



Designation: D7548 – 22

Standard Test Method for Determination of Accelerated Iron Corrosion in Petroleum Products¹

This standard is issued under the fixed designation D7548; 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 an accelerated laboratory and field procedure for the determination of corrosion of iron, in the presence of water, on samples such as gasoline and gasoline blended with 10 % ethanol, E10 (Specification [D4814](#)); gasoline-blend components (except butane); diesel fuel and biodiesel B5, except Grade No. 4-D (Specification [D975](#)); biodiesel B6 to B20 (Specification [D7467](#)); diesel-blend component such as light cycle-oil; No. 1 fuel oil, No. 2 fuel oil (Specification [D396](#)); aviation turbine fuel (Specification [D1655](#)).

1.2 The values stated in SI units are to be regarded as the standard.

1.2.1 *Exception*—Values in parentheses are for information only.

1.3 *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.*

1.4 *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

[A108](#) Specification for Steel Bar, Carbon and Alloy, Cold-Finished
[D97](#) Test Method for Pour Point of Petroleum Products

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. Current edition approved May 1, 2022. Published May 2022. Originally approved in 2009. Last previous edition approved in 2022 as D7548 – 16a (2022) ^{ϵ 1}. DOI: 10.1520/D7548-22

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

[D665](#) Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water

[D975](#) Specification for Diesel Fuel

[D1193](#) Specification for Reagent Water

[D1655](#) Specification for Aviation Turbine Fuels

[D4175](#) Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

[D4814](#) Specification for Automotive Spark-Ignition Engine Fuel

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

[G15](#) Terminology Relating to Corrosion and Corrosion Testing (Withdrawn 2010)³

2.2 *Other Standards:*

British Standard [BS970–1:070M20](#)⁴ or European Steel C22E Number 1.1151—Carbon and Carbon Manganese Steels including Free Cutting Steels

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology [D4175](#).

3.1.2 *corrosion*, *n*—chemical or electrochemical reaction between a material, usually a metal, and its environment that produces a deterioration of the material and its properties. **G15**

3.1.3 *rust*, *n*—corrosion product consisting primarily of hydrated iron oxide.

3.1.3.1 *Discussion*—Rust is a term properly applied only to ferrous alloys. **G15**

3.2 *Acronyms:*

3.2.1 *TP*—temperature probe.

4. Summary of Test Method

4.1 A polished iron corrosion test-rod is immersed in 50 mL of the sample being tested and heated to 37.8 °C (100 °F), at

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

⁴ *Annual Book of IP Standard Methods for Analysis and Testing of Petroleum and Related Products*, Vol 2. Available from Energy Institute, 61 New Cavendish St., London, W1G 7AR, U.K., <http://www.energyinst.org>.

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