

# The use of Thermal Transfer Fluids in Geothermal Systems

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1. Introduction to Thermal Transfer Fluid (TTF)
2. What is the purpose of a TTF
3. Types of fluid available
4. Using TTF's
5. Testing and Maintenance of TTF's



# Thermal Transfer Fluid

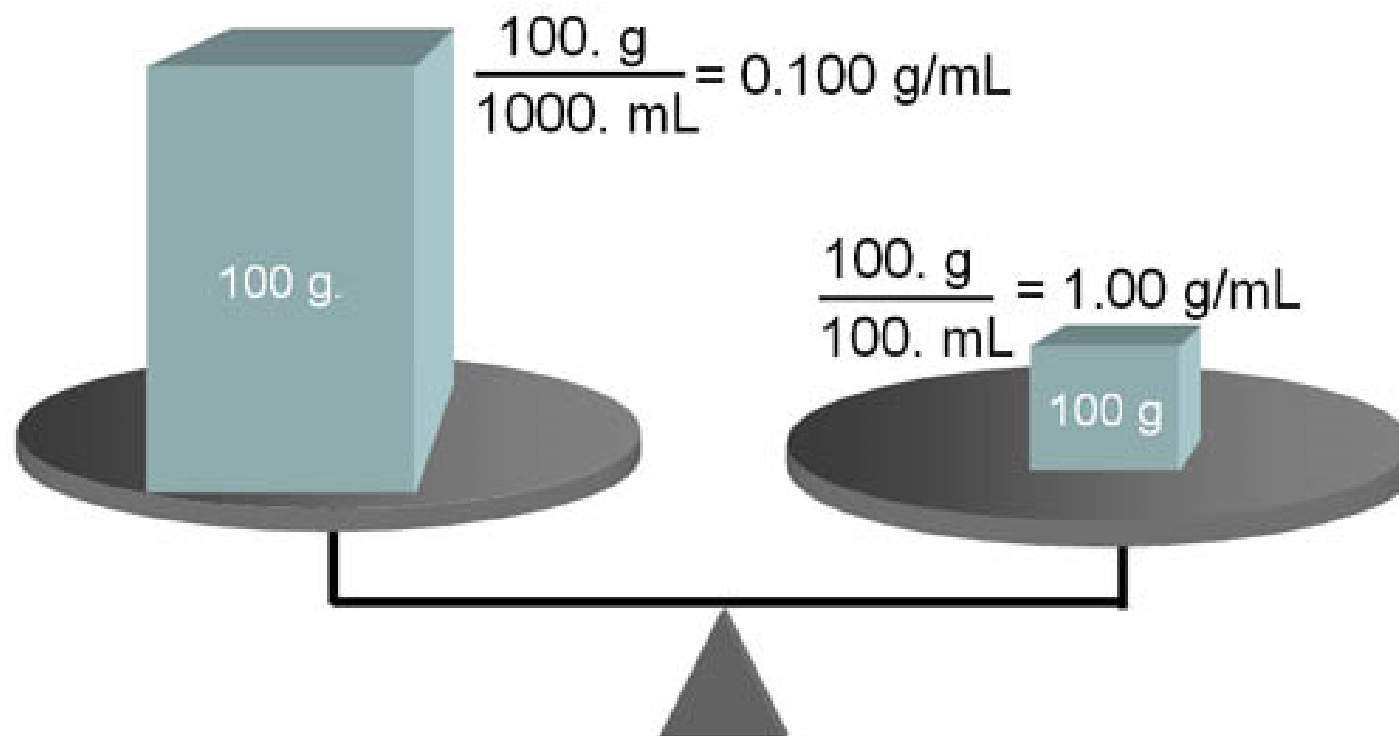


# Purpose of TTF's

- Specific Heat Capacity
- Thermal Transfer
- System Protection
- Service Life

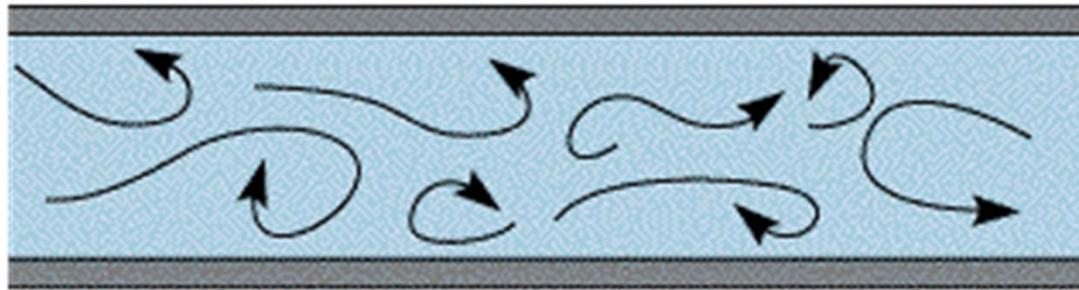


# Specific Heat Capacity

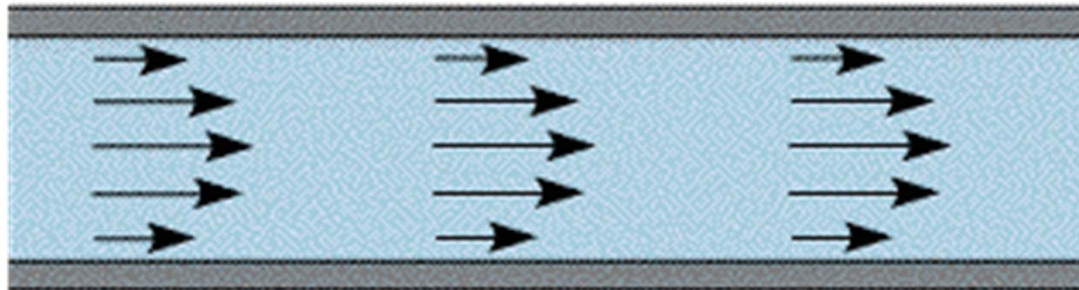


# Thermal Transfer

Turbulent



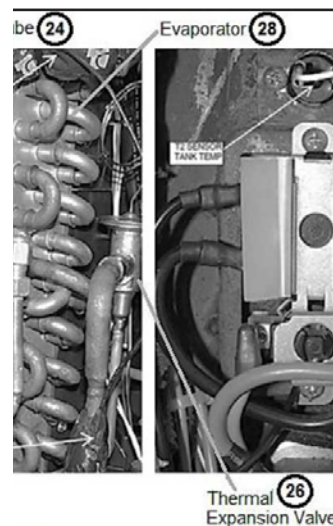
Laminar



- System Freeze Protection
- Environmental Freeze Protection
- System Material Protection



- Degradation
  - Oxidation
  - UV Light
  - Biological
- Maintenance
  - Automatic Dosing
  - Manual Dosing



(ent) Locations

REPLACEMENT PART #
7200P-001
7200P-002
7200P-003
7200P-004

1	Inlet Dip
2	Magnesi
3	Outlet Di
4	Electric h
5	Display
6	Display F
7	Fan Motc
8	Compres
9	Fan Whe
10	Front Sh
11	Junction
12	Junction
13	Left Rail
14	Evaporat
15	Fan Motc
16	Top Cov
17	Right Ra
18	Mesh Sc
19	Filter
20	Rear Shr
21	Electroni
22	Electroni
23	Compres
24	Strainer
25	Strainer
26	Thermal
27	Liquid St
28	Evaporat
29	Front De
30	Upper El
31	Lower El

