



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 Department of Defense.

1. Scope*

1.1 This specification covers industrial grade ethylene glycol.

1.2 The following safety hazards caveat pertains only to the test method 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 and health practices and determine the applicability of regulatory limitations prior to use.*

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

1.4 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.

1.5 The values stated in SI units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:²

D482 Test Method for Ash from Petroleum Products

D1078 Test Method for Distillation Range of Volatile Organic Liquids

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

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 (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.

7. Keywords

7.1 ethylene glycol; industrial grade

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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.

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	—	10	D1209
Glycols			E2409
Ethylene glycol, % mass (m/m)	99.0	—	
Diethylene glycol, % mass (m/m)	—	0.6	
Other glycols, % mass (m/m)	—	0.1	
Water, % mass (m/m)	—	0.3	E1064
Typical Properties	min	max	ASTM Test Method
Ash, % mass (m/m)	—	0.005	D482
Distillation Range			D1078
Initial Boiling Point, C	193	—	
Dry Point, C	—	204	
Relative Density at			
20/20 C	1.1151	1.1156	D4052
or	or	or	
25/25 C	1.1129	1.1134	
Water Miscibility	miscible	—	D1722

SUMMARY OF CHANGES

Committee E15 has identified the location of selected changes to this standard since the last issue (E1119-07) that may impact the use of this standard.

- (1) Replaced two Standard Test Methods within the specification with test methods that have been recently adopted by E15 and reflect newer technologies used in the industry.
- (2) Section 2, Referenced Documents, was updated.
- (3) Table 1, Chemical and Physical Specification Requirements, was updated.

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