



# Standard Specification for Cumene (Isopropylbenzene)<sup>1</sup>

This standard is issued under the fixed designation D 4077; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 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 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)<sup>2</sup>
  - D 1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration<sup>2</sup>
  - D 2710 Test Method for Bromine Index Petroleum Hydrocarbons by Electrometric Titration<sup>3</sup>
  - D 3160 Test Method for Phenol Content of Isopropylbenzene (Cumene)<sup>2</sup>
  - D 3437 Practice for Sampling and Handling Liquid Cyclic Products<sup>2</sup>
  - D 3760 Test Method for Analysis of Isopropylbenzene (Cumene) by Gas Chromatography<sup>2</sup>
  - D 3961 Test Method for Trace Quantities of Sulfur in Liquid Aromatic Hydrocarbons by Oxidative Microcoulometry<sup>2</sup>
  - D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry<sup>3</sup>
  - E 29 Practice for Using Significant Digits in Test Data to

- Determine Conformance with Specifications<sup>4</sup>
- E 298 Test Methods for Assay of Organic Peroxides<sup>5</sup>
- E 299 Test Method for Trace Amounts of Peroxides in Organic Solvents<sup>4</sup>
- 2.2 *Other Document*:
  - OSHA Regulations*, 29 CFR, paragraphs 1910.1000 and 1910.1200<sup>6</sup>

## 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	99.92	D 3760
Alpha-Methylstyrene, weight %, max	0.01	D 3760
Benzene, weight %, max	0.001	D 3760
Butylbenzenes, weight %, max	0.02	D 3760
Diisopropylbenzenes, weight %, max	0.002	D 3760
Ethylbenzene, weight %, max	0.01	D 3760
<i>n</i> -Propylbenzene, weight %, max	0.03	D 3760
Appearance	<sup>A</sup>	visual
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

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

## 5. Keywords

### 5.1 cumene (isopropylbenzene)

<sup>1</sup> This specification 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 C<sub>9</sub> and C<sub>10</sub> Aromatic Hydrocarbons.

Current edition approved Dec. 10, 2000. Published February 2001. Originally published as D 4077 – 81. Last previous edition D 4077 – 96.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 06.04.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 05.02.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 15.05.

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



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