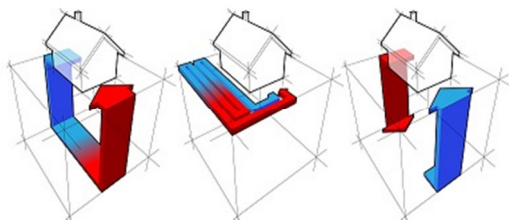




## Heat Transfer Fluids Kilfrost GEO Data Sheet

The advanced low viscosity food safe heat transfer fluid, engineered for higher efficiency and safer cooling.

This document lists all the physical data that is important for the application of Kilfrost GEO in closed loop cooling systems.



### Volume ratio, freezing point and refractive index

Kilfrost GEO %v/v	Freezing Point (°C)	Refractive Index
25	-10	1.3638
30	-15	1.3681
35	-17	1.3741
40	-20	1.3796
50	-30	1.3915

### Density (g/cm<sup>3</sup>) of dilutions with temperature

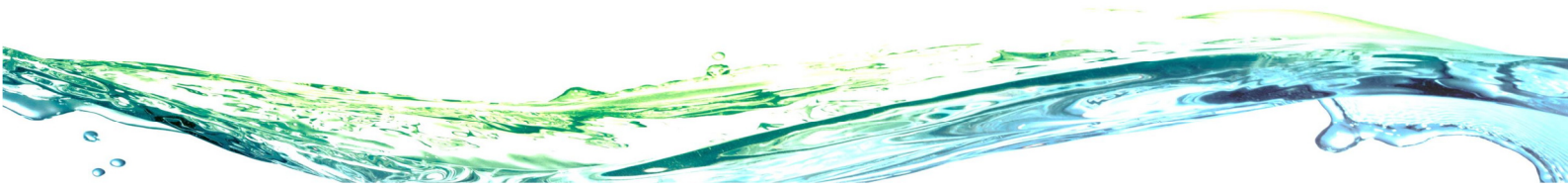
T (°C)	Dilution %v/v				
	25%	30%	35%	40%	50%
20	1.095	1.109	1.127	1.145	1.187
15	1.096	1.111	1.13	1.147	1.189
10	1.098	1.112	1.131	1.149	1.191
5	1.100	1.115	1.134	1.151	1.194
0	1.101	1.116	1.136	1.153	1.195
-5	1.103	1.118	1.138	1.155	1.199
-10	-	1.123	1.14	1.158	1.201
-15	-	1.123	1.142	1.16	1.203
-20	-	-	-	-	1.206
-25	-	-	-	-	1.209
-30	-	-	-	-	1.212

### Kinematic viscosity (mm<sup>2</sup>/s) of dilutions with temperature

T (°C)	Dilution %v/v				
	25%	30%	35%	40%	50%
20	1.611	1.841	2.091	2.391	3.211
15	1.851	2.101	2.411	2.761	3.781
10	2.131	2.581	2.811	3.231	4.451
5	2.501	2.891	3.331	3.841	5.321
0	2.941	3.461	4.001	4.631	6.571
-5	3.571	4.321	4.901	5.701	8.051
-10	-	4.661	6.191	7.221	9.888
-15	-	-	7.851	9.301	11.911
-20	-	-	-	-	14.371
-25	-	-	-	-	16.921
-30	-	-	-	-	19.701

### Dynamic viscosity (mPa.s) of dilutions with temperature

T (°C)	Dilution %v/v				
	25%	30%	35%	40%	50%
20	1.764	2.042	2.356	2.737	3.811
15	2.029	2.334	2.724	3.167	4.495
10	2.340	2.870	3.179	3.712	5.301
5	2.751	3.223	3.777	4.421	6.353
0	3.238	3.862	4.545	5.339	7.852
-5	3.938	4.830	5.577	6.584	9.652
-10	-	5.234	7.057	8.361	12.383
-15	-	-	8.965	10.788	14.328
-20	-	-	-	-	17.330
-25	-	-	-	-	20.456



### Specific heat (kJ/kg.°K) of dilutions with temperature

T (°C)	Dilution %v/v				
	25%	30%	35%	40%	50%
20	3.85	3.75	3.66	3.59	3.39
15	3.85	3.75	3.65	3.58	3.38
10	3.84	3.74	3.64	3.57	3.37
5	3.83	3.73	3.63	3.57	3.37
0	3.82	3.72	3.63	3.56	3.36
-5	3.80	3.71	3.62	3.55	3.35
-10	3.79	3.70	3.61	3.54	3.35
-15	3.78	3.69	3.60	3.53	3.34
-20	-	-	-	-	3.33
-25	-	-	-	-	3.33
-30	-	-	-	-	3.32

### Thermal conductivity (W/m.°K) of dilutions with temperature

T (°C)	Dilution %v/v				
	25%	30%	35%	40%	50%
20	0.512	0.494	0.483	0.459	0.414
15	0.509	0.491	0.482	0.458	0.415
10	0.505	0.488	0.480	0.457	0.415
5	0.501	0.485	0.478	0.456	0.416
0	0.497	0.482	0.475	0.454	0.416
-5	0.493	0.479	0.473	0.453	0.416
-10	0.488	0.475	0.470	0.451	0.417
-15	0.483	0.471	0.467	0.449	0.417
-20	-	-	-	-	0.414
-25	-	-	-	-	0.413
-30	-	-	-	-	0.412

### Materials compatibility

Kilfrost GEO is shown to be compatible with the following elastomers under the standard operating temperatures of a thermal fluid in a closed loop cooling systems;

Butyl Rubber	(IIR)
Ethylene	(EPDM)
Epoxy Resins	(EP)
Fluorocarbon Elastomers	(FPM)
Nitrile Rubber	(NBR)
Polyamides	(PA)
Polyethylene	(L/HDPE)
Polypropylene	(PP)
Polytetrafluoroethylene	(PTFE)
Polyvinyl Chloride	(PVC)
Styrene Butadiene	(SBR)

Please note, aside from coolant composition, the quality and grade of elastomeric seals will also have an impact on compatibility. In particular, the quantity and type of filling agents and the processing techniques used in the production of the elastomeric components will affect the resulting compatibility with any coolant. Please contact Kilfrost for information on compatibility with any elastomer not listed in this guide.

Further information available from:  
[Kilfrost.com](http://Kilfrost.com)