



Designation: ~~D7125~~–17 D7125 – 22

## Standard Specification for Cumene (Isopropylbenzene) Manufactured Via a Zeolite Process<sup>1</sup>

This standard is issued under the fixed designation D7125; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope–Scope\*

1.1 This specification covers cumene (isopropylbenzene) manufactured using a zeolite catalyst process.

1.2 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 E29.

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

1.4 Consult current OSHA Regulations and Supplier’s Safety Data Sheets, and local regulations for all materials used in this specification.

1.5 *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.*

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### 2. Referenced Documents

#### 2.1 *ASTM Standards*:<sup>2</sup>

[D1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration](#)

~~[D2710 Test Method for Bromine Index of Petroleum Hydrocarbons by Electrometric Titration](#)~~

[D3160 Test Method for Phenol Content of Cumene \(Isopropylbenzene\) or AMS \( \$\alpha\$ -Methylstyrene\)](#)

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

[D3760 Test Method for Analysis of Isopropylbenzene \(Cumene\) by Gas Chromatography](#)

[D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry](#)

[D5776 Test Method for Bromine Index of Aromatic Hydrocarbons by Electrometric Titration](#)

[D7057 Test Method for Analysis of Isopropylbenzene \(Cumene\) by Gas Chromatography \(External Standard\)](#)

[D7183 Test Method for Determination of Total Sulfur in Aromatic Hydrocarbons and Related Chemicals by Ultraviolet Fluorescence](#)

<sup>1</sup> This specification is under the jurisdiction of Committee D16 on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of Sub committee D16.07 on Styrene, Ethylbenzene and C9 and C10 Aromatic Hydrocarbons.

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<sup>2</sup> 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.

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

D7359 Test Method for Total Fluorine, Chlorine and Sulfur in Aromatic Hydrocarbons and Their Mixtures by Oxidative Pyrohydrolytic Combustion followed by Ion Chromatography Detection (Combustion Ion Chromatography-CIC)

D8005 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E298 Test Methods for Assay of Organic Peroxides

E299 Test Method for Trace Amounts of Peroxides In Organic Solvents

E2680 Test Method for Appearance of Clear, Transparent Liquids (Visual Inspection Procedure)

2.2 *Other Documents:*

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200 <sup>3</sup>

### 3. Properties

3.1 Cumene (isopropylbenzene) manufactured via a catalytic zeolite process shall conform to the following requirements:

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<sup>3</sup> Available from Superintendent of Documents, U.S. Government Printing Office Superintendent of Documents, Office, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov/20401>.

Property	Specifications	ASTM Test Method <sup>A</sup>
Purity, weight %, min	<del>99.93</del>	<del>D3760</del> or <del>D7057</del>
Purity, mass %, min	<u>99.93</u>	<u>D3760</u> or <u>D7057</u>
Alpha-Methylstyrene, mg/kg, max	50	<u>D3760</u> or <u>D7057</u>
Benzene, mg/kg, max	10	<u>D3760</u> or <u>D7057</u>
Cumene hydroperoxide, at loading, mg/kg, max	100	<u>E298</u> or <u>E299</u>
Diisopropylbenzenes, Individual Isomer, mg/kg, max	5	<u>D3760</u> or <u>D7057</u>
Diisopropylbenzenes, Total, mg/kg, max	10	<u>D3760</u> or <u>D7057</u>
Ethylbenzene, mg/kg, max	50	<u>D3760</u> or <u>D7057</u>
<i>i</i> -Butylbenzene, mg/kg, max	10	<u>D3760</u> or <u>D7057</u>
<i>n</i> -Butylbenzene, mg/kg, max	10	<u>D3760</u> or <u>D7057</u>
<i>s</i> -Butylbenzene, mg/kg, max	20	<u>D3760</u> or <u>D7057</u>
<i>t</i> -Butylbenzene, mg/kg, max	25	<u>D3760</u> or <u>D7057</u>
Phenols, mg/kg, max	5	<u>D3160</u> , <u>D3760</u> or <u>D7057</u>
<i>n</i> -Propylbenzene, mg/kg, max	300	<u>D3760</u> or <u>D7057</u>
Sulfur, mg/kg, max	0.1	<u>D7183</u> or <u>D7359</u>
Toluene, mg/kg, max	10	<u>D3760</u> or <u>D7057</u>
Total Butylbenzenes, mg/kg, max	65	<u>D3760</u> or <u>D7057</u>
Total Cymenes, mg/kg, max	50	<u>D3760</u> or <u>D7057</u>
Total Non-Aromatics, mg/kg, max	150 <sup>B</sup>	<u>D3760</u> or <u>D7057</u>
Total GC Unknowns, mg/kg, max	50 <sup>C</sup>	<u>D3760</u> or <u>D7057</u>
<del>Bromine index, max</del>	<del>25</del>	<del>D1492</del> or <del>D2740</del>
Bromine index, max	<u>25</u>	<u>D1492</u> or <u>D5776</u>
Appearance, free of haze, particulates or suspended matter particles	pass	<u>E2680</u>
Color, Pt/Co, max	10	<u>D5386</u> or <u>D8005</u>

<sup>A</sup> If more than one method is listed for a property listed, the producer and the user should agree on the referee test method.

<sup>B</sup> All components eluting between toluene and cumene in a non-polar (HP-1 or equivalent) GC analysis (See Test Method D3760 or D7057) excluding Ethylbenzene. May include Xylenes.

<sup>C</sup> Excluding CHP, Acetophenone, and 2-Phenyl-2-Propanol (Dimethylbenzylalcohol or Dimethylphenylcarbinol).

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