

Protection:

GEO-FLO™ SAFE includes a specially formulated inhibitor package to help prevent corrosion and extend the life of the fluid, promoting long-term Geothermal system operation. It meets ASTM D1384 corrosion protection performance requirements and as a PG based fluid, **GEO-FLO™ SAFE** is compatible with all materials in geothermal installation including plastic pipes and metal components. Since it is propylene glycol based, **GEO-FLO™ SAFE** is non-flammable, resulting in improved safety, both for system installation and operation compared to alcohol based fluids.

Performance:

- Freeze protection to -14°C (7°F); ensures system operation in Canadian climate
- Ready to use, no dilution needed; quick and convenient installation
- Formulated with high quality demineralized water to ensure performance throughout the system's service life
- Low viscosity and good heat efficiency

Peace of mind:

- Non-flammable; safe to handle, install and transport (not hazardous or controlled under WHMIS or transportation regulations)
- Includes robust inhibitor package that prevents corrosion and extends fluid and system life
- Very low in acute oral toxicity
- Resists degradation better than uninhibited fluids, minimizes maintenance and replacement costs, provides considerable financial savings in the long run

Product Characteristics:

Composition	Appearance	Specific Gravity (at 20°C)	pH (as is)	Odour	Reserve Alkalinity* (mL)
Propylene Glycol, Proprietary inhibitors & Demineralized water	Yellow Transparent liquid	1.030 - 1.040	9.5 - 10.5	Odourless	7.0

*As tested in accordance with ASTM D1121

It runs better on GEO-FLO™

As a contractor for residential geothermal heat transfer systems, your clients demand guaranteed quality, maintenance and minimal operating costs. Your job is to prescribe the right fluid that **protects** the client's system, provides top **performance** and **peace of mind** for everyone. While there is no single fluid known to have top performance in all criteria desired, Recochem produces more than one type of **GEO-FLO™** fluid for closed loop systems to give you options to better meet your client's needs.

Recochem offers **GEO-FLO™ SAFE**, a premium **propylene glycol** based geothermal heat transfer fluid designed for use in all residential geothermal installation systems. It meets fluid requirements outlined in Canadian Standards Association (CSA) C448 Design & Installation of Earth Energy Systems.



Product Availability:

Item No.	Size
18-438	18.9 Litres
18-439	205 Litres
18-439-1000	1000 Litres



Viscosity & Performance Profile

It is well known that concentrated glycol fluids including pure propylene glycol exhibit a viscosity profile that significantly increases as temperature decreases. This fluid thickening results in a substantial increase in energy and subsequent equipment demand, especially of pumps, in order to move the fluid and negatively affect the heat transfer efficiency of the system.

GEO-FLO™ SAFE is a ready-to-install aqueous propylene glycol solution which does not exhibit the same tendency to thicken at low temperatures. Its viscosity profile is significantly lower compared to concentrated or pure propylene glycol across the temperature range encountered in geothermal system operations. Its composition has been carefully selected to provide suitable viscosity and flow character even at cold loop operating temperatures. Equipment demand is therefore practically equivalent to that of alcohol based heat transfer fluids, promoting reduced operating energy costs.

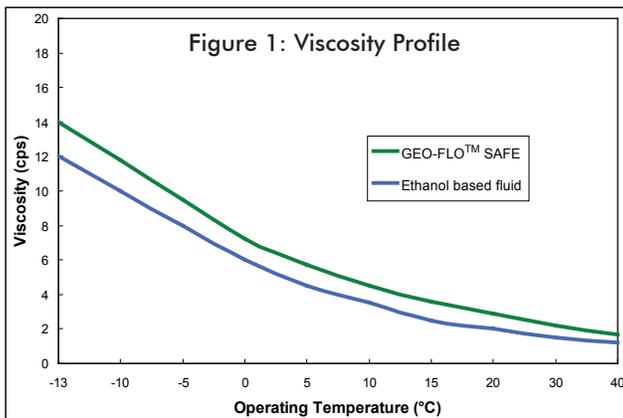


Figure 1: Comparative data chart between GEO-FLO™ SAFE and an ethanol solution providing the same freeze protection. The viscosity profile of GEO-FLO™ SAFE is well established and practically equivalent to alcohol based fluids which provide similar freeze protection.

Thermal Properties

GEO-FLO™ SAFE provides an appropriate level of heat transfer efficiency, comparable or superior to other heat transfer fluids for geothermal application. It affords both the installer and end-user the perfect balance of utility, function and operational safety.

Fluid Temperature (°C)	-13	-10	-5	0	5	10	15	20	30	40
Thermal Conductivity (W/m*K)	0.405	0.410	0.415	0.422	0.429	0.434	0.440	0.445	0.453	0.462
Specific Heat (J/g*K)	3.76	3.76	3.78	3.80	3.81	3.82	3.84	3.85	3.88	3.91
Viscosity (cps)	14.0	11.8	9.5	7.2	5.7	4.5	3.6	2.9	2.2	1.7

Storage, Handling & Environmental Aspects

GEO-FLO™ SAFE is a non-flammable product with no flashpoint, based on propylene glycol that is readily biodegradable and virtually non-toxic. It can be safely stored and handled at temperatures down to its freeze point. Spill control and waste disposal of this material must be in accordance with federal, provincial and local legislation. Refer to product Material Safety Data Sheet (MSDS) for further information.

As a member of the  Canadian GeoExchange Coalition, Recochem is well informed of the needs and technologies involved in the geothermal heating and cooling systems market.

With four manufacturing locations, over 55 years experience in formulating, packaging and distributing a variety of chemical products, Recochem Inc. is *Your Partner in Formulating Solutions.*

GEO-FLO™ Distributor:

