



Designation: **E1119–09 (Reapproved 2015)^{ε1} E1119 – 22**

Standard Specification for Industrial Grade Ethylene Glycol¹

This standard is issued under the fixed designation E1119; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

^{ε1} NOTE—Editorial change was made in Subsection 1.2 in May 2016.

1. Scope*

1.1 This specification covers industrial grade ethylene glycol.

1.2 Review the current Safety Data Sheets (SDS) for detailed information concerning toxicity, first aid procedures, handling and safety precautions.

1.3 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.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 ~~The following safety hazards caveat pertains only to the test methods portion, Section 5, of this specification: This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.~~

1.6 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

D482 Test Method for Ash from Petroleum Products

~~D1078~~D850 Test Method for Distillation Range of Volatile Organic Liquids of Industrial Aromatic Hydrocarbons and Related Materials

~~D1209~~ Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

D1722 Test Method for Water Miscibility of Water-Soluble Solvents

D4052 Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter

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 D16.14 on Alcohols & Glycols.

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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

- [D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry](#)
- [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](#)
- ~~[E202 Test Methods for Analysis of Ethylene Glycols and Propylene Glycols](#)~~
- [E300 Practice for Sampling Industrial Chemicals](#)
- [E1064 Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration](#)
- [E2409 Test Method for Glycol Impurities in Mono-, Di-, Tri- and Tetraethylene Glycol and in Mono- and Dipropylene Glycol \(Gas Chromatographic Method\)](#)
- [E2679 Test Method for Acidity in Mono-, Di-, Tri- and Tetraethylene Glycol by Non-Aqueous Potentiometric Titration](#)
- [E2680 Test Method for Appearance of Clear, Transparent Liquids \(Visual Inspection Procedure\)](#)

3. Requirements

3.1 Industrial grade ethylene glycol shall conform to the specification chemical and physical requirements (see [Table 1](#)).

4. Sampling

4.1 Sample ethylene glycol in accordance with the appropriate sections of Practice [E300](#) for liquid samples.

5. ~~Test Methods~~

5.1 ~~Test each composite sample for chemical and physical requirements using the test methods specified in 3.1. Many of these methods, along with alternative test methods and technologies, can be found in Test Methods [E202](#). In case of a dispute, test methods identified in 3.1 of this specification shall be the preferred test method.~~

6. ~~Packaging, Package Markings, and Transportation~~

6.1 ~~The packaging, labeling, and transportation of commercial quantities shall conform to applicable federal, state, and local regulation. Conformance is the responsibility of the manufacturer and the shipper.~~

5. Keywords

5.1 ethylene glycol; industrial grade

TABLE 1 Chemical and Physical Specification Requirements

Specification Requirements	min	max	ASTM Test Method
Acidity as Acetic Acid, % mass (m/m)	–	0.005	E2679
Appearance, Clear & Free from Suspended Matter	pass	–	E2680
Color, platinum-cobalt	–	40	D1209
Glycols	99.0	–	E2409
Ethylene glycol, % mass (m/m)	–	0.6	
Diethylene glycol, % mass (m/m)	–	0.1	
Other glycols, % mass (m/m)	–	–	
Acidity as Acetic Acid, % mass (m/m)	–	0.005	E2679
Water, % mass (m/m)	–	0.3	E1064
Color, platinum cobalt	–	10	D5386, D8005
Free from Suspended Matter	–	–	E2680
Typical Properties	min	max	ASTM Test Method
Ash, % mass (m/m)	–	0.005	D482
Distillation Range	193	–	D1078
—Initial Boiling Point, °C	–	204	
—Dry Point, °C	–	–	
Distillation Range	193	–	D850
—Initial Boiling Point, °C	–	204	
—Dry Point, °C	–	–	
Relative Density at	1.1151	1.1156	D4052
20/20 °C	or	or	
or	1.1129	1.1134	
25/25 °C	–	–	
Water Miscibility	miscible	–	D1722