



Designation: D 5871 – 98

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

This standard is issued under the fixed designation D 5871; 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 approval. 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 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:

- D 848 Test Method for Acid Wash Color of Industrial Aromatic Hydrocarbons<sup>2</sup>
- D 852 Test Method for Solidification Point of Benzene<sup>2</sup>
- D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)<sup>2</sup>
- D 1685 Test Method for Traces of Thiophene in Benzene by Spectrophotometry<sup>2</sup>
- D 3437 Practice for Sampling and Handling Liquid Cyclic Products<sup>2</sup>
- D 3505 Test Method for Density or Relative Density of Pure Liquid Chemicals<sup>2</sup>
- D 4017 Test Method for Water in Paints and paint Materials by Karl Fisher Method<sup>3</sup>
- D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry<sup>4</sup>
- D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter<sup>4</sup>
- D 4492 Test Method for Analysis of Benzene by Gas Chromatography<sup>2</sup>

<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> Annual Book of ASTM Standards, Vol 06.04.

<sup>3</sup> Annual Book of ASTM Standards, Vol 06.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 05.02.

D 4735 Test Method for Determination of Trace Thiophene in Refined Benzene by Gas Chromatograph<sup>2</sup>

D 5386 Test Method for Color of Liquids Using Tristimulus Colorimetry<sup>2</sup>

D 5713 Test Method for Analysis of High Purity Benzene for Cyclohexane Feedstock by Capillary Gas Chromatography<sup>2</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specification<sup>5</sup>

#### 2.2 Other Document:

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200<sup>6</sup>

### 3. Properties

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

Property	Specification	ASTM Test Method
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
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 Appearance	pass with 1 <sup>A</sup>	D 848 1-98
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

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

### 4. Sampling

4.1 Sample the material in accordance with Practice D 3437.

### 5. Keywords

5.1 benzene; cyclohexane feedstock; purity

<sup>5</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>6</sup> Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.