



Standard Test Method for Removing Volatile Contaminants from Used Engine Oils by Stripping¹

This standard is issued under the fixed designation D3607; 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 standardized procedure for removing volatile materials such as gasoline and water from used engine oils prior to further oil analysis.

1.2 It also provides an estimate of such volatiles in used engine oils.

1.3 When an accurate value of the gasoline contaminant is required either Test Methods [D322](#) or [D3525](#) shall be used.

NOTE 1—Test Method [D322](#) determines the amount of gasoline by distillation with water. Test Method [D3525](#) determines the amount of material boiling below the boiling point of n-tetradecane by gas chromatography.

NOTE 2—When the amount of gasoline is required to be known, the user of this test method is advised to determine which method is to be used. There are cases where [D3525](#) may be set as the referee method.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.5 *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 consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific warnings, see [6.1](#) and [8.5](#).

2. Referenced Documents

2.1 ASTM Standards:²

[D322](#) Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation

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

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 [D02.06](#) on Analysis of Liquid Fuels and Lubricants.

Current edition approved Oct. 1, 2016. Published November 2016. Originally approved in 1977. Last previous edition approved in 2012 as D3607 – 08 (2012). DOI: 10.1520/D3607-08R16.

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.

[D3525](#) Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Gas Chromatography

[D4057](#) Practice for Manual Sampling of Petroleum and Petroleum Products

[D4177](#) Practice for Automatic Sampling of Petroleum and Petroleum Products

3. Terminology

3.1 Definitions:

3.1.1 *stripping, n*—the process whereby volatile fractions are removed from a liquid material.

3.1.1.1 *Discussion*—In this test method, lighter components such as water and gasoline are removed by the application of heat while passing an inert gas through the liquid.

3.1.2 *used oil, n*—any oil that has been in a piece of equipment (for example, an engine, gearbox, transformer, or turbine) whether operated or not.

3.1.2.1 *Discussion*—This test method refers specifically to used lubricating oils from gasoline engines.

4. Summary of Test Method

4.1 A known weight of sample is heated to 90 °C under a nitrogen flow for 4.5 h, cooled, and reweighed.

5. Significance and Use

5.1 The removal of volatile materials such as gasoline dilution from used engine oils is especially important if the mechanical shear stability or oxidative stability of the oil is being monitored by measuring a kinematic viscosity change in the oil after it has been used in a gasoline engine.

6. Apparatus

6.1 *Nitrogen Cylinder*, equipped with regulator. (**Warning**—Using pressurized gas is hazardous.)

6.2 *Rotameters or Nitrogen Flowmeters*³, one or more, each capable of supplying 400 cm³/min of nitrogen at atmospheric pressure.

³ The sole source of supply of the apparatus known to the committee at this time is Brooks Instrument Co., Inc., Hatfield, PA 19440, as Sho-Rate 50, Model 1350. 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.