



# Standard Specification for Benzene for Cyclohexane Feedstock<sup>1</sup>

This standard is issued under the fixed designation D5871; 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 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 E29.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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

## 2. Referenced Documents

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

D848 Test Method for Acid Wash Color of Industrial Aromatic Hydrocarbons

D852 Test Method for Solidification Point of Benzene

D1685 Test Method for Traces of Thiophene in Benzene by Spectrophotometry (Withdrawn 2009)<sup>3</sup>

D3437 Practice for Sampling and Handling Liquid Cyclic Products

<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 D16.01 on Benzene, Toluene, Xylenes, Cyclohexane and Their Derivatives.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

D4017 Test Method for Water in Paints and Paint Materials by Karl Fischer Method

D4492 Test Method for Analysis of Benzene by Gas Chromatography

D4735 Test Method for Determination of Trace Thiophene in Refined Benzene by Gas Chromatography

D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

D5713 Test Method for Analysis of High Purity Benzene for Cyclohexane Feedstock by Capillary Gas Chromatography

D6875 Test Method for Solidification Point of Industrial Organic Chemicals by Thermistor

D7011 Test Method for Determination of Trace Thiophene in Refined Benzene by Gas Chromatography and Sulfur Selective Detection

D7183 Test Method for Determination of Total Sulfur in Aromatic Hydrocarbons and Related Chemicals by Ultraviolet Fluorescence

D7375 Test Method for Trace Quantities of Water in Aromatic Hydrocarbons and Their Mixtures by Coulometric Karl Fischer Titration

D7504 Test Method for Trace Impurities in Monocyclic Aromatic Hydrocarbons by Gas Chromatography and Effective Carbon Number

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

### 2.2 Other Document:

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200<sup>4</sup>

<sup>4</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

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

### 3. Properties

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

Property	Specification	ASTM Test Method <sup>A</sup>
Benzene, min, weight %	99.90	D4492 or D5713 or D7504
Sulfur, max, mg/kg	1.0	D7183
Thiophene, max, mg/kg	0.6	D1685, D4735 or D7011
Toluene plus methylcyclohexane max, mg/kg	150	D5713
Methylcyclopentane, max mg/kg	100	D5713
N-hexane, max, mg/kg	80	D5713
Acid wash color, max Appearance	pass with 1 <sup>B</sup>	D848
Color, max, Pt-Co scale	10	...
Solidification point, anhydrous basis, min, °C	5.45	D5386 or D8005
		D852 or D6875

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

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

3.2 See Section 5 for non-mandatory supplementary requirements.

### 4. Sampling

4.1 Sample the material in accordance with Practice D3437.

### 5. Supplementary Requirements (Non-mandatory)

5.1 The following supplementary requirements shall apply when agreed upon by the supplier and purchaser:

Property	ASTM Test Method <sup>A</sup>
Water	D4017 or D7375

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

### 6. Keywords

6.1 benzene; cyclohexane feedstock; purity

## SUMMARY OF CHANGES

Committee D16 has identified the location of selected changes to this standard since the last issue (D5871–12) that may impact the use of this standard. (Approved June 1, 2016.)

(1) Removed D1209 and added D8005 in Section 2.

(2) Modified table in 3.1 to replace D1209 with D8005.

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