

Low electrical conductivity, inhibited, corn-derived BioGlycol/water-based coolant

Process Applications

- Coolant for PEM fuel cells
- Computer cooling
- Optical devices
- Electronics cooling
- Process cooling & heating
- Medical devices
- Portable fuel cell systems
- Battery cooling
- Charging stations

Dynalene LC-Bio Overview

Dynalene LC-Bio (corn-derived BioGlycol-based) is specially designed for cooling PEM fuel cells, electronics, computers, and other applications requiring low electrical conductivity coolants. It provides efficient heat transfer that prevents your system from overheating while simultaneously acting as an electrical insulator. LC products use a non-ionic corrosion inhibitor package that prevents corrosion and contaminants from degrading your system after years of use.

Dynalene LC-Bio is a customizable coolant that can be formulated using any concentration of BioGlycol that your system requires. Our LC-Bio blends are non-flammable and non-toxic.

Corrosion Protection & Ion Suppression

Dynalene LC-Bio utilizes a non-ionic corrosion inhibitor package that offers superior corrosion protection for most metals, including aluminum, brass, copper, stainless steel, and many other alloys. The inhibitors create a passive layer on metal surfaces in contact with the fluid, preventing corrosion and ion-leaching, which can cause an increase in electrical conductivity.

Benefits of Choosing Dynalene LC-Bio

- Maintains low electrical conductivity
- Uses non-ionic corrosion inhibitor package
- Can be used with active deionizing systems
- Safe and renewable
- Enhances fuel cell performance
- Available worldwide
- Proven performance
- Total fluid care option
- Non-flammable
- Cost-effective

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 systems working at its best.

Recommended Temperature Range:

For closed systems:

-50°C (-58°F) to 93°C (200°F)

Properties of Dynalene LC-Bio

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

Composition:	BioGlycol, water, non-ionic inhibitors
Appearance:	Clear
Odor:	None
pH:	Not applicable for low-conductivity fluid
Electrical conductivity:	< 5µS
Flash Point:	None*
Autoignition Temp:	None*

* for ≤ 85% concentration

Dynalene's Deionizing Cartridges

Dynalene recommends using a de-ionizing cartridge with our LC products. Corrosion inhibitors prevent significant corrosion but cannot guarantee 100% prevention. In a low-conductivity environment, even a small amount of corrosion can generate enough ions to raise the conductivity to unacceptable levels. A de-ionizing cartridge removes these ions to maintain the desired electrical conductivity. Contact Dynalene for information about the de-ionizing cartridges we offer.

Quantity & Availability

Dynalene LC products are offered in 1, 2.5, 5, 30, 55, and 265-gallon containers. Pricing depends on quantity, and Dynalene, Inc. will work with you to try to fit your budget.

Viscosity (cP)

1 cP= 0.001 Pa·s

Temp, °F	Glycol percent by 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

Density (lb/ft³)

1 lb_m/ft³= 16 kg/m³

Temp, °F	Glycol percent by 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

1 Btu/hr-ft.°F = 1.73 W/mK

Thermal Conductivity (Btu/hr-ft.°F)

Temp, °F	Glycol percent by 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	Glycol percent by 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

Vapor Pressure (psia)

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

Temp, °F	Glycol percent by 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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Published June 2020