



Designation: D 5309 – 02

## Standard Specification for Cyclohexane 999<sup>1</sup>

This standard is issued under the fixed designation D 5309; 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 a grade of cyclohexane identified as “cyclohexane 999.”

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, and local regulations for all materials used in this specification.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- D 850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials<sup>2</sup>
- D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)<sup>2</sup>
- D 3054 Test Methods for Analysis of Cyclohexane by Gas Chromatography<sup>2</sup>
- D 3437 Practice for Sampling and Handling Liquid Cyclic Products<sup>2</sup>
- D 4045 Test Method for Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry<sup>3</sup>
- D 5386 Test Method for Color of Liquids Using Tristimulus Colorimetry<sup>2</sup>
- D 6212 Test Method for Total Sulfur in Aromatic Compounds by Hydrogenolysis and Rateometric Colorimetry<sup>2</sup>
- D 6313 Test Method for Total Sulfur in Aromatic Compounds by Hydrogenolysis and Sulfur Specific Difference Photometry<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 05.02.

D 6428 Test Method for Total Sulfur in Liquid Aromatic Hydrocarbons and Their Derivatives by Oxidative Combustion and Electrochemical Detection<sup>2</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>4</sup>

#### 2.2 Other Documents:

OSHA Regulations, 29CFR, Paragraphs 1910.1000 and 1910.1200<sup>5</sup>

### 3. Properties

3.1 Cyclohexane 999 shall conform to the following requirements:

Property	Specification	ASTM Test Method
Purity, min, weight %	99.90	D 3054
Benzene, max, mg/kg	50	D 3054
n-Hexane, max, mg/kg	200	D 3054
Methylcyclohexane, max, mg/kg	200	D 3054
Methylcyclopentane, max, mg/kg	150	D 3054
Sulfur, max, mg/kg <sup>A</sup>	1	D 4045 or D 6212 or D 6313 or D 6428
Appearance	<sup>B</sup>	—
Color, max, Platinum/Cobalt scale	10	D 1209 or D 5386
Distillation range, including the temperature 80.7°C, at 101.3 KPa (760 mmHg) pressure, max, °C	1.0	D 850

<sup>A</sup> If more than one method is listed for a property and there is a dispute, the referee method will be agreed upon between the buyer and the seller.

<sup>B</sup> Clear liquid free of sediment and haze 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 cyclohexane 999

<sup>4</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>5</sup> Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.