

Aluminum-Safe Inhibited Propylene Glycol Heat Transfer Fluid

Process Applications

- Data center cold plates
- Bitcoin & cryptocurrency
- Solar applications
- Boilers & heat exchangers
- Process cooling & heating
- Ice & snow melting systems
- HVAC/R
- Line heaters
- Plastic extrusion
- Geothermal energy
- Food & beverage
- Laser cooling

■ Dynalene PG-A1 Overview

Dynalene PG-A1 is an OAT-based inhibited non-toxic propylene glycol heat transfer fluid which offers users a stable, safe, and efficient product for applications where freeze protection is needed. Properly used and maintained, Dynalene PG-A1 offers excellent thermophysical properties all while protecting your system from corrosion and degradation.

Dynalene PG-A1's inhibitor package is specifically formulated to protect systems using aluminum materials and alloys even at temperatures > 60°C (140°F). Systems using PG-A1 can operate continuously up to 90°C (194°F) and intermittently up to 100°C (212°F), in contact with aluminum surfaces up to 115°C (239°F).

■ Corrosion Protection

Unlike traditional glycol heat transfer fluids, Dynalene PG-A1 provides long-term corrosion protection against aluminum-specific problems such as gelling, white particulate formation, and rapid pH increase, making it ideal for use with aluminum heat sinks, cold plates, ASICs, pumps, and other components.

PG-A1 utilizes a multi-component corrosion inhibitor package, made from non-toxic raw materials, which offers superior corrosion protection for aluminum and most other metals, including carbon steel, brass, copper, stainless steel, cast iron, and solder by creating a corrosion-preventing passive layer on the surface that contacts the Dynalene PG-A1. The inhibitor also stabilizes the pH of the fluid.

■ Benefits of Choosing Dynalene PG-A1

- Pre-mixed solutions
- Custom blends
- Non-toxic
- Standard color is red. Different dye color may be available if desired.
- Proven performance
- Available worldwide
- Cost-effective
- Total fluid care option
- Can be re-inhibited

■ Dynalene's Fluid Care Program

Coupling our Dynalene fluids with a fluid care program can extend the life of your system significantly. We offer yearly testing of the heat transfer fluid in your system and can track the changes in the fluid year to year so adjustments can be made to keep your system working at its best.

Recommended Temperature Range:

-45°C (-50°F) to 90°C (194°F)

■ Properties of Dynalene PG-A1

A comprehensive list of all thermo-physical properties of Dynalene PG-A1 can be found on pages 2, 3, 4, and 5. For health and safety information or to request a Safety Data Sheet, contact our Dynalene sales representatives.

Composition:	Propylene glycol, inhibitors
Appearance:	Clear, red
Odor:	Little or none

pH:	8.3 – 8.7
Reserve Alkalinity:	> 3 mL
Flash Point:	None
Toxicity:	None
ASTM D4340 (corrosion rate):	< 1 mg/cm ² -week

■ ASTM D1384 / D8040

Metals	Mean Corrosion Rate (mpy)	
	Raw PG 50%	PG-A1 50%
Copper	0.84	0.03
Solder	3.63	0.27
Brass	0.75	0.08
Carbon Steel	23.65	0.01
Grey cast Iron	18.66	-0.08
Cast Aluminum	8.97	0.09

■ Quantity & Availability

Dynalene PG-A1 is offered in 1, 2.5, 5, 30, 55, and 265-gallon containers as well as 5,000-gallon tankers. Pricing depends on quantity, and Dynalene, Inc. will work with you to try to fit your budget.

To ensure the inhibitor package provides the best corrosion protection, Dynalene sells this product as pre-mixed solutions.

