



Designation: D7156 – 19

Standard Test Method for Evaluation of Diesel Engine Oils in the T-11 Exhaust Gas Recirculation Diesel Engine¹

This standard is issued under the fixed designation D7156; 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 engine test procedure for evaluating diesel engine oils for performance characteristics in a diesel engine equipped with exhaust gas recirculation, including viscosity increase and soot concentrations (loading).² This test method is commonly referred to as the Mack T-11.

1.1.1 This test method also provides the procedure for running an abbreviated length test, which is commonly referred to as the T-11A. The procedures for the T-11A are identical to the T-11 with the exception of the items specifically listed in **Annex A7**. Additionally, the procedure modifications listed in **Annex A7** refer to the corresponding section of the T-11 procedure.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.2.1 *Exceptions*—Where there is no direct SI equivalent such as screw threads, National Pipe Threads/diameters, tubing size, or where there is a sole source supply equipment specification.

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.* See **Annex A6** for specific safety hazards.

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.*

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.B0 on Automotive Lubricants.

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² The ASTM Test Monitoring Center (TMC) will update changes in this test method by means of Information Letters. This edition includes all information letters through 19-1. Information letters may be obtained from the ASTM Test Monitoring Center, 6555 Penn Ave., Pittsburgh, PA 15206-4489, Attention: Administrator.

2. Referenced Documents

2.1 *ASTM Standards*:³

- D86 Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure
- D93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
- D97 Test Method for Pour Point of Petroleum Products
- D130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- D235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
- D287 Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
- D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
- D482 Test Method for Ash from Petroleum Products
- D524 Test Method for Ramsbottom Carbon Residue of Petroleum Products
- D613 Test Method for Cetane Number of Diesel Fuel Oil
- D664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration
- D976 Test Method for Calculated Cetane Index of Distillate Fuels
- D1319 Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption
- D2274 Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
- D2500 Test Method for Cloud Point of Petroleum Products and Liquid Fuels
- D2622 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
- D2709 Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
- D3524 Test Method for Diesel Fuel Diluent in Used Diesel Engine Oils by Gas Chromatography
- D4052 Test Method for Density, Relative Density, and API

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.

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