



Designation: D7183 – 23

Standard Test Method for Determination of Total Sulfur in Aromatic Hydrocarbons and Related Chemicals by Ultraviolet Fluorescence¹

This standard is issued under the fixed designation D7183; 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 the determination of sulfur in aromatic hydrocarbons, their derivatives, and related chemicals.

1.2 This test method is applicable to samples with sulfur concentrations to 10 mg/kg. The limit of detection (LOD) is 0.03 mg/kg S and the limit of quantitation (LOQ) is 0.1 mg/kg S. With careful analytical technique, this method can be used to successfully analyze concentrations below the current scope (see [Appendix X1](#)).

NOTE 1—LOD and LOQ were calculated using data in ASTM Research Report RR:D16-1060.

1.3 The following applies for the purposes of determining the conformance of the test results using this test method to applicable specifications, results shall be rounded off in accordance with the rounding-off method of Practice [E29](#).

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

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 establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section [9](#).

1.6 *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 [D16](#) on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of Subcommittee [D16.04](#) on Instrumental Analysis.

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2. Referenced Documents

2.1 *ASTM Standards*:²

[D1555](#) Test Method for Calculation of Volume and Weight of Industrial Aromatic Hydrocarbons and Cyclohexane

[D3437](#) Practice for Sampling and Handling Liquid Cyclic Products

[D6809](#) Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

[E29](#) Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

[E691](#) Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 *Other Documents*

[OSHA Regulations](#), 29 CFR paragraphs 1910.1000 and 1910.1200³

3. Terminology

3.1 *oxidative pyrolysis, n*—a process in which a sample is combusted in an oxygen-rich atmosphere at high temperature to break down the components of the sample into elemental oxides.

3.2 *ultraviolet fluorescence, n*—radiation in the region of the electromagnetic spectrum including wavelength from 100 to 3900Å that excites SO₂ to (SO₂*).

4. Summary of Test Method

4.1 A specimen is either directly injected or placed in a sample boat. The boat is then inserted into a high temperature combustion tube where the sulfur is oxidized to sulfur dioxide (SO₂) in an oxygen-rich atmosphere. Water produced during the sample combustion is removed and the sample combustion

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 Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

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