

PureCool™ LEC-PG Low Conductivity Heat Transfer Fluid

Automotive • Battery • Computer • Electronics • Gaming Machine • Medical Devices • Optical Devices •
PEM Fuel Cells • Portable Fuel Cell Systems • Process Cooling & Heating
Customize To Suit Your Applications

Overview

PureCool™ LEC-PG is customizable from high quality virgin propylene glycol and is non-toxic propylene glycol based coolant designed for applications that required low electrical conductivity such as, PEM fuel cells, electronics, computers and others that required low electrical conductivity coolants. PureCool LEC-PG is also efficient in heat transfer that prevents your system from overheating and simultaneously acting as an electrical insulator. It also has an ion suppression mechanism and proprietary non-ionic inhibitor that prevents corrosion and contaminants from degrading your system after years of usage.

The proprietary non-ionic inhibitor offers superior corrosion protection for most metals including aluminum, brass, copper, stainless steel and many other alloys by creating a layer on the surface that contact the PureCool™ propylene glycol and prevent the corrosion from forming, also stabilizes the pH of the fluid, keeping it in the range that is suitable for metal in your system.

Benefits of Choosing LEC-PG

Maintains low electrical conductivity • Uses proprietary non-ionic corrosion inhibitor formulation with years of research • Can be used with deionized systems • Non-toxic • Proven performance • Available through your local distributors • Total fluid care • Non-flammable • Cost effective • Enhance fuel cells performance.

PureCool™ Fluid Care Program

Our fluid care program can extend the life of your systems significantly. We offer yearly testing of the heat transfer fluid in your system and track the changes in the fluid year to year and make adjustments when required to keep your systems working at its best.

Properties

Formulation: Propylene Glycol, Water, Proprietary non-ionic inhibitors. **DO NOT ADD WATER OR COLOUR TO OUR FORMULATION!**

Appearance: Clear

Odour: None

pH: 6.0 – 8.0

Freezing point: Up to < -50°C

Boiling point: 100°C

Flashpoint (<85% concentration): None

Auto ignition (<85% concentration): None

Continuous operating temperature: -46°C to +121°



ASTM D 1384 Corrosion Test (Micron Per Year)

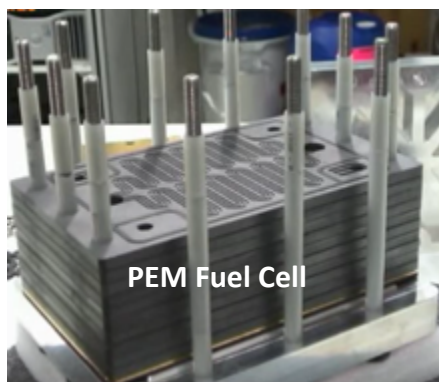
Metal	DI Water	Raw PG (50% volume)	LEC-PG (50% volume)
Aluminium	335.28	330.20	+9.91
Brass	5.59	5.08	2.79
Carbon Steel	246.13	444.50	0.254
Copper	2.03	3.81	3.81
Greycast Iron	535.94	713.74	+0.254
Solder	78.74	57.04	2.03

Water Ion Specifications in LEC-PG Blends

Chloride	< 25 ppm
Sulfate	< 25 ppm
Others	< 50 ppm

Recommended Temperature Range For Closed System is - 50°C to + 121°C

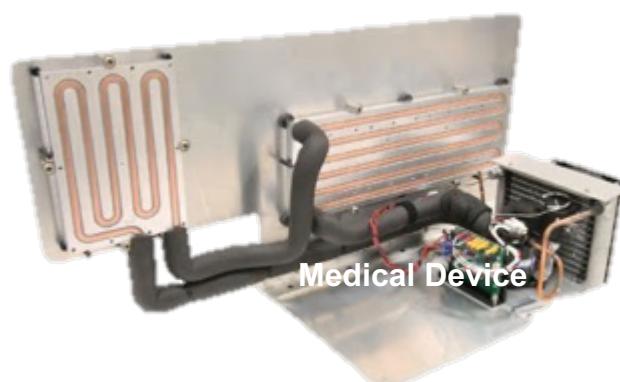
Is Your System Running With Our Health And Environmental Safe LEC-PG?



