



# F.Y.I.

TEMPERATURE CONTROLLERS... PORTABLE CHILLERS... CENTRAL CHILLERS... PUMP TANK STATIONS... TOWER SYSTEMS...

**SUBJECT: PROPER USE OF INHIBITED PROPYLENE GLYCOL**

**#7-A-114 4/14/95**

*Updated 05/13/2016*

The use of a water-glycol mixture for freeze protection is required in most Advantage chillers when the operator desires a process temperature below 48°F. Freeze protection is required to prevent severe damage to the water and refrigeration systems.

**CHOOSING THE PROPER GLYCOL:**

An inhibited propylene glycol such as “DowFrost” is best. DowFrost contains special corrosion inhibitors for low system maintenance and better heat transfer compared to other glycols. It also has a longer fluid life, up to 20 years in some cases.

**USE OF UNINHIBITED GLYCOL:**

Even though uninhibited glycols do lower the freeze point, they are often more corrosive than water. The corrosion rate of ethylene glycol on iron, for example, is more than 2.5 times faster than plain water. On steel, it is 4.5 times faster.

**AUTOMOTIVE BASED ANTIFREEZE SHOULD NEVER BE USED!**

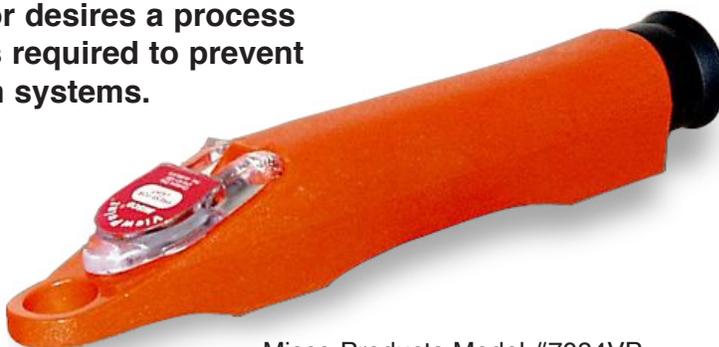
Automotive antifreeze contains silicate based inhibitors, which are compatible with automotive components. In an industrial application, the silicates will coat the heat transfer surfaces and reduce the cooling efficiency of the system. Silicates can also significantly reduce the life of pump seals.

**MAINTENANCE RESPONSIBILITY:**

A refractometer should be used on a regular basis to determine the mixture strength according to freeze point. The freeze point temperature should be 25°F below the lowest required setpoint (see chart). Water evaporates from the mixture, and if you continue to add a premixed solution, eventually you will have too much glycol. It is necessary to add water or glycol to maintain proper freeze point temperature. The refractometer pictured is accurate and easy to use for maintaining and checking for proper glycol levels.

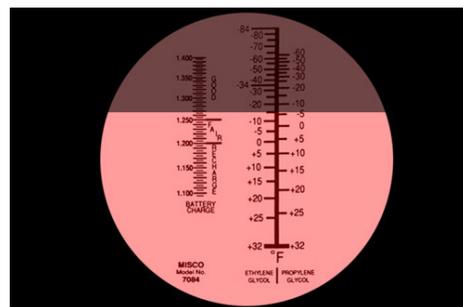
**SOURCE OF INHIBITED PROPYLENE GLYCOLS:** For a complete literature package, material, safety data sheets and purchasing information, contact the following:

**Dow Chemical 1-800-447-4369 (Canada 1-800-363-6250)  
Dowfrost inhibited propylene glycol.**



Misco Products Model #7084VP  
1-800-358-1100

<http://www.misco.com/products/7084VP%2B.html>



The coolant freeze point is indicated on the line between the dark and light areas on the scale. In this example, the freeze point is about -5°F to -6°F.

**FREEZING POINTS FOR WATER/PROPYLENE GLYCOL SOLUTIONS**

PERCENTAGE OF GLYCOL <sup>1</sup> WATER		FREEZE POINT <sup>2</sup>	
		°F	°C
0	100	32	0
20	80	20	-6.7
25	75	15	-9.4
30	70	10	-12.2
35	65	3	-16.1
45	55	-15	-20.6
50	50	-20	-26.7

1. Propylene glycol.  
2. Information shown is a general guide. Check your specific glycol specifications for actual glycol percentage and freeze protection level.