



Designation: D7125 – 23

Standard Specification for Cumene (Isopropylbenzene) Manufactured Via a Zeolite Process¹

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 reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. 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.*

2. Referenced Documents

2.1 ASTM Standards:²

- D1492 Test Method for Bromine Index of Aromatic Hydrocarbons by Coulometric Titration
- D3160 Test Method for Phenol Content of Cumene (Isopropylbenzene) or AMS (α -Methylstyrene)
- D3437 Practice for Sampling and Handling Liquid Cyclic Products

- 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
 - 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 1910.1200³

3. Properties

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

¹ 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.

Current edition approved April 1, 2023. Published April 2023. Originally approved in 2007. Last previous edition approved in 2022 as D7125 – 22. DOI: 10.1520/D7125-23.

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.

³ Available from Superintendent of Documents, U.S. Government Printing Office, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

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

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

^A If more than one method is listed, the producer and the user should agree on the referee test method.

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

^C Excluding CHP, Acetophenone, and 2-Phenyl-2-Propanol (Dimethylbenzylalcohol or Dimethylphenylcarbinol).

4. Sampling

4.1 Sampling the material in accordance with Practice D3437.

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

5. Keywords

5.1 cumene; isopropylbenzene; 2-phenylpropane

SUMMARY OF CHANGES

Committee D16 has identified the location of selected changes to this standard since the last issue (D7125 – 22) that may impact the use of this standard. (Approved April 1, 2023.)

(1) Removed withdrawn Test Method D3760 from Sections 2 and 3.

Committee D16 has identified the location of selected changes to this standard since the last issue (D7125 – 17) that may impact the use of this standard. (Approved September 1, 2022.)

(1) Changed ‘weight’ to ‘mass’ to be consistent with SI units.
 (2) Added the Committee D16 Test Method for BI: D5776 and removed the Committee D02 Test Method D2710.

(3) Corrected spelling mistakes.
 (4) Corrected footnote 3 to be consistent with editorial standards.