PEM Fuel Cell



Plug & Play
Device



Medical Device

Propylene Glycol 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

General Properties of Inhibited Propylene Glycol

Grades	PG / PG-FG	PG-XT	PG-V1	Raw PG
pH	8.0 – 9.5	8.5 – 10.5	9.0 – 11.5	6.0 – 8.0
Reserve Alkalinity	> 10.5 mL	> 16.0 mL	> 10.5 mL	0 mL
Operating Range	-46°C to 121°C	-46°C to 177°C	-46°C to 90°C	Contact us
Flash Point (85% Concentrates)	None	None	None	None
Colour	Clear	Clear	Clear	Clear
Odour	Little or none	Little or none	Little or none	Little or none

Freeze and Burst Points of PureCool™ LEC-PG Coolants

LEC-PG Properties		Freeze Point		Burst Point		Boiling point	Refractive Index	Specific Gravity
Vol. %	Wt.%	°F	°C	°F	°C	°C	22°C	22°C
0	0	32	0	32	0	100	1.3328	1.000
5	5.2	29	-1.7	27	-2.7	100	1.3385	1.005
10	10.5	26	-3.3	22	-5.6	100	1.3439	1.010
15	15.6	23	-5	19	-7.5	100	1.3501	1.015
20	20.8	19	-7.2	11	-11.8	100.6	1.3665	1.020
25	25.9	14	-10.1	-1	-18.4	101.1	1.3626	1.025
26	27	13	-10.6	-4	-20.1	101.1	1.3629	1.026
27	28	12	-11.1	-7	-21.8	101.1	1.3651	1.027
28	29	10	-12.2	-10	-23.6	101.7	1.3663	1.028
29	30.1	9	-12.8	-14	-25.5	102.2	1.3676	1.029
30	31.1	8	-13.3	-18	-27.5	102.2	1.3689	1.030
31	32.1	7	-13.9	-21	-29.6	102.2	1.3699	1.031
32	33.1	5	-15.0	-24	-31.1	102.2	1.3711	1.032
33	34.1	4	-15.6	-30	-34.4	102.2	1.3722	1.032
34	35.1	2	-16.7	-38	-39.8	102.8	1.3734	1.033
35	36.1	1	-17.2	-46	-43.3	102.8	1.3745	1.034
36	37.2	-1	-18.3	-53	-47.2	102.8	1.3759	1.035
37	38.2	-3	-19.4	-60	-51.1	103.3	1.3769	1.036
38	39.2	-4	-20.0	-60	-51.1	103.3	1.3781	1.037
39	40.2	-6	-21.1	-60	-51.1	103.9	1.3792	1.038
40	41.2	-8	-22.2	-60	-51.1	103.9	1.3804	1.039
41	42.2	-10	-23.3	-60	-51.1	103.9	1.3815	1.040
42	43.2	-12	-24.4	-60	-51.1	103.9	1.3827	1.041
43	44.2	-14	-25.5	-60	-51.1	103.9	1.3838	1.042
44	45.2	-16	-26.7	-60	-51.1	104.4	1.3849	1.043
45	46.2	-18	-27.8	-60	-51.1	104.4	1.3860	1.044
46	47.2	-21	-29.4	-60	-51.1	104.4	1.3872	1.045
47	48.2	-23	-30.6	-60	-51.1	105.0	1.3883	1.046
48	49.2	-26	-32.2	-60	-51.1	105.0	1.3894	1.047
49	50.2	-28	-33.3	-60	-51.1	105.6	1.3905	1.048
50	51.2	-31	-35.0	-60	-51.1	105.6	1.3916	1.049
55	56.2	-46	-43.3	-60	-51.1	106.1	1.3968	1.052
60	61.2	<-60	-51.1	-60	-51.1	107.2	1.4020	1.055
65	66.1	<-60	-51.1	-60	-51.1	108.3	1.4067	1.057
70	71.0	<-60	-51.1	-60	-51.1	110.0	1.4113	1.057
80	80.8	<-60	-51.1	-60	-51.1	118.9	1.4201	1.059
90	90.4	<-60	-51.1			132.2	1.4248	1.056
95	95.2	<-60	-51.1			154.4	1.4315	1.052

