



Designation: D 5871 – 04

Standard Specification for Benzene for Cyclohexane Feedstock¹

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1. Scope*

1.1 This specification covers benzene for cyclohexane feedstock.

1.2 The following applies to all specified limits in this standard: for purposes of determining conformance with this standard, 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.

1.3 Consult current OSHA regulations supplier’s Material Safety Data Sheets for all materials used in this specification.

2. Referenced Documents

2.1 *ASTM Standards:*²

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

D 852 Test Method for Solidification Point of Benzene

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

D 1685 Test Method for Traces of Thiophene in Benzene by Spectrophotometry

D 3437 Practice for Sampling and Handling Liquid Cyclic Products

D 3505 Test Method for Density or Relative Density of Pure Liquid Chemicals

D 4017 Test Method for Water in Paints and paint Materials by Karl Fisher Method

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

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter

D 4492 Test Method for Analysis of Benzene by Gas Chromatography

D 4735 Test Method for Determination of Trace Thiophene in Refined Benzene by Gas Chromatograph

D 5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

D 5713 Test Method for Analysis of High Purity Benzene for Cyclohexane Feedstock by Capillary Gas Chromatography

D 7011 Test Method for Determination of Trace Thiophene in refined Benzene by Gas Chromatography and Sulfur Selective Detection

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specification

2.2 *Other Document:*

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200³

3. Properties

3.1 Benzene for Cyclohexane Feedstock shall conform to the following requirements:

| Property | Specification | ASTM Test Method ⁴ |
|--|----------------|-------------------------------|
| Benzene, min, weight % | 99.90 | D 5713 or D 4492 |
| Sulfur, max, mg/kg | 1.0 | D 4045 |
| Thiophene, max, mg/kg | 0.6 | D 1685 or D 4735 or D 7011 |
| Toluene plus methylcyclohexane max, mg/kg | 150 | D 5713 |
| Methylcyclopentane, max mg/kg | 100 | D 5713 |
| N-hexane, max, mg/kg | 80 | D 5713 |
| Acid wash color, max | pass with 1 | D 848 |
| Appearance | ^B | ... |
| Color, max, Pt-Co scale | 10 | D 1209 or D 5386 |
| Relative Density, 15.56/15.56°C | 0.882 to 0.886 | D 3505 or D 4052 |
| Water | (if needed) | D 4017 |
| Solidification point, anhydrous basis, min, °C | 5.45 | D 852 |

¹ This specification is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.01 on Benzene, Toluene, Xylenes, Cyclohexane, and Their Derivatives.

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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.

⁴ If more than one method is listed for a property the producer and user should agree on the referee method.

^B Clear liquid free of sediment and haze when observed at 18.3 to 25.6°C (65 to 78°F).

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

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