

### PRODUCT IDENTIFICATION



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

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

**Molecular Formula:**  $C_2H_6O_2$

**Molecular Weight:** 62.07 g/mol

**Grade:** Technical Grade

**Purity / Concentration:** 50%

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

### PRODUCT OVERVIEW

Alliance Chemical's Ethylene Glycol 50/50 Technical Grade is a precision-formulated aqueous solution designed for consistent thermal management. With a high-purity assay of 50.46% and minimal impurity levels, such as low APHA color and trace metal content, this product provides reliable performance in demanding industrial applications.

**Grade Significance:** Technical Grade indicates that this product is manufactured to meet rigorous industrial standards, ensuring it is fit for mechanical and thermal applications where high purity is required for system longevity.

### CERTIFICATE OF ANALYSIS — TYPICAL VALUES

| PARAMETER                 | UNIT | TYPICAL      | MIN    | MAX    | TEST METHOD         |
|---------------------------|------|--------------|--------|--------|---------------------|
| Assay Gc                  | %    | 50.4647      | 49.465 | 50.465 | GC                  |
| Color (APHA)              | APHA | 2            | —      | 10     | APHA                |
| Specific Gravity (20°C)   | g/mL | 1.0685       | 1.0635 | 1.0735 | Hydrometer @ 20°C   |
| Non-Volatile Residue      | %    | 0.013        | 0      | 0.05   | Residue on Ignition |
| Arsenic As                | ppm  | ≤ 0.0264 ppm | —      | —      | ICP-MS              |
| Iron (Fe)                 | ppm  | 0.0040       | 0      | 0.05   | ICP-MS              |
| Lead Pb                   | ppm  | ≤ 0.0264 ppm | —      | —      | ICP-MS              |
| Chlorides As Cl           | ppm  | 0.045        | 0      | 0.25   | ICP                 |
| Sulfate ( $SO_4^{2-}$ )   | ppm  | ≤ 0.5276 ppm | —      | —      | ICP                 |
| Acidity As Acetic         | %    | ≤ 0.0005 %   | —      | —      | Titration           |
| Aldehydes As Acetaldehyde | ppm  | 13           | 0      | 15     | Spectrophotometry   |
| Ash                       | ppm  | 5            | 0      | 25     | Residue on Ignition |
| Deg Content               | %    | 0.012        | 0      | 0.25   | 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>    | ≈106 °C (222.8 °F)                                                                                                                       |
| <b>Melting / Freezing Point</b> | Freezing point ≈ -37 °C (-34.6 °F)                                                                    | <b>Flash Point</b>      | Non-flammable as a 50/50 aqueous blend (effective FP >132 °C; water must be driven off to ignite). Pure EG 232 °F was the pure-EG value. |
| <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

1. **Automotive** — Used as a primary coolant and antifreeze agent to maintain optimal engine temperatures and prevent freezing in harsh climates.
2. **HVAC and Industrial Manufacturing** — Serves as an efficient heat transfer medium in closed-loop systems, ensuring steady thermal regulation across complex machinery.
3. **Aerospace** — Applied to aircraft surfaces during winter operations to effectively prevent ice formation and ensure flight safety.
4. **Hydraulics** — Utilized in hydraulic systems where its viscous properties provide excellent lubrication and stability under pressure.

## STORAGE & HANDLING

Proper storage is essential to maintain the chemical integrity of the solution and prevent environmental contamination. Because the product is harmful if swallowed and poses risks with repeated exposure, it must be stored in a secure, well-ventilated area away from incompatible substances to ensure operator 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
- H373: May cause damage to organs through prolonged or repeated exposure

**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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