Dynalene®
HEAT TRANSFER FLUIDS

Dynalene FC

Low Electrical Conductivity Water-Based Heat Transfer Fluid

Dynalene FC is specially designed to offer an electrical conductivity less than 1 µS/cm for use in fuel cell and electronics cooling applications. **Dynalene FC** has been proven to maintain a low electrical conductivity (< 10 µS/cm) for over one year in PEM fuel cells.

How Dynalene FC Works

A water-based coolant fluid can pick up both positive and negative ions from various components of the cooling system and become more electrically conductive over time. **Dynalene FC** coolant is designed to suppress the formation of these ions by two different mechanisms. First mechanism deals with the use of non-ionic corrosion inhibitors that reduces the rate of corrosion of the metal components, which otherwise would increase the concentration of the ions in the coolant fluid. The second mechanism of ion suppression is by utilizing nanoparticles in the coolant fluid that would react with the free ions and immobilize them. Once the free ions are immobilized by the nanoparticles, they do not contribute towards the electrical conductivity. Nanoparticles are designed to immobilize both the positive and the negative ions in the fluid, and they continue to work that way until they are saturated with the ions.

Dynalene FC Typical Properties

Composition: BioGlycol + DI Water + Corrosion Inhibitors + Nanoparticles

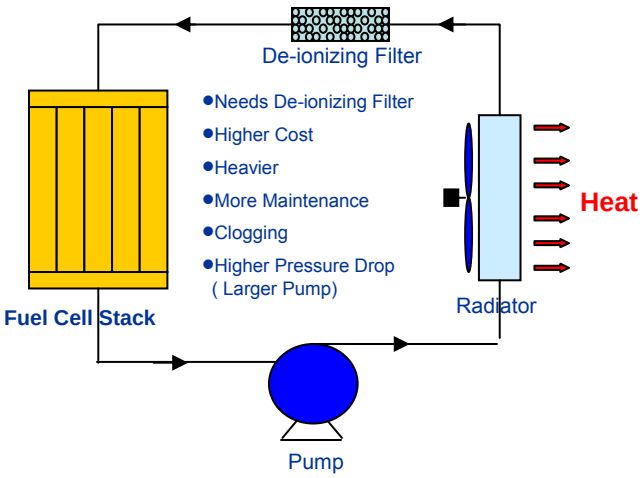
Appearance and Color: Milky White

PROPERTIES

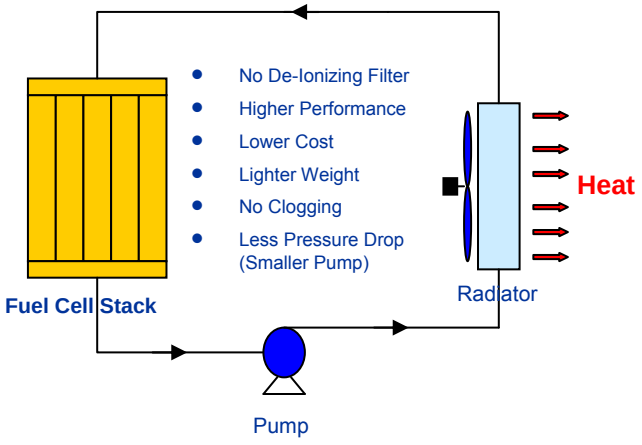
Boiling Point	109°C
Melting Point:	-46°C
Flash Point:	None
Autoignition Temperature	None
Density, g/ml:	1.047
Refractive Index (20°C)	1.392
Viscosity, cP (20°C)	8.79
Specific Gravity (22°C)	1.043
Electrical Conductivity, µS/cm	<1
Thermal Conductivity, W/mK (25°C)	0.325
Specific Heat, J/g°C (20°C)	3.232

Recommended temperature range:
Closed System: -29°C (-20°F) to 80°C (176°F)

Without **Dynalene FC**



With **Dynalene FC**



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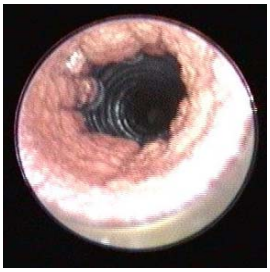
Temp	Density	Specific Heat	Themal Conductivity	Viscosity
C	g/cm^3	J/g*C	W/m*k	mPa*s
-25	1.0706	3.018	0.303	147.23
-20	1.0686	3.042	0.306	69.94
-15	1.0664	3.066	0.309	44.23
-10	1.0640	3.089	0.311	32.87
-5	1.0627	3.113	0.314	25.78
0	1.0602	3.137	0.316	20.61
5	1.0575	3.160	0.319	16.59
10	1.0546	3.184	0.321	13.38
15	1.0515	3.208	0.323	10.82
20	1.0482	3.232	0.325	8.79
25	1.0448	3.256	0.327	7.18
30	1.0431	3.279	0.328	5.92
35	1.0394	3.303	0.330	4.92
40	1.0356	3.327	0.331	4.13
45	1.0317	3.351	0.332	3.51
50	1.0276	3.375	0.333	3.02
55	1.0255	3.399	0.334	2.62
60	1.0213	3.423	0.335	2.31
65	1.0167	3.447	0.336	2.05
70	1.0122	3.470	0.336	1.85
75	1.0073	3.494	0.336	1.69
80	1.0048	3.518	0.337	1.55



EG/DI Water

EG/DI Water with a Cation Exchange Bed
(ion exchange particles)

Dynalene FC with nanoparticles
(no deposits or corrosion debris)

For more technical, health and safety information or to request a Material Safety Data Sheet (MSDS), contact our Dynalene sales representative at:
Phone:610-262-9686 Fax:610-262-7437 E-mail: info@dynalene.com