



Standard Specification for Cumene (Isopropylbenzene)¹

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1. Scope

1.1 This specification covers cumene (isopropylbenzene).

1.2 Consult current OSHA regulations and supplier's Material Safety Data Sheets, and local regulations for all materials used in this specification.

1.3 The following applies to all specified limits in this specification: for purposes of determining conformance with this specification, an observed value or a calculated value shall be rounded off "to the nearest unit" in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E 29.

2. Referenced Documents

2.1 ASTM Standards:

D 848 Test Method for Acid Wash Color of Industrial Aromatic Hydrocarbons²

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)²

D 1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration²

D 2710 Test Method for Bromine Index Petroleum Hydrocarbons by Electrometric Titration³

D 3160 Test Method for Phenol Content of Isopropylbenzene (Cumene)²

D 3437 Practice for Sampling and Handling Liquid Cyclic Products²

D 3760 Test Method for Analysis of Isopropylbenzene (Cumene) by Gas Chromatography²

D 3961 Test Method for Trace Quantities of Sulfur in Liquid Aromatic Hydrocarbons by Oxidative Microcoulometry²

D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry³

E 29 Practice for Using Significant Digits in Test Data to

Determine Conformance with Specifications⁴

E 298 Test Methods for Assay of Organic Peroxides⁵

E 299 Test Method for Trace Amounts of Peroxides in Organic Solvents⁴

2.2 Other Document:

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200⁶

3. Sampling

3.1 Sampling the material in accordance with Practice D 3437.

3.2 If cumene has been exposed to air, cumene hydroperoxide may be in the sample. Suitable precautions should be exercised for handling cumene that may contain cumene hydroperoxide.

4. Properties

4.1 Cumene (isopropylbenzene) shall conform to the following requirements:

| Property | Specifications | ASTM Test Method |
|--|----------------|------------------|
| Purity, weight %, min | 99.9 | D 3760 |
| Impurities, total, weight %, max | 0.10 | D 3760 |
| Alpha-Methylstyrene, weight %, max | 0.02 | D 3760 |
| Benzene, weight %, max | 0.002 | D 3760 |
| Butylbenzenes, weight %, max | 0.03 | D 3760 |
| Ethylbenzene, weight %, max | 0.02 | D 3760 |
| n-Propylbenzene, weight %, max | 0.03 | D 3760 |
| Appearance | ^A | visual |
| Acid wash color, max | pass with 2 | D 848 |
| Bromine index, max | 100 | D 1492 or D 2710 |
| Color, Pt/Co, max | 15 | D 1209 |
| Cumene hydroperoxide, at loading, mg/kg, max | 100 | E 298 or E 299 |
| Phenols, mg/kg, max | 5 | D 3160 |
| Sulfur, mg/kg, max | 1 | D 3961 or D 4045 |

^A Clear liquid, free of sediment and haze from 18.3 to 25.6°C (65 to 78°F).

5. Keywords

5.1 cumene (isopropylbenzene)

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Annual Book of ASTM Standards, Vol 15.05.

⁶ Available from Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

¹ This specification is under the jurisdiction of ASTM Committee D-16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.0H on Styrene, Ethylbenzene, Cumene, and Naphthalene.

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² Annual Book of ASTM Standards, Vol 06.04.

³ Annual Book of ASTM Standards, Vol 05.02.