Designation: D5309 – 22

Standard Specification for Cyclohexane 999[1]

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 reapproval. A superscript epsilon (ε) 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 E29.

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

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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 Ultraviolet Fluorescence

D7266 Test Method for Analysis of Cyclohexane by Gas Chromatography (External Standard)

D7871 Test Method for Analysis of Cyclohexane by Gas Chromatography (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

E2680 Test Method for Appearance of Clear, Transparent Liquids (Visual Inspection Procedure)

2.2 *Other Documents:*

OSHA Regulations, 29 CFR Paragraphs 1910.1000 and 1910.1200 [3]

3. Properties

3.1 Cyclohexane 999 shall conform to the following requirements:

Property	Specification	ASTM Test Method
Purity, min, weight %	99.90	D7266 or D7871
Benzene, max, mg/kg	50	D7266 or D7871
n-Hexane, max, mg/kg	200	D7266 or D7871
Methylcyclohexane, max, mg/kg	200	D7266 or D7871
Methylcyclopentane, max, mg/kg	150	D7266 or D7871
Sulfur, max, mg/kg	1	D7183
Appearance, free of haze, particulates or suspended matter particles	pass	E2680
Color, max, Platinum/Cobalt scale[A]	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] 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 seller.

4. Sampling

4.1 Sample the material in accordance with Practice D3437.

5. Keywords

5.1 cyclohexane 999

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

Current edition approved Sept. 1, 2022. Published September 2022. Originally approved in 1992. Last previous edition approved in 2017 as D5309 – 17. DOI: 10.1520/D5309-22.

[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.

[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.

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

SUMMARY OF CHANGES

Committee D16 has identified the location of selected changes to this standard since the last issue (D5309 – 17) that may impact the use of this standard. (Approved September 1, 2022.)

(1) Added Test Method D7871 for composition in Sections 2 and 3.