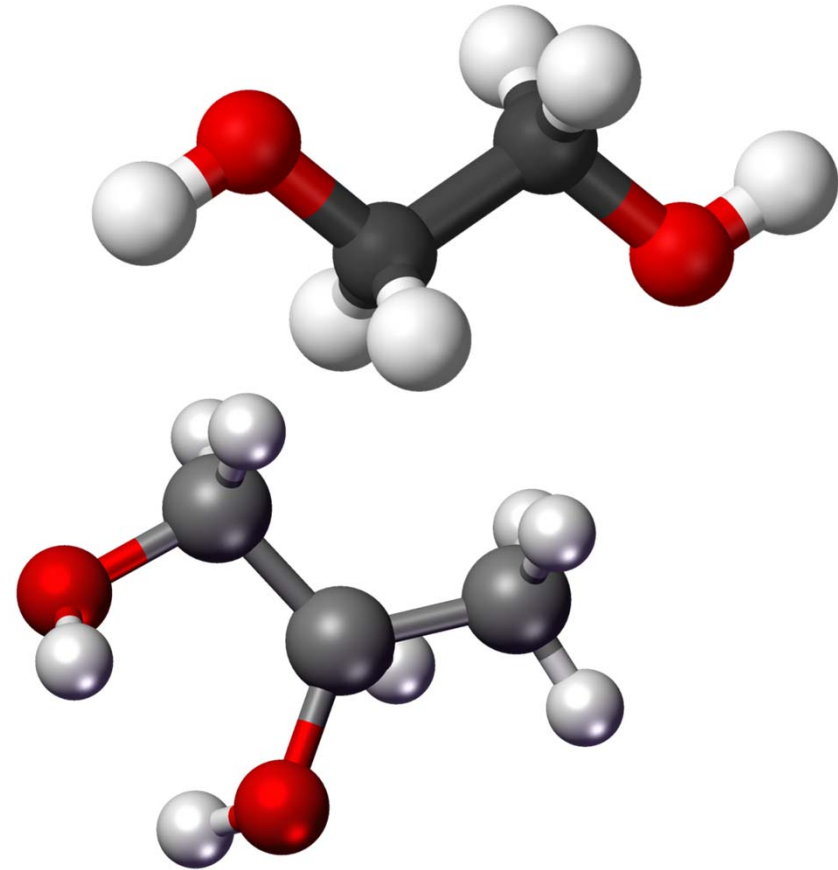




- Thermal Transfer Fluid
- System Cleaners
- System Protectors



- Mono Propylene Glycol
- Mono Ethylene Glycol
- Plant Based Glycols
- Potassium Formate
- Methanol
- Acid Based Technology

