

### Protection:

**GEO-FLO™ ALL** includes a specially formulated inhibitor package to help prevent Geothermal unit corrosion and fluid degradation, key aspects in maintaining efficiency and extending system operation. As an ethanol based fluid, **GEO-FLO™ ALL** is a competitive heat transfer fluid for the geothermal installation market.

### Performance:

- Freeze protection to -14°C (7°F), remains fluid-like across temperature gradient
- Provides corrosion protection to all metals found in heat exchanger units including copper, brass, aluminum and steel
- Premixed with high quality demineralized water to ensure performance throughout the system's service life

### Peace of mind:

- Made from renewable resources and is readily biodegradable
- Very low in acute oral toxicity
- Premixed for easy handling and installing for all geothermal installations
- Compatible with plastic tubing and pipes, including polyethylene used in geothermal loops

### Product Characteristics:

Composition	Appearance	Specific Gravity (at 20°C)	pH as is	Odour	Reserve Alkalinity* (mL)
Denatured Ethanol, Proprietary inhibitors & Demineralized water	Blue Transparent liquid	0.960 - 0.980	10.5 - 11.5	Slight alcohol	4.0

\*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. Compared to water, both offer improved performance in geothermal applications, as they provide lower freeze point, superior corrosion and burst protection.

Recochem offers **GEO-FLO™ ALL**, a **denatured ethanol** based geothermal heat transfer fluid made from renewable resources and designed for optimum heat transfer in all geothermal systems. **GEO-FLO™ ALL** is a ready to install fluid requiring no on-site mixing and meets fluid requirements outlined in Canadian Standards Association (CSA) C448 Design & Installation of Earth Energy Systems.



### Product Availability:

Item No.	Size
18-708	18.9 Litres
18-709	205 Litres
18-709-1000	1000 Litres

## Viscosity & Performance Profile

**GEO-FLO™ ALL** is a ready to install inhibited aqueous denatured ethanol solution. It requires no on-site dilution typical of concentrated alcohol fluids, allowing it to be installed directly into geothermal systems. This reduced handling decreases the risk to installers and contractors compared to concentrated products, ensuring a product of consistent quality and known performance, which helps lessen maintenance and replacement costs in the long run.

The viscosity profile of **GEO-FLO™ ALL** is sufficiently low enough that it remains highly fluid across all operating temperatures. Its viscosity is comparable to that of a 25% wgt. aqueous methanol solution. This ensures ease of operation and minimizes demand loads on equipment due to its fluidity, promoting optimum heat transfer efficiency of the system.

**GEO-FLO™ ALL** has been specifically developed for geothermal application using a patented corrosion inhibitor system with enhanced fluid stabilizers to protect metals commonly used in heat exchanger components from corrosion and maintain fluid life. Its corrosion protection performance has been evaluated and meets ASTM D1384 requirements.

## Thermal Properties

**GEO-FLO™ ALL** 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)	0.415	0.418	0.422	0.426	0.430	0.434	0.439	0.443	0.451	0.459
Viscosity (cps)	12.0	10.0	8.0	6.0	4.5	3.5	2.5	2.0	1.5	1.2

## Storage, Handling & Environmental Aspects

**GEO-FLO™ ALL** is a flammable liquid with flash point of 30°C. Storage and handling of this material must be in accordance with federal, provincial and local legislation. **GEO-FLO™ ALL** is a non-toxic liquid and readily biodegradable, however spill control and waste disposal must comply with federal, provincial and local legislation.

Refer to product Material Safety Data Sheet (MSDS) for further information.

As a member of  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:

