



Designation: D2274 – 14 (Reapproved 2019)



Designation: 388/97

Standard Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)¹

This standard is issued under the fixed designation D2274; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method covers the measurement of the inherent stability of middle distillate petroleum fuels under specified oxidizing conditions at 95 °C.

NOTE 1—Fuels used in establishing the precision measures for this test method were described as gas oil, diesel fuel, No. 2 heating oil, and DFM, a Navy distillate fuel suitable for diesels, boilers, and gas turbines. (The term DFM is no longer used when referring to fuel meeting MIL-F-16884 requirements; rather it is called F76 as it conforms to NATO F76 requirements.) While the test method may be used for fuels outside the range of these fuels, the precision measures may not apply.

1.2 This test method is not applicable to fuels containing residual oil. This test method has not been validated for testing biodiesel, such as meeting Specification [D6751](#) or blends of middle distillates and biodiesel, such as meeting Specification [D7467](#), or both. Test Method [D7462](#) has been determined to be suitable for testing B100 and all blends of middle distillates and biodiesel.

NOTE 2—No. 1 and No. 2 grades in Specifications [D396](#) or [D975](#) currently allow up to 5 % biodiesel meeting Specification [D6751](#). Samples containing biodiesel can result in partial dissolution or compromise of the membrane filter and give erroneous results.

1.3 The values given in SI units are to be regarded as the standard. The values in parentheses are for information only.

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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

[D381 Test Method for Gum Content in Fuels by Jet Evaporation](#)

[D396 Specification for Fuel Oils](#)

[D943 Test Method for Oxidation Characteristics of Inhibited Mineral Oils](#)

[D975 Specification for Diesel Fuel](#)

[D1193 Specification for Reagent Water](#)

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

[D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products](#)

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

[D6751 Specification for Biodiesel Fuel Blend Stock \(B100\) for Middle Distillate Fuels](#)

[D7462 Test Method for Oxidation Stability of Biodiesel \(B100\) and Blends of Biodiesel with Middle Distillate Petroleum Fuel \(Accelerated Method\) \(Withdrawn 2016\)³](#)

[D7467 Specification for Diesel Fuel Oil, Biodiesel Blend \(B6 to B20\)](#)

2.2 Military Specification:⁴

[MIL-F-16884 Fuel, Navy Distillate](#)

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

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.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from Standardization Documents Order Desk, Bldg. 4, 700 Robbins Ave., Philadelphia, PA 19111-5098. Attn: NPODS

¹ This test method is under the jurisdiction of 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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