data in Relation to Methods of Test](#)

[ISO 8217 Fuels \(Class F\) Specification of Marine Fuels](#)

2.4 Energy Institute Standards:⁶

[IP 399 Test Method for Determination of Hydrogen Sulfide in Fuel Oils](#)

[IP 570 Test Method for Determination of Hydrogen Sulfide in Fuel Oils—Rapid Liquid Phase Extraction Method](#)

2.5 U.S. Department of Defense Specifications:⁷

[MIL-DTL-16884 Fuel, Naval Distillate](#)

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 For referenced ASTM adjuncts contact ASTM Customer Service at service@astm.org.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁶ Available from Energy Institute, 61 New Cavendish St., London, WIG 7AR, U.K., <http://www.energyinst.org.uk>.

⁷ Available online at <https://assist.dla.mil/quicksearch/> or <http://assistdocs.com/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.

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