Viscosity (cP) of PureCool™ LEC-PG Coolants										
Temperature		Volume								
°F	°C	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30	-34.4									498.0
-20	-28.9									299.0
-10	-23.3							96.0	140.0	183.0
0	-17.8					40.9	51.1	61.3	88.2	115.0
10	-12.2			13.4	20.2	27.0	33.8	40.6	57.4	74.2
20	-6.7	5.36	7.63	9.89	14.2	18.5	23.2	27.8	38.6	49.3
30	-1.1	4.23	5.85	7.46	10.3	13.1	16.4	19.7	26.7	33.7
40	4.4	3.41	4.58	5.75	7.68	9.60	12.0	14.3	19.0	23.7
50	10.0	2.79	3.66	4.52	5.87	7.21	8.96	10.7	13.9	17.1
60	15.5	2.32	2.97	3.62	4.59	5.56	6.85	8.13	10.4	12.6
70	21.1	1.95	2.45	2.94	3.66	4.38	5.36	6.34	7.93	9.51
80	26.7	1.66	2.05	2.43	2.98	3.52	4.28	5.04	6.19	7.34
90	32.2	1.43	1.74	2.04	2.46	2.88	3.48	4.08	4.93	5.77
100	37.8	1.25	1.49	1.73	2.07	2.40	2.88	3.35	3.99	4.62
120	48.9	0.97	1.14	1.30	1.52	1.73	2.05	2.36	2.74	3.11
140	60.0	0.78	0.90	1.01	1.16	1.31	1.53	1.75	1.99	2.22
160	71.1	0.64	0.73	0.82	0.93	1.04	1.20	1.35	1.51	1.66
180	82.2	0.54	0.61	0.68	0.77	0.85	0.97	1.08	1.19	1.29
200	93.3	0.46	0.52	0.58	0.65	0.71	0.80	0.88	0.96	1.04
220	104.4	0.40	0.45	0.50	0.56	0.61	0.68	0.74	0.80	0.86
240	115.6	0.36	0.40	0.44	0.49	0.53	0.59	0.64	0.69	0.73

Thermal Conductivity W/m-K										
Temperature		Volume								
°F	°C	20%	25%	30%	35%	40%	45%	50%	55%	60%
-30	-34									0.296
-20	-29							0.325	0.313	0.301
-10	-23							0.330	0.318	0.304
0	-18					0.365	0.351	0.336	0.322	0.308
10	-12			0.407	0.389	0.372	0.356	0.339	0.325	0.310
20	-7	0.453	0.434	0.413	0.396	0.377	0.362	0.344	0.329	0.313
30	-1	0.462	0.441	0.420	0.403	0.384	0.367	0.348	0.332	0.317
40	4	0.471	0.450	0.427	0.408	0.389	0.372	0.353	0.336	0.318
50	10	0.479	0.457	0.434	0.413	0.393	0.375	0.356	0.339	0.322
60	16	0.486	0.464	0.439	0.419	0.398	0.379	0.360	0.343	0.324
70	21	0.493	0.471	0.446	0.426	0.403	0.384	0.363	0.344	0.325
80	27	0.500	0.476	0.452	0.429	0.407	0.386	0.365	0.346	0.327
90	32	0.505	0.481	0.454	0.433	0.410	0.389	0.368	0.349	0.329
100	38	0.510	0.486	0.460	0.438	0.413	0.393	0.370	0.351	0.330
120	49	0.516	0.490	0.464	0.441	0.417	0.394	0.372	0.353	0.332
140	60	0.529	0.502	0.474	0.450	0.424	0.401	0.377	0.356	0.336
160	71	0.535	0.507	0.479	0.453	0.427	0.405	0.381	0.358	0.336
180	82	0.540	0.512	0.483	0.457	0.431	0.407	0.382	0.360	0.337
200	93	0.543	0.514	0.484	0.458	0.431	0.407	0.382	0.360	0.336
220	104	0.543	0.514	0.484	0.458	0.431	0.407	0.381	0.358	0.336

Temperature °F °C		Specific Heat J/Kg°C								
		Volume								
		20%	25%	30%	35%	40%	45%	50%	55%	60%
-30	-34									3.098
-20	-29							3.345	3.236	3.123
-10	-23							3.366	3.257	3.148
0	-18					3.579	3.483	3.386	3.282	3.173
10	-12			3.759	3.679	3.596	3.504	3.407	3.303	3.198
20	-7	3.918	3.847	3.776	3.696	3.617	3.525	3.433	3.328	3.223
30	-1	3.926	3.859	3.793	3.713	3.633	3.546	3.453	3.353	3.248
40	4	3.939	3.872	3.805	3.730	3.650	3.562	3.474	3.374	3.273
50	10	3.952	3.889	3.822	3.746	3.671	3.583	3.495	3.395	3.294
60	16	3.964	3.901	3.839	3.763	3.688	3.604	3.516	3.420	3.319
70	21	3.977	3.914	3.851	3.780	3.709	3.625	3.537	3.441	3.345
80	27	3.989	3.931	3.868	3.797	3.726	3.642	3.558	3.466	3.370
90	32	4.002	3.943	3.885	3.813	3.742	3.663	3.579	3.487	3.395
100	38	4.014	3.956	3.897	3.830	3.763	3.684	3.604	3.512	3.420
120	49	4.039	3.985	3.931	3.868	3.801	3.726	3.646	3.558	3.466
140	60	4.060	4.010	3.960	3.897	3.834	3.763	3.688	3.604	3.516
160	71	4.086	4.039	3.989	3.931	3.872	3.801	3.730	3.650	3.566
180	82	4.111	4.069	4.023	3.968	3.910	3.843	3.776	3.696	3.617
200	93	4.136	4.094	4.052	4.002	3.947	3.885	3.818	3.742	3.663
220	104	4.161	4.123	4.081	4.031	3.981	3.922	3.859	3.788	3.713
240	116	4.182	4.148	4.111	4.065	4.019	3.960	3.901	3.834	3.763

