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Technical Data Sheet

Inhibited Propylene Glycol 30 / 70 with OAT Inhibitor

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1. PRODUCT IDENTIFICATION

Product Name	Inhibited Propylene Glycol 30 / 70 with OAT Inhibitor
Product Code	AC-PG30-OAT
Chemical Family	Aqueous propylene glycol blend with hybrid OAT corrosion inhibitor package (Dowfrost-equivalent)
Concentration	30% v/v propylene glycol in deionized water (ready-to-use)
Inhibitor Package	OAT (organic-acid technology) hybrid corrosion-inhibitor package at 1.0 – 2.5% w/w of finished blend
Color / Dye	Clear, colorless (fluorescent yellow/green or pink dye available on request)
Recommended Use	Closed-loop heat-transfer fluid for HVAC chillers, hydronic loops, food & beverage processing chillers (secondary loop), data-center liquid cooling, glycol-charged process cooling, freeze / burst protection, automated beverage dispensing equipment
Uses Advised Against	Direct food contact, open recirculation systems, automotive crankcase, single-pass / once-through cooling, potable water systems

2. COMPOSITION

Component	CAS No.	% by weight
Propylene Glycol	57-55-6	29 – 31%
Deionized Water	7732-18-5	Balance (~67 – 70%)
OAT Inhibitor Package	Mixture	1.0 – 2.5%

OAT inhibitor package typical sub-composition (per inhibitor licensor MSDS on file): proprietary organic acid (OAT) buffers < 30%; Tolyltriazole (CAS 29385-43-1) < 5%; Sodium Benzoate (CAS 532-32-1) < 3%; Sodium Hydroxide (CAS 1310-73-2) < 2% (pH adjuster); deionized water balance. Formulation matches Dowfrost-equivalent OAT chemistry.

3. PHYSICAL & CHEMICAL PROPERTIES

Property	Typical Value	Method / Reference
Appearance	Clear, colorless liquid (or fluorescent dye if specified)	Visual
Odor	Mild, slightly sweet	Olfactory
Specific Gravity at 20 °C	1.024 – 1.028	ASTM D1298 (DOW Dowfrost Tab 6)
Density at 25 °C	~1.022 g / cm³	DOW Dowfrost Engineering Guide
pH (as supplied)	8.5 – 10.5	ASTM D1287 (typical OAT-buffered PG)
Reserve Alkalinity	5 – 9 mL 0.1 N HCl	ASTM D1121 (typical OAT buffer)
Freeze Point	<= -13 °C (8 °F)	ASTM D1177 (DOW Dowfrost freeze-protection table)
Burst Protection	<= -23 °C (-10 °F)	DOW Dowfrost Engineering Guide

Boiling Point at 760 mm Hg	>= 102 °C (>= 215 °F)	ASTM D1120 (ASHRAE 2017 ch.31)
Refractive Index at 20 °C	1.348 – 1.354	ASTM D1747
Viscosity at 40 °C	1.4 – 1.7 cP	ASTM D445 (ASHRAE 2017 ch.31 Tab 23)
Viscosity at 100 °C	~0.55 cP	ASTM D445
Specific Heat at 20 °C	0.94 Btu / lb·°F (3.93 kJ / kg·K)	ASHRAE 2017 ch.31 Tab 23
Thermal Conductivity at 50 °C	0.42 – 0.46 W / m·K	ASHRAE 2017 ch.31 Tab 23
Vapor Pressure at 20 °C	~17 mm Hg	DOW Dowfrost Product Guide
Solubility in Water	Completely miscible	Visual
Flash Point	Non-flammable as supplied (water-rich blend)	ASTM D93 (closed cup)

Values are typical for the 30 / 70 blend; lot-specific values are recorded on the Certificate of Analysis (COA) issued with each shipment.

4. CORROSION PERFORMANCE (ASTM D1384 / ASTM D3306)

The OAT inhibitor package combines proprietary organic-acid buffers with Tolyltriazole copper-protection and Sodium Benzoate. The package is formulated to meet or exceed ASTM D3306 industrial coolant corrosion limits across the standard six-metal coupon stack of ASTM D1384 (336 hr, 88 °C, aerated). OAT-based propylene-glycol coolants are the industry standard for closed-loop service with multi-metal wetted surfaces, including yellow-metal heat exchangers.

Metal Coupon	ASTM D3306 Limit (mg loss / specimen)	Result
Copper (C110)	<=10	**PASS**
Solder (Pb-Sn)	<=30	**PASS**
Brass (C260)	<=10	**PASS**
Steel (1018)	<=10	**PASS**
Cast Iron (G3000)	<=10	**PASS**
Aluminum (3003)	<=30	**PASS**

Note on data provenance: ASTM D1384 corrosion performance is reported against published ASTM D3306 (Standard Specification for Glycol-Based Engine Coolants) acceptance limits, which are the industry-accepted benchmark for industrial heat-transfer fluids. The underlying laboratory-coupon test report on the OAT inhibitor package at typical service dose, retained on file with the inhibitor licensor, is available to qualified customers under non-disclosure agreement upon written request.

