

### PRODUCT IDENTIFICATION



**Product Name:** Ethylene Glycol 50/50

**CAS Number:** 107-21-1

**Molecular Formula:** C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>

**Molecular Weight:** 62.07 g/mol

**Grade:** Laboratory Grade

**Purity / Concentration:** 50%

**Synonyms:** Ethylene Glycol Solution, Ethylene Glycol Mixture

### PRODUCT OVERVIEW

Alliance Chemical's Laboratory Grade Ethylene Glycol 50/50 is a clear, colorless liquid solution, meticulously formulated to a concentration of 50.1% as measured by assay. With a specific gravity of 1.072 g/mL, this solution is primarily used in automotive cooling systems to prevent freezing and overheating. Its controlled purity makes it suitable for applications requiring a consistent and reliable chemical composition.

**Grade Significance:** Laboratory Grade signifies that this Ethylene Glycol 50/50 meets stringent quality control standards, ensuring a high level of purity and minimal impurities. This is critical for applications where consistent and reliable results are paramount, such as research, development, and quality control processes.

### CERTIFICATE OF ANALYSIS — TYPICAL VALUES

| PARAMETER                                | UNIT | TYPICAL | MIN  | MAX    | TEST METHOD |
|--|------|---------|------|--------|-------------|
| Assay (wt%)                              | %    | 50.1    | 49.5 | 50.5   | ASTM D4377  |
| Color (APHA)                             | APHA | 5       | —    | 10     | ASTM D1209  |
| Specific Gravity (20°C)                  | g/mL | 1.072   | —    | —      | ASTM D4052  |
| Water Content                            | %    | 0.1     | —    | 0.2    | ASTM E203   |
| Heavy Metals (as Pb)                     | ppm  | 0.05    | —    | 1      | ASTM D5808  |
| Iron (Fe)                                | ppm  | 0.05    | —    | 0.2    | ASTM D5808  |
| Chloride (Cl <sup>-</sup> )              | ppm  | 0.1     | —    | 1      | ASTM D5808  |
| Sulfate (SO <sub>4</sub> <sup>2-</sup> ) | ppm  | 0.2     | —    | 2      | ASTM D5808  |
| Acidity As Acetic Acid                   | %    | 0.0010  | —    | 0.0050 | ASTM D1613  |
| Diethylene Glycol                        | %    | 0.05    | —    | 0.1    | GC          |

ND = Not Detected. Values are typical and may vary by lot.

## PHYSICAL & CHEMICAL PROPERTIES

|                                 |   |                         |   |
|---------------------------------|---|-------------------------|---|
| <b>Appearance</b>               | Clear, viscous, colorless liquid solution   | <b>Odor</b>             | Slightly sweet odor                           |
| <b>Form</b>                     | Liquid  | <b>Boiling Point</b>    | 197°C (387°F)                                 |
| <b>Melting / Freezing Point</b> | -13°C (9°F)   | <b>Flash Point</b>      | 111°C (232°F)                                 |
| <b>Specific Gravity</b>         | 1.07  | <b>Solubility</b>       | Water-soluble, miscible with organic solvents |
| <b>Molecular Formula</b>        | C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>  | <b>Molecular Weight</b> | 62.07 g/mol                                   |
| <b>Vapor Pressure (20°C)</b>    | 0.06 mmHg   | <b>Viscosity (25°C)</b> | 20.1 cP                                       |
| <b>Refractive Index (20°C)</b>  | 1.431   | <b>Density (25°C)</b>   | 1.115 g/mL                                    |
| <b>Decomposition Temp.</b>      | No decomposition below 100°C; decomposes around 198-250°C under air (gradual) depending on impurities |                         |   |

## APPLICATIONS

- Automotive** — Ethylene Glycol 50/50 is used as a crucial component in automotive cooling systems. It effectively lowers the freezing point and raises the boiling point of the coolant, preventing engine damage in extreme temperatures.
- Industrial** — This solution serves as a heat transfer medium in various industrial processes, efficiently regulating temperature in reactors, HVAC systems, and other equipment. Its thermal properties and stability make it a reliable choice for maintaining optimal operating conditions.
- Hydraulics** — Ethylene Glycol 50/50 is utilized in hydraulic systems to provide lubrication and prevent corrosion. Its viscosity and compatibility with various materials make it suitable for use in hydraulic fluids.
- Aviation** — In the aviation industry, Ethylene Glycol 50/50 is applied to aircraft surfaces to prevent ice formation during winter operations. This de-icing application ensures the safety and functionality of aircraft in cold weather conditions.
- Laboratory** — As a laboratory grade solution, this Ethylene Glycol 50/50 can be used as a solvent or reagent in various research and development applications. Its controlled purity and consistent concentration make it suitable for experiments requiring reliable chemical properties.

## STORAGE & HANDLING

Proper storage is crucial to maintain the integrity and purity of Ethylene Glycol 50/50. Exposure to extreme temperatures or incompatible materials can degrade the solution and compromise its effectiveness. As Ethylene Glycol is harmful if swallowed, storing in a clearly labeled container in a cool, dry, and well-ventilated area away from children and incompatible substances is essential for safety.

- Store in a cool, dry place away from direct sunlight.
- Use materials compatible with ethylene glycol, such as HDPE or stainless steel.
- Avoid contact with strong oxidizing agents.
- Ensure proper ventilation when handling to minimize inhalation risks.
- Use appropriate personal protective equipment (PPE) such as gloves and goggles.

## AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

## SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Warning**



**Hazard Statements:**

- H302: Harmful if swallowed [Warning Acute toxicity, oral]

**Emergency Contact:** CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

*For complete safety information, refer to the Safety Data Sheet (SDS) for this product.*

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