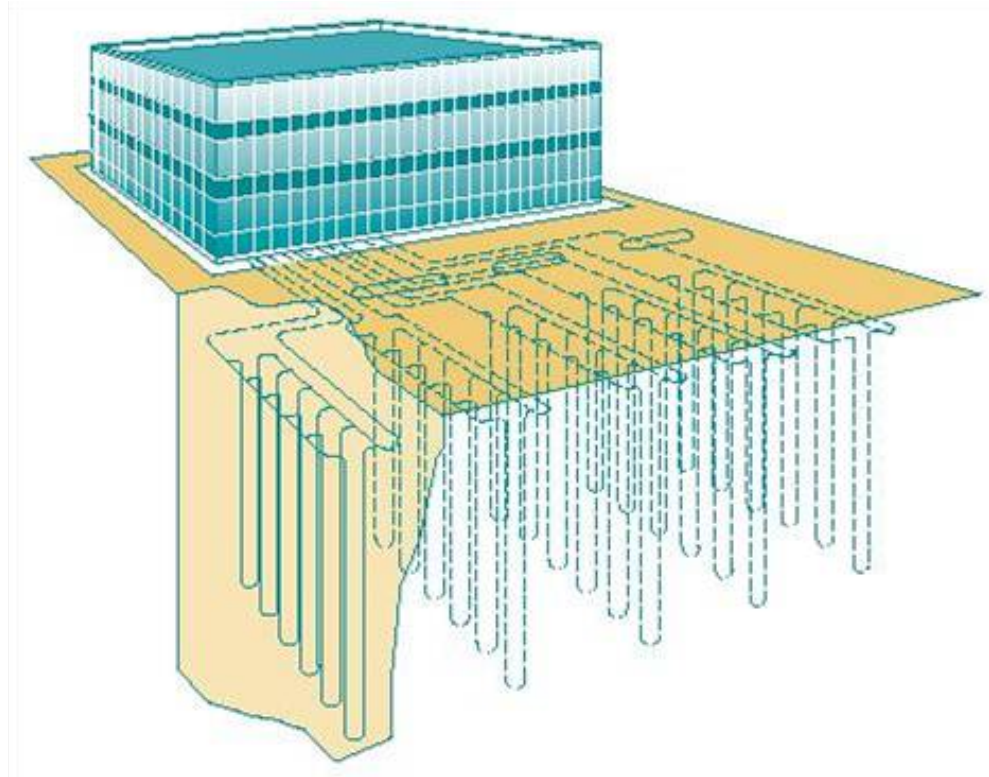


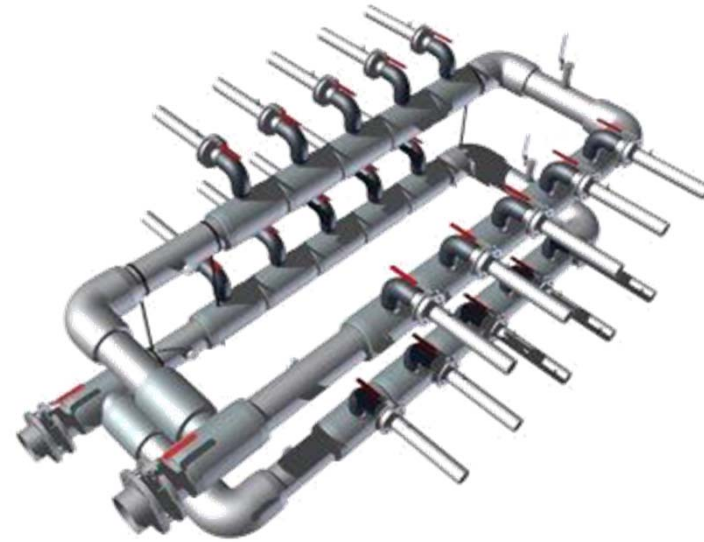
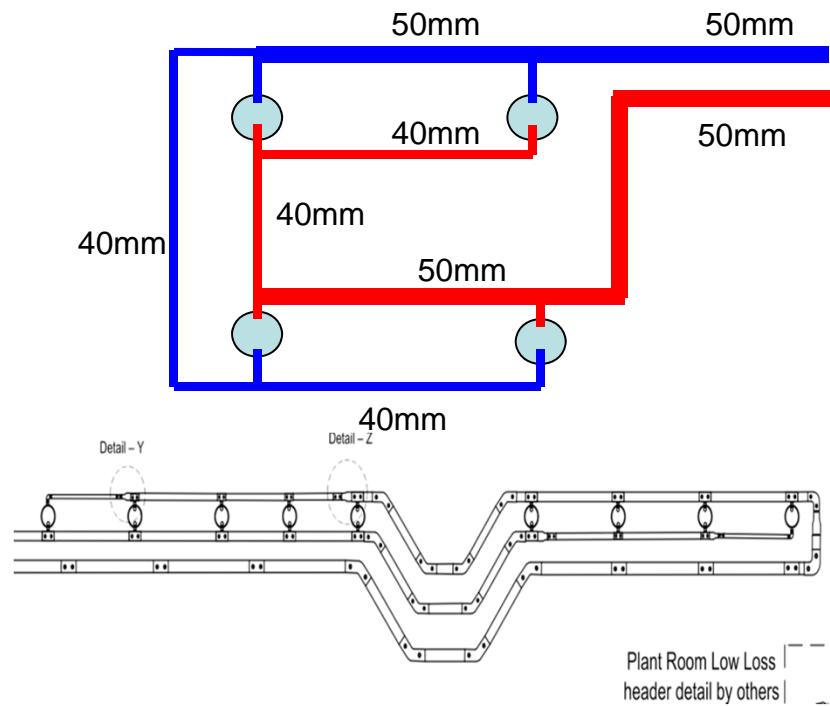
# System Cleaners

- Surfactant Based
- Oxidising Biocides
- Non-Oxidising Biocides



- System Design
- System Volume
- Flushing Method
- Dosing Method







# Flushing Method



# Dosing Method



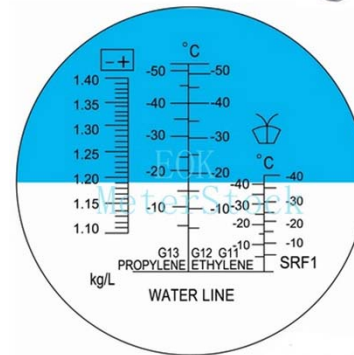


- Testing During Installation
- Annual Testing
- General Maintenance



# During Installation

- Smell of system water
- White bucket test
- Biocide test
- System sampling
- Refractometer



# Annual Testing

- Appearance
- Smell
- pH Test
- Refractometer
- Sample For Analysis



- Store only undiluted unopened TTF
- Record shelf life of unused product
- Display instructions at dosing points
- Disinfect dosing points prior to topping up

