

BioGlycol Heat Transfer Fluids

Process Applications

- HVAC/R
- Food & beverage
- Solar Applications
- Thermal Storage
- Process cooling & heating
- Ice & snow melting systems
- Refrigeration systems
- Line heaters
- Plastic extrusion
- Geothermal energy
- Winterization
- Cooling towers

Dynalene BioGlycol Series Overview

Dynalene BioGlycol products are comprised of inhibited and uninhibited BioGlycol (1,3-propanediol) solutions. We offer both inhibited and uninhibited products made from technical grade BioGlycol, as well as uninhibited food grade BioGlycol with purity greater than 99.9%. It is a domestically produced, non-toxic, renewably sourced fluid and provides 30% lower viscosity at low temperatures than traditional petroleum-derived propylene glycol. Dynalene BioGlycol offers greater thermal stability while possessing similar or better thermophysical properties than both ethylene and propylene glycols. It offers better performance than propylene glycol while giving its users an environmentally safer product than ethylene glycol. We only use high quality virgin glycol in our products, never recycled. All raw materials are tested and approved by our quality control department prior to use.

Properly used and maintained, Dynalene BioGlycols provide excellent thermophysical properties while protecting your system from corrosion and degradation. Each individual BioGlycol-based product has its own advantages, and custom blends can be readily made to meet your system's requirements.

Product	Description	Temperature Range
Dynalene BioGlycol	Inhibited BioGlycol	-50°F to 350°F / -46°C to 177°C
Dynalene Raw BioGlycol	Uninhibited BioGlycol	-50°F to 350°F / -46°C to 177°C
Dynalene Raw BioGlycol FG	Uninhibited food grade BioGlycol	-50°F to 350°F / -46°C to 177°C

■ Corrosion Protection

Dynalene's inhibited BioGlycol products utilize a unique corrosion inhibitor package made from non-toxic raw materials. These inhibitors offer superior corrosion protection for most metals including carbon steel, brass, copper, stainless steel, cast iron, and many other alloys by creating a passive layer on the surface that contacts the Dynalene BioGlycol and prevents corrosion from forming. It also stabilizes the pH of the fluid, keeping it in the range that is suitable for the metals in your system.

■ Quantity & Availability

Dynalene BioGlycol products are 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.

■ Dynalene's Fluid Care Program

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

Freezing points of BioGlycol solutions:

Vol% BioGlycol	Freezing Point
5	-2°C (29°F)
15	-4°C (25°F)
25	-9°C (16°F)
35	-15°C (5°F)
50	-27°C (-17°F)
65	-46°C (-50°F)
75	-49°C (-57°F)
85	-53°C (-64°F)

Dynalene recommends using deionized water when blending glycol-water mixtures:

Water Ion	Dynalene Spec
Chloride	< 25 ppm
Sulfate	< 25 ppm
Other	< 50 ppm

General Properties

	Dynalene BioGlycol	Dynalene Raw BioGlycol	Dynalene Solar Glycol-XT
pH (50% BioGlycol)	8.5 – 9.5	8.5 – 9.5	9.5 – 10.5
Reserve Alkalinity (50% BioGlycol)	>10.5 mL	0 mL	>25.0 mL
Operating Range (50% BioGlycol)	-50 to 350°F	-50 to 350°F	-50 to 350°F
Flash Point (50% BioGlycol)	None	None	None
Color	Clear	Clear	Clear
Odor	Little or none	Little or none	Little or none

Viscosity (cP)

1 cP= 0.001 Pa·s

Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-20									146
-10							45.6	86.8	128
0					24.3	28.2	32.1	43.6	55.1
10			10.9	14.7	18.4	21.3	24.2	30.7	37.1
20	5.10	6.80	8.60	11.4	14.1	16.5	18.8	23.3	27.8
30	4.12	5.47	6.81	8.81	10.8	12.7	14.6	18.1	21.6
40	3.38	4.40	5.42	6.91	8.39	9.95	11.5	14.2	16.9
50	2.81	3.59	4.37	5.46	6.55	7.81	9.07	11.2	13.3
60	2.35	2.96	3.56	4.37	5.18	6.20	7.22	8.86	10.5
70	1.99	2.46	2.93	3.54	4.15	4.98	5.80	7.10	8.40
80	1.70	2.07	2.44	2.91	3.38	4.05	4.72	5.73	6.73
90	1.47	1.77	2.06	2.43	2.79	3.34	3.89	4.67	5.44
100	1.28	1.52	1.76	2.05	2.34	2.80	3.25	3.86	4.46
120	1.00	1.17	1.33	1.53	1.72	2.04	2.36	2.74	3.12
140	0.80	0.92	1.04	1.19	1.34	1.58	1.81	2.06	2.31
160	0.67	0.76	0.85	0.97	1.09	1.27	1.45	1.63	1.81
180	0.57	0.64	0.71	0.82	0.93	1.07	1.21	1.36	1.50
200	0.49	0.56	0.62	0.73	0.83	0.95	1.06	1.19	1.32
220	0.44	0.50	0.55	0.66	0.77	0.87	0.96	1.09	1.22
240	0.40	0.45	0.50	0.62	0.73	0.81	0.89	1.04	1.19

