

ORISON

BioFROST® GEO

DESCRIPTION

BioFROST® GEO is a ready-to-use, biobased, propylene glycol heat transfer fluid formulated from USP Grade propylene glycol to safely provide optimum heat transfer, freeze protection and corrosion protection for geothermal heat pump systems. GEO is a clear 20% PG / inhibitor blend with an optional dye for leak detection. GEO is intended to be used only at full strength. If a lower freeze point is desired, we recommend using BioFROST® Concentrate and diluting to desired freeze point.

PERFORMANCE

BioFROST® GEO meets the requirements of ASTM D1384, a corrosion standard commonly used to determine the ability of the fluid to provide corrosion inhibition in heated applications. Our quality corrosion package, provides outstanding long term corrosion protection of steel, copper, brass, solder, cast aluminum, and cast iron. GEO lubricates pumps and valves, provides scaling resistance, is fully compatible with gaskets, seals, elastomers and other non-metallic pump and system parts. Additionally, to make compatibility a non-issue, we have engineered this product to equal the heat transfer, antifreeze, and corrosion inhibition performance characteristics of the most common ready-to-use PG fluid available.



- Biobased
- Non-Toxic
- Readily Biodegradable
- Lower Flashpoint
- No RCRA Regulation
- Meets ASTM D1384

SAFETY/ENVIRONMENT

Eliminate your fire hazards and toxic fluids by upgrading your system to BioFROST® GEO. GEO is the leader in quality, safety and environmental concerns. GEO is NSF listed (HT1), for use where there is a possibility of incidental food contact. BioFROST® GEO is formulated from USP Grade biobased PG which is generally recognized as safe (GRAS) by the FDA. GEO is not a petroleum derived product, it utilizes propylene glycol made from patented renewable processes which converts biobased glycerin into PG. Simply put, if you insist on a safe PG fluid, the BioFROST® family is the safest and most environmentally friendly.

APPLICATIONS

Designed for geothermal and environmentally sensitive antifreeze / coolant / heat transfer applications BioFROST® GEO can be used in:

- Geothermal Systems
- Non-engine Closed Loop Systems
- Hydrostatic/Pressure Testing
- Floor Heating Systems

Typical Properties

Color: Clear (dye available)
pH: 8.5 - 11
Specific Gravity (70F): 1.026
Freeze Point: 18°F
Boiling Point: 215F
Viscosity cPs (68F): 2

NSF registered and acceptable for use where there is possibility of incidental food contact (HT1).



| HMIS | |
|--------------|---|
| HEALTH | 0 |
| FLAMMABILITY | 0 |
| INSTABILITY | 0 |
| SPECIFIC | 0 |

Note: Use full strength; do not dilute. If diluted, user may be at risk of bacterial contamination and low inhibitor levels.

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Commercial: www.orisonmarketing.com

Gov't/Military: www.orisonllc.com

BioFROST® GEO***Estimated properties at Temperature***

| Temp (°F) | Viscosity <i>cP</i> | Thermal Conductivity <i>Btu/hr-ft-°F</i> | Specific Heat <i>Btu/lb-°F</i> | Vapor Pressure <i>psia</i> |
|------------------|-------------------------------|--|--|--|
| 20 | 5.36 | 0.262 | | |
| 30 | 4.23 | 0.267 | 0.966 | |
| 40 | 3.41 | 0.272 | 0.968 | |
| 50 | 2.79 | 0.277 | 0.97 | |
| 60 | 2.32 | 0.281 | 0.972 | |
| 70 | 1.95 | 0.285 | 0.974 | |
| 80 | 1.66 | 0.289 | 0.976 | |
| 90 | 1.43 | 0.292 | 0.979 | |
| 100 | 1.25 | 0.295 | 0.981 | 0.9 |
| 120 | 0.97 | 0.298 | 0.985 | 1.7 |
| 140 | 0.78 | 0.306 | 0.989 | 2.8 |
| 160 | 0.64 | 0.309 | 0.993 | 4.6 |
| 180 | 0.54 | 0.312 | 0.996 | 7.2 |
| 200 | 0.46 | 0.314 | 1 | 11 |
| 220 | 0.4 | 0.314 | 1.003 | 16.4 |
| 240 | 0.36 | 1.007 | 23.8 | |