

### 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 offers a high-quality 50/50 Ethylene Glycol Technical Grade solution, featuring a precise 50.46% assay and exceptional purity with APHA color levels at 2. This balanced aqueous mixture is engineered for reliable performance in heat transfer and anti-icing applications across various industrial sectors.

**Grade Significance:** Technical Grade indicates that this product is formulated for industrial and commercial utility where consistent performance is required, balancing cost-effectiveness with high-purity standards.

### 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>    | ~108 °C                                       |
| <b>Melting / Freezing Point</b> | -38 °C (freeze / crystallization onset)                                                               | <b>Flash Point</b>      | Not flammable (aqueous solution)              |
| <b>Specific Gravity</b>         | 1.068                                                                                                 | <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 extensively in cooling systems to effectively prevent engine overheating and protect against freezing in cold climates.
2. **Industrial Manufacturing** — Functions as a stable heat transfer medium to maintain optimal thermal regulation in complex industrial process machinery.
3. **Hydraulics** — Utilized in hydraulic fluid systems for its superior lubricating properties and ability to maintain viscosity under varying temperatures.
4. **Aviation** — Applied as a de-icing agent on aircraft surfaces to ensure safety and prevent dangerous ice accumulation during winter operations.

## STORAGE & HANDLING

Proper storage in a cool, well-ventilated area is essential to maintain the integrity of the solution and prevent degradation. Because this product is harmful if swallowed and poses risks with repeated exposure, secure containment is critical to prevent accidental ingestion or environmental contamination.

- 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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