Dynalene PG-A1

DYNALENE
Tomorrow's Solutions Flow Through Us

Inhibited Propylene Glycol Heat Transfer Fluid For Aluminum

Process Applications

- HVAC/R
- Food & beverage
- Solar applications
- Data centers
- Process cooling & heating
- Ice & snow melting systems
- Energy applications
- Line heaters
- Plastic extrusion
- Geothermal energy
- Winterization
- Cooling towers

Dynalene PG-A1 Overview

Dynalene PG-A1 is an 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 that use aluminum materials and alloys even at temperatures > 60°C.

Corrosion Protection

Dynalene PG-A1 utilizes a unique corrosion inhibitor package, which is made from non-toxic raw materials. This inhibitor offers superior corrosion protection for most metals, including aluminum, carbon steel, brass, copper, stainless steel, and cast iron, 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.

To ensure the inhibitor package provides the best corrosion protection, Dynalene sells this product as pre-mixed solutions. Please contact Dynalene if you are interested on-site dilution of Dynalene PG-A1.

Benefits of Choosing Dynalene PG-A1

- Pre-mixed solutions
- Custom blends
- Non-toxic
- Can be re-inhibited
- Proven performance
- Available worldwide
- Cost-effective
- Total fluid care option

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.

Property	Range
pH	8.0-8.7
Specific Gravity	1.035-1.065
Freezing Point (°C)	-33
Reserve Alkalinity (ml)	> 3.0
Refractive Index	1.390-1.396
Concentration (%)	55

ASTM 1384 (2 Weeks)

Metals	Mean Corrosion Rate (µpy)	
Alloy	PG-A1 (40%)	Raw PG 40%
Copper	0.03	0.84
Solder	0.27	3.63
Brass	0.08	1.03
Carbon Steel	0.01	23.65
Cast Iron	-0.08	18.66
Cast Aluminum	0.09	8.97
pH (initial)	8.55	8.50
pH (final)	9.16	7.38

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.

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General Properties

Vol. % Dynalene PG-A1	Wt .% Dynalene PG-A1	Freeze Point ºF	Freeze Point ºC	Boiling Point ºF	*Reserve Alkalinity (mL)	Specific Gravity 22ºC (72ºF)
0	0.0	32	0	212	0	1.000
5	5.2	29	-1.7	212	≥ 0.5	1.005
10	10.5	26	-3.3	212	≥ 1.0	1.010
15	15.6	23	-5	212	≥ 1.5	1.015
20	20.8	19	-7.2	213	≥ 2.0	1.020
21	21.8	17	-8.3	213	≥ 2.1	1.021
22	22.9	17	-8.3	213	≥ 2.2	1.022
23	23.9	16	-8.9	213	≥ 2.3	1.023
24	24.9	15	-9.4	213	≥ 2.4	1.024
25	25.9	14	-10.1	214	≥ 2.5	1.025
26	27.0	13	-10.6	214	≥ 2.6	1.026
27	28.0	12	-11.1	214	≥ 2.7	1.027
28	29.0	10	-12.2	215	≥ 2.8	1.028
29	30.1	9	-12.8	216	≥ 2.9	1.029
30	31.1	8	-13.3	216	≥ 3.0	1.030
31	32.1	7	-13.9	216	≥ 3.1	1.031
32	33.1	5	-15.0	216	≥ 3.2	1.032
33	34.1	4	-15.6	216	≥ 3.3	1.032
34	35.1	2	-16.7	217	≥ 3.4	1.033
35	36.1	1	-17.2	217	≥ 3.5	1.034
36	37.2	-1	-18.3	217	≥ 3.6	1.035
37	38.2	-3	-19.4	218	≥ 3.7	1.036
38	39.2	-4	-20.0	218	≥ 3.8	1.037
39	40.2	-6	-21.1	219	≥ 3.9	1.038
40	41.2	-8	-22.2	219	≥ 4.0	1.039
41	42.2	-10	-23.3	219	≥ 4.1	1.040
42	43.2	-12	-24.4	219	≥ 4.2	1.041
43	44.2	-14	-25.5	219	≥ 4.3	1.042
44	45.2	-16	-26.7	220	≥ 4.4	1.043
45	46.2	-18	-27.8	220	≥ 4.5	1.044
46	47.2	-21	-29.4	220	≥ 4.6	1.045
47	48.2	-23	-30.6	221	≥ 4.7	1.046
48	49.2	-26	-32.2	221	≥ 4.8	1.047
49	50.2	-28	-33.3	222	≥ 4.9	1.048
50	51.2	-31	-35.0	222	≥ 5.0	1.049
51	52.2	-34	-36.7	222	≥ 5.1	1.049
52	53.2	-37	-38.3	223	≥ 5.2	1.050
53	54.2	-40	-40.0	223	≥ 5.3	1.050
54	55.2	-43	-41.7	223	≥ 5.4	1.051
55	56.2	-46	-43.3	223	≥ 5.5	1.052
56	57.2	-49	-45.0	224	≥ 5.6	1.053
57	58.2	-53	-47.2	224	≥ 5.7	1.054
58	59.2	-56	-48.9	224	≥ 5.8	1.054
59	60.2	<-60	-51.1	225	≥ 5.9	1.055
60	61.2	<-60	-51.1	225	≥ 6.0	1.055
65	66.1	<-60	-51.1	227	≥ 6.5	1.057
70	71.0	<-60	-51.1	230	≥ 7.0	1.057
75	75.9	<-60	-51.1	238	≥ 7.5	1.058
80	80.8	<-60	-51.1	246	≥ 8.0	1.059

Viscosity

1 cP= 0.001 Pa·s

Dynalene PG-A1, Viscosity, cP									
	Volume								
Temp,˚F	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									
	Volume								
Temp, °F	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

Specific Heat

1 Btu/lb$_m$·°F = 4,186 J/kg°C

Dynalene PG-A1, Specific Heat, Btu/lb·°F									
	Volume								
Temp, °F	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

Density

1 lb$_m$/ft^3= 16 kg/m^3

Dynalene PG-A1, Density, lb/ft^3									
	Volume								
Temp, °F	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

Vapor Pressure

1 psi = 6,895 Pa = 0.069 bar = 0.0681 atm = 51.7 mmHg = 21.7 inH_2O

Dynalene PG-A1, Vapor Pressure, psia									
	Volume								
Temp, °F	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

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