Temperature °F °C		Density Kg / m ³								
		Volume								
		20%	25%	30%	35%	40%	45%	50%	55%	60%
-30	-34									1072.8
-20	-29							1063.4	1067.2	1070.9
-10	-23							1061.6	1065.3	1069.0
0	-18					1051.4	1055.5	1059.7	1063.4	1066.9
10	-12			1040.0	1044.8	1049.6	1053.8	1057.8	1061.3	1064.6
20	-7	1027.7	1033.1	1038.4	1043.0	1047.7	1051.7	1055.5	1058.9	1062.1
30	-1	1026.2	1031.5	1036.6	1041.1	1045.6	1049.4	1053.1	1056.3	1059.5
40	4	1024.5	1029.6	1034.7	1039.0	1043.4	1047.0	1050.7	1053.8	1056.8
50	10	1022.7	1027.7	1032.5	1036.8	1041.0	1044.5	1048.0	1051.0	1053.9
60	16	1020.6	1025.4	1030.2	1034.4	1038.4	1041.9	1045.3	1048.2	1050.9
70	21	1018.6	1023.2	1027.8	1031.8	1035.7	1039.0	1042.2	1045.0	1047.5
80	27	1016.3	1020.8	1025.3	1029.1	1032.8	1036.0	1039.2	1041.8	1044.2
90	32	1013.9	1018.2	1022.6	1026.2	1029.8	1032.8	1035.8	1038.2	1040.6
100	38	1011.2	1015.5	1019.7	1023.2	1026.6	1029.6	1032.5	1034.7	1037.0
120	49	1005.6	1009.4	1013.3	1016.6	1019.8	1022.4	1025.0	1027.0	1029.1
140	60	999.36	1002.9	1006.4	1009.4	1012.3	1014.7	1017.1	1018.9	1020.6
160	71	992.48	995.68	998.88	1001.6	1004.2	1006.4	1008.5	1010.1	1011.5
180	82	984.96	987.84	990.72	993.12	995.52	997.44	999.20	1000.5	1001.8
200	93	976.80	979.36	981.92	984.00	986.08	987.68	989.28	990.40	991.52
220	104	968.00	970.24	972.48	974.24	976.00	977.44	978.72	979.68	980.48
240	116	958.56	960.48	962.40	964.00	965.44	966.56	967.52	968.16	968.80

Vapour Pressure mmHg										
Temperature		Volume								
°F	°C	20%	25%	30%	35%	40%	45%	50%	55%	60%
100	38	46.53	46.53	46.53	46.53	46.53				
110	43	98.23	82.72	62.04	62.04	62.04	62.04	56.87	56.87	51.70
120	49	87.89	87.89	82.72	77.55	77.55	77.55	77.55	77.55	72.38
130	54	113.74	113.74	108.57	108.57	103.40	103.40	98.23	98.23	93.06
140	60	144.76	144.76	139.59	139.59	134.42	134.42	129.25	124.08	118.91
150	66	186.12	186.12	180.95	180.95	175.78	175.78	165.44	155.10	155.10
160	71	237.82	232.65	227.48	227.48	222.31	217.14	211.97	206.80	196.46
170	77	299.86	299.86	289.52	279.18	279.18	274.01	268.84	258.50	248.16
180	82	372.24	367.07	361.90	356.73	346.93	341.22	336.05	320.54	305.03
190	88	465.30	460.13	449.79	439.45	429.11	423.94	418.77	403.26	382.58
200	93	568.70	563.53	553.19	542.85	527.34	522.17	511.83	491.15	470.47
210	99	697.95	697.95	677.27	661.76	646.25	635.91	625.57	599.72	573.87
220	104	847.88	847.88	822.03	806.52	785.84	775.50	765.16	734.14	703.12
230	110	1023.66	1008.15	992.64	971.96	951.28	920.26	920.26	884.07	847.88
240	116	1230.46	1209.78	1189.10	1163.25	1137.40	1121.89	1106.38	1065.02	1018.49
250	121	1468.28	1442.43	1416.58	1390.73	1359.71	1344.20	1323.52	1271.82	1214.95

Standard Packing Sizes



500 ml



1 litre



4 litres



20 litres



200 litres



1000 litres

Test Accessories



Refractometer



Digital pH &
Conductivity Meter



pH Paper



Basic Digital
Waterproof pH Meter



Hydrometer