General Properties

Vol. %	Wt. %	Freezing Point		Burst Point		Boiling Point	Specific Gravity
Dynalene PG-A1	Dynalene PG-A1	°F	°C	°F	°C	°F	22°C (72°F)
0	0.0	32	0	32	0.0	212	1.000
5	5.2	29	-1.7	27	-2.7	212	1.005
10	10.5	26	-3.3	22	-5.6	212	1.010
15	15.6	23	-5	19	-7.5	212	1.015
20	20.8	19	-7.2	11	-11.8	213	1.020
21	21.8	17	-8.3	9	-12.8	213	1.021
22	22.9	17	-8.3	8	-13.3	213	1.022
23	23.9	16	-8.9	5	-15.0	213	1.023
24	24.9	15	-9.4	3	-16.1	213	1.024
25	25.9	14	-10.1	-1	-18.4	214	1.025
26	27.0	13	-10.6	-4	-20.1	214	1.026
27	28.0	12	-11.1	-7	-21.8	214	1.027
28	29.0	10	-12.2	-10	-23.6	215	1.028
29	30.1	9	-12.8	-14	-25.5	216	1.029
30	31.1	8	-13.3	-18	-27.5	216	1.030
31	32.1	7	-13.9	-21	-29.6	216	1.031
32	33.1	5	-15.0	-24	-31.1	216	1.032
33	34.1	4	-15.6	-30	-34.4	216	1.032
34	35.1	2	-16.7	-38	-38.9	217	1.033
35	36.1	1	-17.2	-46	-43.3	217	1.034
36	37.2	-1	-18.3	-53	-47.2	217	1.035
37	38.2	-3	-19.4	-60	-51.1	218	1.036
38	39.2	-4	-20.0	<-60	<-51.1	218	1.037
39	40.2	-6	-21.1	<-60	<-51.1	219	1.038
40	41.2	-8	-22.2	<-60	<-51.1	219	1.039
41	42.2	-10	-23.3	<-60	<-51.1	219	1.040
42	43.2	-12	-24.4	<-60	<-51.1	219	1.041
43	44.2	-14	-25.5	<-60	<-51.1	219	1.042
44	45.2	-16	-26.7	<-60	<-51.1	220	1.043
45	46.2	-18	-27.8	<-60	<-51.1	220	1.044
46	47.2	-21	-29.4	<-60	<-51.1	220	1.045
47	48.2	-23	-30.6	<-60	<-51.1	221	1.046
48	49.2	-26	-32.2	<-60	<-51.1	221	1.047
49	50.2	-28	-33.3	<-60	<-51.1	222	1.048
50	51.2	-31	-35.0	<-60	<-51.1	222	1.049
51	52.2	-34	-36.7	<-60	<-51.1	222	1.049
52	53.2	-37	-38.3	<-60	<-51.1	223	1.050
53	54.2	-40	-40.0	<-60	<-51.1	223	1.050
54	55.2	-43	-41.7	<-60	<-51.1	223	1.051
55	56.2	-46	-43.3	<-60	<-51.1	223	1.052
56	57.2	-49	-45.0	<-60	<-51.1	224	1.053
57	58.2	-53	-47.2	<-60	<-51.1	224	1.054
58	59.2	-56	-48.9	<-60	<-51.1	224	1.054
59	60.2	<-60	-51.1	<-60	<-51.1	225	1.055
60	61.2	<-60	-51.1	<-60	<-51.1	225	1.055
65	66.1	<-60	-51.1	<-60	<-51.1	227	1.057
70	71.0	<-60	-51.1	<-60	<-51.1	230	1.057
75	75.9	<-60	-51.1	<-60	<-51.1	238	1.058
80	80.8	<-60	-51.1	<-60	<-51.1	246	1.059

