



Designation: D 4636 – 99

An American National Standard

Standard Test Method for Corrosiveness and Oxidation Stability of Hydraulic Oils, Aircraft Turbine Engine Lubricants, and Other Highly Refined Oils¹

This standard is issued under the fixed designation D 4636; 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 these test methods are included, but the new test method is basically Method 5307.2 expanded to include Method 5308.7.

1. Scope

1.1 This test method is used to test 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 acceptable SI units are to be regarded as 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.09 on Oxidation.

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D 91 Test Method for Precipitation Number of Lubricating Oils²

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)²

D 664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration²

D 1193 Specification for Reagent Water³

D 3339 Test Method for Acid Number of Petroleum Products by Semi-Micro Color Indicator Titration⁴

2.2 U.S. Federal Test Method Standards:

Method 5307.2, Corrosiveness and Oxidation Stability of Aircraft Turbine Engine Lubricants⁵

Method 5308.7 Corrosiveness and Oxidation Stability of Light Oils (Metal Squares)⁵

MIL-S-13282 Refined Silver (99.95) (P07015)⁶

2.3 Other Standards:

AMS 4616 Silicon Iron Bronze (C65900)⁶

AMS 4908 Titanium Alloy—(8 % Mn) Annealed (R56080)⁶

AMS 6490 Steel (M50) (T11350)⁶

QQ-A-671 Cadmium Anod (L01900)⁶

QQ-C-576 Copper Electrolytic Tough Pitch (ETP) (C11000)⁶

QQ-M-44 Magnesium Alloy AZ31B Condition H24 or H26 (M11311)⁶

² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 11.01.

⁴ *Annual Book of ASTM Standards*, Vol 05.02.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

⁶ See ASTM DS 56, Metal and Alloys in the Unified Numbering System.