



Designation: D6748 – 22

Standard Test Method for Determination of Potential Instability of Middle Distillate Fuels Caused by the Presence of Phenalenes and Phenalenones (Rapid Method by Portable Spectrophotometer)^{1,2}

This standard is issued under the fixed designation D6748; 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 a procedure³ for the rapid determination of phenalenes and phenalenones in middle distillate fuels, including marine, automotive, heating, and gas turbine fuel such as those specified in Specifications **D396**, **D975**, **D2069**, and **D2880**. Phenalenes and phenalenones affect the potential instability of fuels, leading to fuel degradation products during storage, which may cause performance problems.

1.2 This test method is applicable to both dyed and undyed fuels at all points in the distribution chain from refinery to end-user. It is not applicable to fuels containing residual oil. The portable apparatus allows the whole test to be conducted on site or in a laboratory and does not require the test sample to be heated.

1.3 This test method is suitable for testing samples with a relative absorbance of up to 5.00 absorbance units (AU).

NOTE 1—The precision of the test method has been established on relative absorbance up to 1.00 AU. For relative absorbance above 1.00 AU the precision may not apply.

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.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:⁴

D396 Specification for Fuel Oils

D975 Specification for Diesel Fuel

D2069 Specification for Marine Fuels (Withdrawn 2003)⁵

D2880 Specification for Gas Turbine Fuel Oils

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

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

D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D4306 Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination

D4625 Test Method for Middle Distillate Fuel Storage Stability at 43 °C (110 °F)

D5854 Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products

D6468 Test Method for High Temperature Stability of Middle Distillate Fuels

E131 Terminology Relating to Molecular Spectroscopy

E275 Practice for Describing and Measuring Performance of Ultraviolet and Visible Spectrophotometers

2.2 Other Standards:⁶

Def Stan 05-50 Methods for Testing Fuels and Lubricants and Associated Products, Part 40 — Storage Stability of Diesel Fuels

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, Cleanliness and Compatibility of Liquid Fuels.

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² This test method is being jointly developed with the Institute of Petroleum where it is designated IP 463.

³ This process is covered by US Patent 5,378,632. Interested parties are invited to submit information regarding the identification of an alternative(s) to this patented item to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

⁴ 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.

⁵ The last approved version of this historical standard is referenced on www.astm.org.

⁶ Available from United Kingdom Defence Standardization, Room 1138, Kentigern House, 65 Brown Street, Glasgow, G2 8EX. United Kingdom.

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