1 Btu/hr-ft.°F = 1.73 W/mK

Thermal Conductivity (Btu/hr-ft.°F)

Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-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 (Btu/lb.°F)

Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-20									0.740
-10							0.790	0.770	0.750
0					0.840	0.820	0.800	0.775	0.750
10			0.890	0.870	0.850	0.830	0.810	0.785	0.760
20	0.950	0.925	0.900	0.880	0.860	0.835	0.810	0.790	0.770
30	0.960	0.935	0.910	0.890	0.870	0.845	0.820	0.800	0.780
40	0.960	0.940	0.920	0.895	0.870	0.850	0.830	0.805	0.780
50	0.970	0.950	0.930	0.905	0.880	0.860	0.840	0.815	0.790
60	0.980	0.955	0.930	0.910	0.890	0.865	0.840	0.820	0.800
70	0.990	0.965	0.940	0.920	0.900	0.875	0.850	0.830	0.810
80	0.990	0.970	0.950	0.925	0.900	0.880	0.860	0.835	0.810
90	1.000	0.980	0.960	0.935	0.910	0.890	0.870	0.845	0.820
100	1.010	0.985	0.960	0.940	0.920	0.895	0.870	0.850	0.830
120	1.020	1.000	0.980	0.960	0.940	0.915	0.890	0.870	0.850
140	1.040	1.020	1.000	0.975	0.950	0.930	0.910	0.885	0.860
160	1.060	1.035	1.010	0.990	0.970	0.945	0.920	0.900	0.880
180	1.070	1.050	1.030	1.005	0.980	0.960	0.940	0.915	0.890
200	1.090	1.065	1.040	1.020	1.000	0.975	0.950	0.930	0.910
220	1.100	1.080	1.060	1.035	1.010	0.990	0.970	0.945	0.920

Density (lb/ft³)

1 lb_m/ft³ = 16 kg/m³

Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
-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 (psia)

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

Temp, °F	Volume								
	20%	25%	30%	35%	40%	45%	50%	55%	60%
220	17.0	16.4	15.7	15.1	14.5	13.8	13.1	12.4	11.7
230	19.0	18.4	17.7	17.1	16.5	15.7	14.9	14.1	13.3
240	21.8	21.2	20.6	20.0	19.3	18.4	17.5	16.6	15.7
250	25.5	24.9	24.2	23.6	23.0	21.9	20.9	19.8	18.8
260	30.1	29.4	28.7	28.0	27.4	26.2	25.0	23.8	22.6
270	35.5	34.8	34.0	33.3	32.6	31.2	29.8	28.4	27.0
280	41.8	41.0	40.2	39.4	38.5	37.0	35.4	33.8	32.2
290	49.0	48.1	47.2	46.2	45.3	43.5	41.7	39.9	38.1
300	57.0	56.0	55.0	53.9	52.9	50.8	48.8	46.7	44.7
310	66.0	64.8	63.6	62.4	61.2	58.9	56.6	54.2	51.9
320	75.8	74.4	73.1	71.7	70.4	67.7	65.1	62.5	59.9
330	86.4	84.9	83.4	81.8	80.3	77.4	74.4	71.5	68.6
340	98.0	96.2	94.5	92.7	91.0	87.7	84.5	81.2	77.9
350	110.4	108.4	106.4	104.5	102.5	98.9	95.3	91.6	88.0

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Contact Information

Corporate Headquarters

Dynalene, Inc.
5250 West Coplay Road
Whitehall, Pennsylvania 18052
Phone: 610-262-9686 / 1-877-244-5525
Fax: 610-262-7437
Email: info@dynalene.com
Website: www.dynalene.com

Midwest Location

248 Beinoris Dr
Wood Dale, IL 60191
Phone: 1-855-216-7639
Email: centralsales@dynalene.com

West Location

1701 S 5350 W
Salt Lake City, UT 84104
Phone: 1-877-244-5525
Email: westsales@dynalene.com