



Standard Test Method for Determining Corrosion Preventive Properties of Lubricating Greases¹

This standard is issued under the fixed designation D1743; 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 Department of Defense.

1. Scope*

1.1 This test method covers the determination of the corrosion preventive properties of greases using grease-lubricated tapered roller bearings stored under wet conditions. This test method is based on CRC Technique L 41² that shows correlations between laboratory results and service for grease lubricated aircraft wheel bearings.

1.2 *Apparatus Dimensions*—The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

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

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:³

D1193 Specification for Reagent Water

D5969 Test Method for Corrosion-Preventive Properties of Lubricating Greases in Presence of Dilute Synthetic Sea Water Environments

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.G0.06 on Functional Tests - Contamination.

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² "Research Technique for Determining Rust-Preventive Properties of Lubricating Greases in the Presence of Free Water," L-41-957, undated, Coordinating Research Council, Inc., 219 Perimeter Center Parkway, Atlanta, GA 30346.

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.

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

3.1.1.1 *Discussion*—In this test method, corrosion is manifested by red rust or black stains on the bearing race. Stains, through which the underlying metal surface is still visible, are not considered corrosion in Test Method D1743 and shall be ignored.

4. Summary of Test Method

4.1 New, cleaned, and lubricated bearings are run under a light thrust load for 60 ± 3 s to distribute the lubricant in a pattern that might be found in service. The bearings are exposed to water, then stored for 48 ± 0.5 h at $52 \pm 1^\circ\text{C}$ ($125 \pm 2^\circ\text{F}$) and 100 % relative humidity. After cleaning, the bearing cups are examined for evidence of corrosion.

5. Significance and Use

5.1 This test method differentiates the relative corrosion-preventive capabilities of lubricating greases under the conditions of the test.

6. Apparatus

6.1 *Bearings*—Timken bearing cone and roller assembly LM11949, and cup LM11910.^{4,5}

6.2 *Motor*, 1750 ± 50 -rpm speed, $\frac{1}{15}$ hp (min).

6.3 *Bearing Holder*, consists of a 1 ± 0.10 kg weight, upper and lower plastic collars for the bearing cone (Parts A and B), a metal screw, and a plastic collar for the cup (Part C). (See Fig. 1.)

6.4 *Plastic Test Jar*, as shown in Fig. 2.

6.5 *Run-in Stand*, as shown in Fig. 3.

6.6 *Spindle/Thrust Loading Device*, as shown in Fig. 4. (See Table 1 for metric equivalents.)

⁴ The sole source of supply of the apparatus known to the committee at this time is The Timken Co., Canton, OH 44706.

⁵ If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.

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