5. MATERIAL COMPATIBILITY

Compatible Materials	Not Recommended
Metals: copper, brass, mild steel, cast iron, stainless steel (304/316), aluminum (3003, 6061), lead-tin solder. **Plastics:** polypropylene (PP), HDPE, PVC, CPVC, PVDF, PTFE, polyethersulfone (PES). **Elastomers:** NBR (Buna-N), EPDM, FKM (Viton), HNBR, VMQ silicone, neoprene (CR), CSM (Hypalon).	**Elastomers:** natural rubber (NR). **Metals:** zinc-galvanized surfaces for prolonged immersion; magnesium alloys; soft (low-tin) solder in continuous high-temperature service. **Plastics:** some grades of polyurethane (verify with manufacturer); ABS at elevated temperature.

6. DILUTION & MAKE-UP

Supplied as a 30 / 70 v/v ready-to-use blend. A glycol concentrate plus inhibitor pre-charge (96 / 4 v/v PG / OAT) is also available; field-blend 1 part concentrate with 2.33 parts deionized or distilled water by volume to achieve 30 vol% propylene glycol. Use only deionized or distilled water (< 50 µS / cm conductivity, < 25 ppm chloride, < 25 ppm sulfate) for top-up and make-up. Tap or hard water introduces calcium / magnesium scale and chloride that will accelerate pitting and shorten inhibitor life. Do not mix with ethylene-glycol coolants or inhibited-glycol products of unknown chemistry — inhibitor cross-reactions can drop reserve alkalinity and trigger premature replacement.

7. SERVICE LIFE & MAINTENANCE

Closed-loop service life of **5+ years** is typical for OAT-buffered propylene glycol coolants under design operating conditions. Service life is dependent on system cleanliness, oxygen ingress, make-up water quality, peak operating temperature, and avoidance of cross-contamination with incompatible inhibitor chemistries. Annual fluid analysis is recommended:

Test	Method	Typical Replace / Treat Trigger
Reserve Alkalinity	ASTM D1121	Replace or sweeten when < 4.0 mL
pH	ASTM D1287	Replace when < 7.5 or > 11.0
Refractive index / SG	ASTM D1747 / D1298	Adjust dilution when freeze-point margin lost
Reserve inhibitor (HPLC / ICP)	Lab	Replace or sweeten if azole / OAT < 30% of fresh value
Visual / particulate	Visual + filter	Investigate if discolored, oily layer, or > 100 mg/L solids

8. PACKAGING

Container	Net Volume	Net Weight (approx.)
HDPE bottle	1 quart (0.95 L)	~2.2 lb (1.0 kg)
HDPE jug	1 US gallon (3.79 L)	~8.8 lb (4.0 kg)
HDPE pail	5 US gallons (18.9 L)	~44 lb (20 kg)
Steel drum, lined	55 US gallons (208 L)	~470 lb (213 kg)
IBC tote (preferred bulk)	275 US gallons (1041 L)	~2,355 lb (1,068 kg)
IBC tote, large	330 US gallons (1249 L)	~2,825 lb (1,281 kg)
Bulk tanker	4,000 – 6,500 US gallons	Quoted on request

9. STORAGE & HANDLING

Store sealed indoors at 5 – 40 °C (40 – 104 °F). Avoid prolonged storage at temperatures below the blend freeze point; ice formation can cause inhibitor stratification and out-of-spec on thaw. Shelf life is **two (2) years** in a sealed, original container; once a tote or drum is opened, use the contents within 12 months. Standard chemical PPE applies: chemical-resistant gloves, splash-rated safety glasses or full face shield, and impervious apron. Refer to the corresponding Safety Data Sheet (SDS AC-PG30-OAT-001) for full hazard identification, first-aid measures, accidental-release procedures, transport classification, and disposal guidance.

10. QUALITY ASSURANCE

Inhibited Propylene Glycol 30 / 70 with OAT inhibitor is blended at Alliance Chemical's Taylor, Texas USA facility under documented batch-control procedures. Each batch is assigned a lot number and receives in-house QC testing for pH, specific gravity, refractive index, and inhibitor reserve; a lot-specific Certificate of Analysis (COA) accompanies every shipment on request. The finished blend conforms to ASTM D3306 industrial corrosion-coolant performance limits.

11. ORDERING & TECHNICAL SUPPORT

Sales: sales@alliancechemical.com | +1 512-365-6838
Technical contact: Andre Taki, Technical Specialist | andre@alliancechemical.com | ext. 515
24-hour transportation emergency: CHEMTREC 1-800-424-9300
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References: OAT inhibitor licensor MSDS data on file (matches Alliance SDS AC-PG30-OAT-001); DOW Dowfrost / Dowfrost HD Engineering & Operating Guide; ASHRAE Handbook 2017, Chapter 31; ASTM D1384, D1287, D1121, D1177, D1120, D1298, D1747, D445, D3306. Underlying ASTM D1384 laboratory-coupon test data on the OAT inhibitor package is retained on file with the inhibitor licensor and is available to qualified customers under NDA upon written request.

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