



Triafreeze - PG

Triafreeze

Antifreeze Fluids

- **Low Toxicity**
- **Protects all metals**
- **Environmentally Friendly**
- **Safe to use around pets and other animals**
- **Extends the life of heavy-duty diesel engines**

Triafreeze PG is a propylene glycol antifreeze. Propylene glycol (PG) is a superior product in terms of consumer safety and the environment in general when compared to alternative chemicals, such as ethylene glycol (EG), commonly used in antifreeze formulations.

In laboratory and engine dynamometer studies, PG antifreeze has performed better than similar products containing EG with regard to cast iron cavitation corrosion. Triafreeze PG provides corrosion protection stability in service and long life. Comparison of the physical properties of aqueous solutions show no substantial difference between Triafreeze PG and EG based coolants.

Tests have shown that aluminum corrosion was lower for PG based antifreeze than for an EG version. Fuel economy, heat transfer, and other key performance characteristics were the same for both PG and EG coolants.

A 50/50 blend of Triafreeze PG and water has a freezing point of -26 deg F, more than enough protection for most regions. Lower temperature protection can be achieved by using higher concentrations of Triafreeze PG.

While OSHA has established an exposure limit of 50 ppm for EG, it has not found it necessary to set exposure limits for PG because of its inherent low toxicity.

PG does not persist in the environment. It is readily consumed by microorganisms. In an activated sludge treatment plant operating at 65 deg F, PG is fully degraded within 24 hours.

PG is safer to pets and other animals than EG. It takes considerably higher concentrations of PG to become lethal. PG is less attractive to animals (EG tastes and smells sweet). PG is bitter. PG is even used in pet foods at concentrations of up to 10% by wt.

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Chassis Dynamometer Temperature Data Adjusted to 100 deg F Ambient

Coolant	RPM	Radiator	Radiator	Avg Cylinder Liner, deg F	Oil Temp deg F	Fuel Rate lb/hr
		(top) deg F	(bottom) deg F			
50/50	1800	84	40	322	237	100.3
PG/Water	1300	94	40	349	245	78.1
50/50	1800	85	40	316	234	98.1
EG/Water	1300	95	39	343	243	79.2

Freezing Points of Solutions of Triafreeze PG

Cooling System Capacity (quarts)	Concentration Required (quarts)											
(quarts)	2	3	4	5	6	7	8	9	10	11	12	13
4	-26											
6	5	-26	-76									
8	14	0	-26	-60								
10	19	10	-4	-26	-54							
12		14	5	-8	-26	-51						
14		18	10	3	-8	-26	-44					
16		19	14	9	1	-9	-26	-44				
18		21	18	12	5	0	-13	-26	-38	-53		
20			19	14	9	3	-6	-15	-26	-38	-53	
25				19	16	10	9	3	-4	-13	-22	-44

Properties of 50/50 Glycol Solutions at 210 deg F (99 C)

Property	PG/H ₂ O	EG/H ₂ O
Vapor Pressure (dyne/cm ²)	799,800	706,500
Density (g/cm ³)	0.982	1.027
Viscosity (cp)	0.7	0.65
Surface Tension (dyne/cm)	36.5	46.5
Surface Heat (cal/gm C)	0.92	0.87
Thermal Conductivity (cal/sec cm ² C/cm)	0.00091	0.00099

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