TECHNICAL DATA SHEET

50% Propylene Glycol Inhibited

Revised: 11/04/2026 (Version 1.4) | Product code: PG50-INH

1. PRODUCT DESCRIPTION

50% Propylene Glycol Inhibited is a ready-to-use heat-transfer and freeze-protection fluid: 50% by volume propylene glycol in deionized water with a **nitrite-containing hybrid organic-acid corrosion inhibitor package**. Blended by Alliance Chemical in Taylor, Texas, for closed-loop HVAC, chilled-water, hydronic and process-cooling systems.

- Freeze point approx. −28.6 °F (−33.7 °C).
- Inhibitor package: sodium nitrite, triethanolamine, sodium benzoate and sodium molybdate with organic-acid inhibitors. Contains nitrite and molybdate.
- Blended in deionized water. Not dyed. Not classified as hazardous under GHS; not regulated for transport by DOT.
- Not for food-contact, incidental-food-contact or potable-water service; not USP/NF grade.

2. COMPOSITION

COMPONENT	CAS NO.	AMOUNT
Propylene glycol (propane-1,2-diol)	57-55-6	50.0 – 51.0 % v/v (about 50.7 – 51.8 % w/w)
Corrosion inhibitor package (nitrite-containing hybrid organic-acid)	Mixture	1.8 – 2.2 % w/w
— of which sodium nitrite	7632-00-0	0.18 – 0.44 % w/w
— of which triethanolamine	102-71-6	< 0.22 % w/w
— of which sodium benzoate	532-32-1	< 0.07 % w/w
— of which sodium molybdate dihydrate	10102-40-6	< 0.05 % w/w
Deionized water	7732-18-5	Balance

Inhibitor package dosed at 2.0% (range 1.8–2.2%) by weight of the finished blend. Component ranges calculated over that dose range from the inhibitor manufacturer's composition ranges; the balance of the package is proprietary to the inhibitor manufacturer.

3. SPECIFICATIONS

TEST	SPECIFICATION	METHOD / BASIS
Propylene glycol content	50.0 – 51.0 % v/v (about 50.7 – 51.8 % w/w)	Formulation (batch weights); verified by refractive index against an in-house propylene glycol calibration / relative density (ASTM D1122)
Appearance	Clear, colorless to pale yellow liquid, free of sediment and suspended matter	Visual
Nitrite (as NO_2)	1,200 ppm min. (calculated 1,300–2,700 ppm at the 2.0% dose)	Formulation minimum
Density (20 °C)	1.0392 – 1.0422 g/cm³	Formulation
Freeze point	−28.6 °F (−33.7 °C) max	ASTM D1177
pH, as supplied	Reported on lot COA (typically 7.0 – 9.0)	ASTM D1287
Reserve alkalinity	Reported on lot COA	ASTM D1121

Specifications are limits for the product as shipped. Rows marked formulation are calculated from the blend recipe; measured values are reported on the lot Certificate of Analysis.

4. CORROSION PROTECTION

The inhibitor package combines sodium nitrite (steel and cast iron), sodium molybdate, sodium benzoate and triethanolamine with organic-acid inhibitors. **Data provenance:** Alliance Chemical has not tested this finished 50% blend to ASTM D1384 or any other corrosion test standard; no corrosion-test certification is claimed.

5. TYPICAL PHYSICAL PROPERTIES

Appearance / odor	Clear, colorless to pale yellow liquid; mild, characteristic odor
Specific gravity (20/20 °C)	1.043 (water = 1), calculated from formulation
Density (20 °C)	1.0407 g/cm³ (8.69 lb/gal), calculated from formulation
Freeze point (ASTM D1177)	approx. −28.6 °F (−33.7 °C) at 50 % v/v propylene glycol
Boiling point (760 mmHg)	approx. 223 °F (106 °C)
Flash point	None — aqueous solution, will not sustain combustion
Solubility in water	Miscible in all proportions
Dye	None (colorant can be added on request)

Glycol/water physical properties from published propylene glycol–water property tables; freeze point from the volume-percent column at 50 % v/v.

6. APPLICATION, STORAGE & MATERIALS

Use: closed-loop heat transfer, chilled-water and hydronic freeze protection, and process cooling. Use as supplied; further dilution lowers both freeze protection and inhibitor concentration. Top up with the same fluid.

Compatibility: contains nitrite. Install as a fresh fill after draining and flushing; do not mix with phosphate-, silicate- or nitrite-free coolants.

Materials: formulated for steel, cast iron, copper, brass and solder; EPDM is the standard elastomer for glycol/water service. Avoid galvanized (zinc) surfaces.

Storage: tightly sealed original containers in a cool, dry area; avoid prolonged storage above 100 °F and protect from freezing and contamination. Aqueous blend — no flammable-liquid storage required.

7. PACKAGING & LOGISTICS

Standard package	275-gallon IBC tote (330-gal IBC, 55-gal drum and 5-gal pail available)
US DOT	Not regulated for transport
NMFC	Class 55
Documents	SDS (rev. 11/04/2026), this TDS, and lot Certificate of Analysis

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