



Designation: D6468 – 08 (Reapproved 2019)

Standard Test Method for High Temperature Stability of Middle Distillate Fuels¹

This standard is issued under the fixed designation D6468; 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 relative stability of middle distillate fuels under high temperature aging conditions with limited air exposure. This test method is suitable for all No. 1 and No. 2 grades in Specifications [D396](#), [D975](#), [D2880](#), and [D3699](#). It is also suitable for similar fuels meeting other specifications.

1.2 This test method is not suitable for fuels whose flash point, as determined by Test Methods [D56](#), [D93](#), or [D3828](#), is less than 38 °C. This test method is not suitable for fuels containing residual oil.

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

1.3.1 *Exception*—The maximum vacuum includes inch-pound units in [6.5](#) and [11.2](#).

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 standardization 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:²

[D56](#) Test Method for Flash Point by Tag Closed Cup Tester
[D93](#) Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

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 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.

[D396](#) Specification for Fuel Oils

[D975](#) Specification for Diesel Fuel Oils

[D1500](#) Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)

[D2274](#) Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)

[D2880](#) Specification for Gas Turbine Fuel Oils

[D3699](#) Specification for Kerosine

[D3828](#) Test Methods for Flash Point by Small Scale Closed Cup Tester

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

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

[D5452](#) Test Method for Particulate Contamination in Aviation Fuels by Laboratory Filtration

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *adherent insolubles*—material that is produced in the course of stressing distillate fuel and that adheres to the glassware after fuel has been flushed from the system.

3.1.2 *filterable insolubles*—material that is produced in the course of stressing distillate fuel and that is capable of being removed from the fuel by filtration.

3.1.3 *inherent stability*—the resistance to change when exposed to air, but in the absence of other environmental factors such as water, reactive metal surfaces, and dirt.

3.1.4 *storage stability*—the resistance of fuel to formation of degradation products when stored at ambient temperatures.

3.1.5 *thermal stability*—the resistance of fuel to formation of degradation products when thermally stressed.

4. Summary of Test Method

4.1 Two 50 mL volumes of filtered middle distillate fuel are aged for 90 min or 180 min at 150 °C in open tubes with air exposure. After aging and cooling, the fuel samples are filtered and the average amount of filterable insolubles is estimated by measuring the light reflectance of the filter pads. The 100 % and 0 % extremes of the reflectance rating range are defined by an unused filter pad and a commercial black standard, respectively.