



Standard Test Method for Universal Oxidation Test for Hydraulic and Turbine Oils Using the Universal Oxidation Test Apparatus¹

This standard is issued under the fixed designation D5846; 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 a procedure for evaluating the oxidation stability of petroleum base hydraulic oils and oils for steam and gas turbines.

1.2 This test method was developed to evaluate the oxidation stability of petroleum base hydraulic oils and oils for steam and gas turbines.

1.2.1 Rust and oxidation inhibited hydraulic, anti-wear hydraulic and turbine oils of ISO 32–68 viscosity were used to develop the precision statement. This test method has been used to evaluate the oxidation stability of fluids made with synthetic basestock and in-service oils; however, these fluids have not been used in cooperative testing to develop precision data.

1.3 The values stated in SI units are to be regarded as standard. The values given 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.* Identified hazardous chemicals are listed in 7.3, 7.6, and 7.8. Before using this test method, refer to suppliers' safety labels, Material Safety Data Sheets, and other technical literature.

2. Referenced Documents

2.1 ASTM Standards:²

A510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel

B1 Specification for Hard-Drawn Copper Wire

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.

Current edition approved Dec. 1, 2012. Published December 2012. Originally approved in 1995. Last previous edition approved in 2007 as D5846–07. DOI: 10.1520/D5846-07R12.

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.

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

D943 Test Method for Oxidation Characteristics of Inhibited Mineral Oils

D974 Test Method for Acid and Base Number by Color-Indicator Titration

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

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D4740 Test Method for Cleanliness and Compatibility of Residual Fuels by Spot Test

D4871 Guide for Universal Oxidation/Thermal Stability Test Apparatus

D5770 Test Method for Semiquantitative Micro Determination of Acid Number of Lubricating Oils During Oxidation Testing

2.2 Energy Institute Standard:³

IP 2546 Practice for Sampling of Petroleum Products; alternate to Practice **D4057**

2.3 British Standard:⁴

BS 1829 Specification for Carbon Steel Wire; alternate to Specification **A510**

2.4 ASTM Adjuncts:

Reference Spot Sheet⁵

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *inhibited mineral oil, n*—a petroleum oil containing additives to retard oxidation.

3.1.2 *oxidation life, n*—of an oil, the time in hours required for degradation of the oil under test.

3.1.3 *universal oxidation test, n*—the apparatus and procedures described in Guide **D4871**.

³ Available from Energy Institute, 61 New Cavendish St., London, W1G 7AR, U.K., <http://www.energyinst.org.uk>.

⁴ Available from British Standards Institute (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., <http://www.bsi-global.com>.

⁵ Available from ASTM International Headquarters. Order Adjunct No. **ADJD4740**. Original adjunct produced in 2000.