

FULLY INHIBITED PROPYLENE GLYCOL HYDRONIC HEAT TRANSFER FLUID

Typical Physical Properties

◆ Propylene glycol	95%
◆ Inhibitor Package & Water	5%
◆ Color	Colorless
◆ pH of solution @ 50% glycol	9.0 – 10.5
◆ Specific gravity @ 60/60°F	1.050 – 1.060
◆ Reserve Alkalinity (min)	11.0 ml

1) Freezing and Boiling points

%Glycol by Volume	Freezing Point °F	Boiling Point °F
20	18	213
30	9	216
40	-5	218
50	-24	220
60	-54	225

2) Technical Properties

20% ThermalStar concentration by volume

Temp °F	Specific Heat Btu/lb °F	Density lb/ft ³	Therm. Conduct Btu/(hr.ft ²)(°F/ft)	Viscosity cps
-20	—	—	—	—
30	0.934	64.10	0.265	4.23
80	0.951	63.51	0.288	1.65
130	0.966	62.65	0.302	0.88
180	0.981	61.52	0.310	0.54
230	0.995	60.23	0.313	0.38

30% ThermalStar concentration by volume

Temp °F	Specific Heat Btu/lb °F	Density lb/ft ³	Therm. Conduct Btu/(hr.ft ²)(°F/ft)	Viscosity cps
-20	—	—	—	—
30	0.905	64.78	0.238	7.45
80	0.924	64.09	0.255	2.43
130	0.941	63.12	0.269	1.15
180	0.961	61.93	0.277	0.68
230	0.978	60.47	0.278	0.48

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40% ThermalStar concentration by volume

Temp °F	Specific Heat Btu/lb °F	Density lb/ft ³	Therm. Conduct Btu/(hr.ft ²)(°F/ft)	Viscosity cps
-20	—	—	—	—
30	0.868	65.35	0.212	13.10
80	0.891	64.54	0.227	3.51
130	0.912	63.50	0.238	1.50
180	0.933	62.21	0.245	0.84
230	0.956	60.68	0.246	0.57

50% ThermalStar concentration by volume

Temp °F	Specific Heat Btu/lb °F	Density lb/ft ³	Therm. Conduct Btu/(hr.ft ²)(°F/ft)	Viscosity cps
-20	0.800	66.44	0.177	—
30	0.825	65.80	0.190	19.65
80	0.850	64.93	0.201	5.05
130	0.875	63.81	0.208	2.05
180	0.901	62.45	0.214	1.07
230	0.926	60.81	0.215	0.68

60% ThermalStar concentration by volume

Temp °F	Specific Heat Btu/lb °F	Density lb/ft ³	Therm. Conduct Btu/(hr.ft ²)(°F/ft)	Viscosity cps
-20	0.745	66.92	0.160	299.00
30	0.775	66.22	0.169	33.65
80	0.805	65.25	0.175	7.35
130	0.835	64.05	0.182	2.61
180	0.865	62.60	0.185	1.30
230	0.894	60.91	0.188	0.80

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3) Volumetric Measure (Sched 40 STD Steel)

Nominal Pipe size in inches	Outside Diameter in inches	Inside Diameter in inches	Gallons of Fluid per 100 ft of pipe
1/4	0.540	0.364	0.54
3/8	0.675	0.493	0.99
1/2	0.840	0.622	1.58
3/4	1.050	0.824	2.77
1	1.315	1.049	4.49
1 1/4	1.660	1.380	7.77
1 1/2	1.900	1.610	10.58
2	2.375	2.067	17.43
2 1/2	2.875	2.469	24.87
3	3.500	3.068	38.40
3 1/2	4.000	3.548	51.36
4	4.500	4.026	66.13
5	5.563	5.047	103.90
6	6.625	6.065	150.10
8	8.625	7.981	259.90

Based on ANSI B36.10-1959