



Designation: D3160 – 07

Standard Test Method for Phenol Content of Cumene (Isopropylbenzene) or AMS (α -Methylstyrene)¹

This standard is issued under the fixed designation D3160; 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 phenol in refined cumene (isopropylbenzene) or AMS (α -methylstyrene).

1.2 This test method has been found applicable in the range from 5 to 50 mg/kg of phenol in refined cumene (isopropylbenzene) or AMS (α -methylstyrene).

1.3 In determining the conformance of the test results using this 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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 7.

2. Referenced Documents

- 2.1 *ASTM Standards*:²
- D1193 Specification for Reagent Water
 - 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

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.07 on Styrene, Ethylbenzene and C9 and C10 Aromatic Hydrocarbons.

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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.

2.2 Other Document:

OSHA Regulations, 29 CFR paragraphs 1910.000 and 1910, 1200³

3. Summary of Test Method

3.1 The phenol content of cumene or AMS is determined by the color development of phenol with 4-aminoantipyrine. The sample absorbance is compared to phenol standards at 472 nm on a spectrophotometer.

4. Significance and Use

4.1 This test method is useful in determining phenol in the range from 5 to 50 mg/kg in commercially available cumene or AMS.

4.2 Phenol will inhibit certain reactions involving cumene or AMS.

5. Apparatus

5.1 *Balance*—Any balance capable of measuring weights to the nearest 0.001 g.

5.2 *Spectrophotometer*—Any spectrophotometer that can measure 0 to 2 absorbance units at 472 nm with a wavelength repeatability of 5 nm.

5.3 *Spectrophotometer Cells*, 2 cm.

5.4 *Filter Paper*.

6. Reagents

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used.

6.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type I or II of Specification D1193.

6.3 *Cumene or AMS*—Wash 1 L of cumene or AMS with 5 % aqueous sodium hydroxide in a 2 L separatory funnel. Discard the aqueous sodium hydroxide phase and filter the hydrocarbon through dry filter paper. Store the hydrocarbon under a nitrogen blanket. The previous steps are taken to ensure that the hydrocarbon will not contain phenol or peroxides.

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.