

Attachment 3

All heat transfer fluids and additives must be approved for use by the state geologist (NDAC 43-02-07).

Requests for approval of heat transfer fluids are reviewed by the North Dakota Department of Health, Division of Water Quality. The Division will normally recommend for approval any product that is included in the NSF White Book™ Nonfood Compounds Listings Directory, or whose constituents are either USP grade or are recognized by the U.S. Food and Drug Administration as “non-toxic” or “food grade”.

While the approval process is an attempt to identify heat transfer fluids that will not harm the environment, it is the responsibility of the installer and owner of a geothermal energy extraction facility to become familiar with the safe and proper handling of these fluids, and to take appropriate precautions to protect surface and groundwater.

The following heat transfer fluids are currently approved for use in geothermal energy exchange facilities in North Dakota:

Chemical type	Product name
Ethanol and methanol solutions	Environol (WaterFurnace International, Inc.) Calsol 100 (Husky/Univar) Geotherm (Husky/Univar)
Potassium formate solutions	CPTherm-G (CPI)
Propylene glycol solutions	Cryotek-100 (Hercules) Dowfrost (Dow Chemical Co.) EnviroGard (Rhomar Water Management, Inc.) Fremont 9134FG (Fremont Industries) Intercool P-323 (Interstate Chemical Co.) Safe-T-Therm (Houghton Chemical Co.)