



# Standard Specification for Engine Coolant Grade Glycerin<sup>1</sup>

This standard is issued under the fixed designation D7640; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers engine coolant grade glycerine (1, 2, 3 Propanetriol, Glycerol).

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

1.3 *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.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

- D1122 Test Method for Density or Relative Density of Engine Coolant Concentrates and Engine Coolants By The Hydrometer
- D1119 Test Method for Percent Ash Content of Engine Coolants
- D1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)
- D1287 Test Method for pH of Engine Coolants and Antirusts
- D3634 Test Method for Trace Chloride Ion in Engine Coolants
- D4052 Test Method for Density, Relative Density, and API

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D15 on Engine Coolants and Related Fluids and is the direct responsibility of Subcommittee D15.07 on Specifications.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Gravity of Liquids by Digital Density Meter

D5827 Test Method for Analysis of Engine Coolant for Chloride and Other Anions by Ion Chromatography

D5931 Test Method for Density and Relative Density of Engine Coolant Concentrates and Aqueous Engine Coolants by Digital Density Meter

D6130 Test Method for Determination of Silicon and Other Elements in Engine Coolant by Inductively Coupled Plasma-Atomic Emission Spectroscopy

D7637 Test Method for Determination of Glycerin Assay by Titration (Sodium Meta Periodate)

D7638 Test Method for Determination of Fatty Acids and Esters in Glycerin

D7716 Test Method for Determination of Residual Methanol in Glycerin by Gas Chromatography

E202 Test Methods for Analysis of Ethylene Glycols and Propylene Glycols

E300 Practice for Sampling Industrial Chemicals

## 3. Requirements

3.1 Engine coolant grade glycerin shall conform to the chemical and physical property requirements in [Table 1](#).

## 4. Sampling

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

## 5. Packaging and Package Marking

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

## 6. Keywords

6.1 1, 2, 3 Propanetriol; engine coolant; glycerin; glycerine; glycerol; glycol

**TABLE 1 Chemical and Physical Requirements**

Requirement	Value for Glycerin	ASTM Test Method
Glycerin, mass %	99.5 min	D7637
Methanol, µg/g	10 max	D7716
Fatty Acids and Esters, mL 0.5N NaOH consumed per 50 g sample	1.0 max	D7638
Relative density, 25/25°C	1.261, min	D4052
Water, mass %	0.5 max	D1122
Ash, mass %	0.01	D1119
pH, 50 % solution	6–8	D1287
Chloride ion, µg/g	10 max	D3634, D5827 <sup>A</sup>
Sulfate ion, µg/g	10 max	D5827
Nitrite, Nitrate, Phosphate (total, µg/g)	10 max	D5827
Silicon, µg/g	10 max	D6130
Iron, µg/g	2 max	D6130
Boron, µg/g	10 max	D6130
Aluminum, Calcium, Copper, Iron, Magnesium, Lead, Zinc (total, µg/g)	5 max	D6130
Appearance	Clear, no suspended matter	Visual
Color, Pt/Co scale	25 max	E202, D1209

<sup>A</sup> In case of dispute, D5827 shall be the preferred test method.

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