Designation: D4636 – 09

Standard Test Method for Corrosiveness and Oxidation Stability of Hydraulic Oils, Aircraft Turbine Engine Lubricants, and Other Highly Refined Oils[1]

This standard is issued under the fixed designation D4636; 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.

INTRODUCTION

This test method is the result of combining Federal Test Methods 5307.2 and 5308.7. Features and details of both of these test methods are included, but the new test method is basically Method 5307.2 expanded to include Method 5308.7. [2]

1. Scope

1.1 This test method covers the testing of hydraulic oils, aircraft turbine engine lubricants, and other highly refined oils to determine their resistance to oxidation and corrosion degradation and their tendency to corrode various metals. Petroleum and synthetic fluids may be evaluated using moist or dry air with or without metal test specimens.

1.2 This test method consists of a standard test procedure, an alternative Procedure 1, and an alternative Procedure 2. As there are variations possible with this test method, it will be up to the particular specification to establish the conditions required. In addition to temperature, the variables to specify if other than those of the standard procedure or alternative Procedure 1 or 2 are: test time, air flow and humidity, sample frequency, test fluid quantity, and metal specimen(s).

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 values in parentheses in some of the figures are provided for information only for those using old equipment based on non-SI units.

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]

D91 Test Method for Precipitation Number of Lubricating Oils

D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration

D1193 Specification for Reagent Water

D3339 Test Method for Acid Number of Petroleum Products by Semi-Micro Color Indicator Titration

2.2 *U.S. Federal Test Method Standards:*[4]

FED-STD-791 Testing Method of Lubricants, Liquid Fuels, and Related Products

Method 5307.2 Corrosiveness and Oxidation Stability of Aircraft Turbine Engine Lubricants (Withdrawn)

Method 5308.7 Corrosiveness and Oxidation Stability of Light Oils (Metal Squares)

MIL-S-13282 Refined Silver (99.95) (P07015)

2.3 *Other Standards:*[5]

AMS 4616 Silicon Iron Bronze (C65900)

AMS 4908 Titanium Alloy—(8 % Mn) Annealed (R56080)

AMS 6490 Steel (M50) (T11350)

QQ-A-671 Cadmium Anod (L01900)

QQ-C-576 Copper Electrolytic Tough Pitch (ETP) (C11000)

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.09.0D on Oxidation of Lubricants.

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[2] FED-STD-791D is the parent document containing both test methods. As of publication on Nov. 6, 2009, it no longer contains withdrawn Method 5307.2.

[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.

[4] Available from the Standardization Document Order Desk, 700 Robbins, Avenue, Building 4D, Philadelphia PA 19111-5094 (http://assist.daps.dla.mil).

[5] See ASTM DS 56, Metal and Alloys in the Unified Numbering System.

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