Viscosity

1 cP= 0.001 Pa·s

Dynalene PG-A1, Viscosity, cP									
Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30									498
-20									299
-10							96.0	140	183
0					40.9	51.1	61.3	88.2	115
10			13.4	20.2	27.0	33.8	40.6	57.4	74.2
20	5.36	7.63	9.89	14.2	18.5	23.2	27.8	38.6	49.3
30	4.23	5.85	7.46	10.3	13.1	16.4	19.7	26.7	33.7
40	3.41	4.58	5.75	7.68	9.60	12.0	14.3	19.0	23.7
50	2.79	3.66	4.52	5.87	7.21	8.96	10.7	13.9	17.1
60	2.32	2.97	3.62	4.59	5.56	6.85	8.13	10.4	12.6
70	1.95	2.45	2.94	3.66	4.38	5.36	6.34	7.93	9.51
80	1.66	2.05	2.43	2.98	3.52	4.28	5.04	6.19	7.34
90	1.43	1.74	2.04	2.46	2.88	3.48	4.08	4.93	5.77
100	1.25	1.49	1.73	2.07	2.4	2.88	3.35	3.99	4.62
120	0.97	1.14	1.30	1.52	1.73	2.05	2.36	2.74	3.11
140	0.78	0.90	1.01	1.16	1.31	1.53	1.75	1.99	2.22
160	0.64	0.73	0.82	0.93	1.04	1.20	1.35	1.51	1.66
180	0.54	0.61	0.68	0.77	0.85	0.97	1.08	1.19	1.29
200	0.46	0.52	0.58	0.65	0.71	0.80	0.88	0.96	1.04
220	0.40	0.45	0.50	0.56	0.61	0.68	0.74	0.80	0.86
240	0.36	0.40	0.44	0.49	0.53	0.59	0.64	0.69	0.73

Thermal Conductivity

1 Btu/hr·ft·°F = 1.73 W/mK

Dynalene PG-A1, Thermal Conductivity, Btu/hr·ft·°F									
Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30									0.171
-20							0.188	0.181	0.174
-10							0.191	0.184	0.176
0					0.211	0.203	0.194	0.186	0.178
10			0.235	0.225	0.215	0.206	0.196	0.188	0.179
20	0.262	0.251	0.239	0.229	0.218	0.209	0.199	0.190	0.181
30	0.267	0.255	0.243	0.233	0.222	0.212	0.201	0.192	0.183
40	0.272	0.260	0.247	0.236	0.225	0.215	0.204	0.194	0.184
50	0.277	0.264	0.251	0.239	0.227	0.217	0.206	0.196	0.186
60	0.281	0.268	0.254	0.242	0.230	0.219	0.208	0.198	0.187
70	0.285	0.272	0.258	0.246	0.233	0.222	0.210	0.199	0.188
80	0.289	0.275	0.261	0.248	0.235	0.223	0.211	0.200	0.189
90	0.292	0.278	0.263	0.250	0.237	0.225	0.213	0.202	0.190
100	0.295	0.281	0.266	0.253	0.239	0.227	0.214	0.203	0.191
120	0.298	0.283	0.268	0.255	0.241	0.228	0.215	0.204	0.192
140	0.306	0.290	0.274	0.260	0.245	0.232	0.218	0.206	0.194
160	0.309	0.293	0.277	0.262	0.247	0.234	0.220	0.207	0.194
180	0.312	0.296	0.279	0.264	0.249	0.235	0.221	0.208	0.195
200	0.314	0.297	0.280	0.265	0.249	0.235	0.221	0.208	0.194
220	0.314	0.297	0.280	0.265	0.249	0.235	0.220	0.207	0.194

1 Btu/lb_m·°F = 4,186 J/kg°C

Specific Heat

Dynalene PG-A1, Specific Heat, Btu/lb·°F									
Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30									
-20									0.799
-10									0.804
0							0.855	0.832	0.809
10					0.898	0.879	0.859	0.837	0.814
20			0.936	0.919	0.902	0.883	0.864	0.842	0.82
30	0.966	0.952	0.938	0.922	0.906	0.887	0.868	0.847	0.825
40	0.968	0.955	0.941	0.925	0.909	0.891	0.872	0.851	0.830
50	0.970	0.957	0.944	0.929	0.913	0.895	0.877	0.856	0.835
60	0.972	0.960	0.947	0.932	0.917	0.899	0.881	0.861	0.840
70	0.974	0.962	0.950	0.935	0.920	0.903	0.886	0.866	0.845
80	0.976	0.965	0.953	0.939	0.924	0.907	0.890	0.870	0.850
90	0.979	0.968	0.956	0.942	0.928	0.911	0.894	0.875	0.855
100	0.981	0.970	0.959	0.945	0.931	0.915	0.899	0.880	0.861
120	0.985	0.975	0.965	0.952	0.939	0.924	0.908	0.890	0.871
140	0.989	0.980	0.970	0.958	0.946	0.931	0.916	0.899	0.881
160	0.993	0.985	0.976	0.965	0.953	0.939	0.925	0.908	0.891
180	0.996	0.989	0.982	0.972	0.961	0.948	0.934	0.918	0.902
200	1.000	0.994	0.988	0.978	0.968	0.956	0.943	0.928	0.912
220	1.003	0.999	0.994	0.985	0.975	0.963	0.951	0.937	0.922
240	1.007	1.003	0.999	0.991	0.982	0.971	0.960	0.946	0.932

