



Designation: D7455 – 19

Standard Practice for Sample Preparation of Petroleum and Lubricant Products for Elemental Analysis¹

This standard is issued under the fixed designation D7455; 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 practice covers different means by which petroleum product and lubricant samples may be prepared before the measurement of their elemental content using different analytical techniques.

1.2 This practice includes only the basic steps for generally encountered sample types. Anything out of the ordinary may require special procedures. See individual test methods for instructions to handle such situations.

1.3 This practice is not a substitute for a thorough understanding of the actual test method to be used, caveats the test method contains, and additional sample preparation that may be required.

1.4 The user should not expand the scope of the test methods to materials or concentrations outside the scope of the test methods being used without thoroughly understanding the implications of such deviations.

1.5 This practice may also be applicable to sample preparation of non-petroleum based bio-fuels for elemental analysis. Currently, work is ongoing in ASTM Subcommittee D02.03; as information becomes available, it will be added to this standard.

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

1.7 *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.*

1.8 *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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

- C1234 Practice for Preparation of Oils and Oily Waste Samples by High-Pressure, High-Temperature Digestion for Trace Element Determinations
- D86 Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure
- D129 Test Method for Sulfur in Petroleum Products (General High Pressure Decomposition Device Method)
- D482 Test Method for Ash from Petroleum Products
- D808 Test Method for Chlorine in New and Used Petroleum Products (High Pressure Decomposition Device Method)
- D874 Test Method for Sulfated Ash from Lubricating Oils and Additives
- D1018 Test Method for Hydrogen in Petroleum Fractions
- D1091 Test Methods for Phosphorus in Lubricating Oils and Additives
- D1266 Test Method for Sulfur in Petroleum Products (Lamp Method)
- D1318 Test Method for Sodium in Residual Fuel Oil (Flame Photometric Method)
- D1548 Test Method for Vanadium in Heavy Fuel Oil¹ (Withdrawn 1997)³
- D1552 Test Method for Sulfur in Petroleum Products by High Temperature Combustion and Infrared (IR) Detection or Thermal Conductivity Detection (TCD)
- D2622 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
- D2784 Standard Test Method for Sulfur in Liquefied Petroleum Gases (Oxy-Hydrogen Burner or Lamp) (Withdrawn 2016)³
- D3120 Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

¹ This practice is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.03 on Elemental Analysis.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

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