Designation: D 4077 – 00

Standard Specification for Cumene (Isopropylbenzene)[1]

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 (ε) 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)[2]

D 1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration[2]

D 2710 Test Method for Bromine Index Petroleum Hydrocarbons by Electrometric Titration[3]

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

D 3437 Practice for Sampling and Handling Liquid Cyclic Products[2]

D 3760 Test Method for Analysis of Isopropylbenzene (Cumene) by Gas Chromatography[2]

D 3961 Test Method for Trace Quantities of Sulfur in Liquid Aromatic Hydrocarbons by Oxidative Microcoulometry[2]

D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry[3]

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications[4]

E 298 Test Methods for Assay of Organic Peroxides[5]

E 299 Test Method for Trace Amounts of Peroxides in Organic Solvents[4]

2.2 *Other Document:*

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200[6]

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-Methylstrene, 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
n-Propylbenzene, weight %, max	0.03	D 3760
Appearance	[A]	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

[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)

[1] 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_9 and C_{10} Aromatic Hyrdocarbons.

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

[2] *Annual Book of ASTM Standards*, Vol 06.04.

[3] *Annual Book of ASTM Standards*, Vol 05.02.

[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.