1 lb_m/ft³ = 16 kg/m³

Density

Dynalene PG-A1, Density, lb/ft ³									
Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30									67.05
-20							66.46	66.70	66.93
-10							66.35	66.58	66.81
0					65.71	65.97	66.23	66.46	66.68
10			65.00	65.30	65.60	65.86	66.11	66.33	66.54
20	64.23	64.57	64.90	65.19	65.48	65.73	65.97	66.18	66.38
30	64.14	64.47	64.79	65.07	65.35	65.59	65.82	66.02	66.22
40	64.03	64.35	64.67	64.94	65.21	65.44	65.67	65.86	66.05
50	63.92	64.23	64.53	64.80	65.06	65.28	65.50	65.69	65.87
60	63.79	64.09	64.39	64.65	64.90	65.12	65.33	65.51	65.68
70	63.66	63.95	64.24	64.49	64.73	64.94	65.14	65.31	65.47
80	63.52	63.80	64.08	64.32	64.55	64.75	64.95	65.11	65.26
90	63.37	63.64	63.91	64.14	64.36	64.55	64.74	64.89	65.04
100	63.20	63.47	63.73	63.95	64.16	64.35	64.53	64.67	64.81
120	62.85	63.09	63.33	63.54	63.74	63.90	64.06	64.19	64.32
140	62.46	62.68	62.90	63.09	63.27	63.42	63.57	63.68	63.79
160	62.03	62.23	62.43	62.60	62.76	62.90	63.03	63.13	63.22
180	61.56	61.74	61.92	62.07	62.22	62.34	62.45	62.53	62.61
200	61.05	61.21	61.37	61.50	61.63	61.73	61.83	61.90	61.97
220	60.50	60.64	60.78	60.89	61.00	61.09	61.17	61.23	61.28
240	59.91	60.03	60.15	60.25	60.34	60.41	60.47	60.51	60.55

1 psi = 6,895 Pa = 0.069 bar = 0.0681 atm = 51.7 mmHg = 21.7 inH₂O

Vapor Pressure

Dynalene PG-A1, Vapor Pressure, psia									
Temp, °F	Volume								
20%	25%	30%	35%	40%	45%	50%	55%	60%	
100	0.9	0.9	0.9	0.9	0.9				
110	1.9	1.6	1.2	1.2	1.2	1.2	1.1	1.1	1.0
120	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.4
130	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8
140	2.8	2.8	2.7	2.7	2.6	2.6	2.5	2.4	2.3
150	3.6	3.6	3.5	3.5	3.4	3.4	3.2	3.0	3.0
160	4.6	4.5	4.4	4.4	4.3	4.2	4.1	4.0	3.8
170	5.8	5.8	5.6	5.4	5.4	5.3	5.2	5.0	4.8
180	7.2	7.1	7.0	6.9	6.7	6.6	6.5	6.2	5.9
190	9.0	8.9	8.7	8.5	8.3	8.2	8.1	7.8	7.4
200	11.0	10.9	10.7	10.5	10.2	10.1	9.9	9.5	9.1
210	13.5	13.5	13.1	12.8	12.5	12.3	12.1	11.6	11.1
220	16.4	16.4	15.9	15.6	15.2	15.0	14.8	14.2	13.6
230	19.8	19.5	19.2	18.8	18.4	17.8	17.8	17.1	16.4
240	23.8	23.4	23.0	22.5	22.0	21.7	21.4	20.6	19.7
250	28.4	27.9	27.4	26.9	26.3	26.0	25.6	24.6	23.5

Product Disclaimer

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