



Designation: D5309 – 16

Standard Specification for Cyclohexane 999¹

This standard is issued under the fixed designation D5309; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

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 E29.

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

2. Referenced Documents

2.1 ASTM Standards:²

D850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials

D3437 Practice for Sampling and Handling Liquid Cyclic Products

D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

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

D7266 Test Method for Analysis of Cyclohexane by Gas

Chromatography (External Standard)

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 Documents:

OSHA Regulations, 29 CFR Paragraphs 1910.1000 and 1910.1200³

3. Properties

3.1 Cyclohexane 999 shall conform to the following requirements:

Property	Specification	ASTM Test Method
Purity, min, weight %	99.90	D7266
Benzene, max, mg/kg	50	D7266
n-Hexane, max, mg/kg	200	D7266
Methylcyclohexane, max, mg/kg	200	D7266
Methylcyclopentane, max, mg/kg	150	D7266
Sulfur, max, mg/kg ^A	1	D7183
Appearance ^A	—	
Color, max, Platinum/Cobalt scale ^B	10	D5386 or D8005
Distillation range, including the temperature 80.7°C, at 101.3 kPa (760 mmHg) pressure, max, °C	1.0	D850

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

^B 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.

4. Sampling

4.1 Sample the material in accordance with Practice D3437.

5. Keywords

5.1 cyclohexane 999

³ 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>.

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.

Current edition approved June 1, 2016. Published June 2016. Originally approved in 1992. Last previous edition approved in 2013 as D5309 – 08 (2013)¹. DOI: 10.1520/D5309-16.

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.

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