



November 2022

To: Unico Sales & Service Teams

Re: **Glycol Coolant Discussion & Typical Brands**

To reduce the opportunity of microbial growth in liquid cooled systems, it is recommended that glycol concentration be 25% by volume or greater.

Please advise your customers of this recommendation. See Dow® explanation of concentration range recommendation below.

Additionally, glycol providers can provide additional information for periodic evaluation of the glycol solution to ensure that inhibitors and buffers are still effective.

Customers should ensure they use a specification that is compatible with aluminum & copper mixed in a system.

Typical brands of glycol widely available in North America include: Ashland Drewgard, Dowfrost, Dowtherm, Dowcal, Interstate Chemical Intercool.

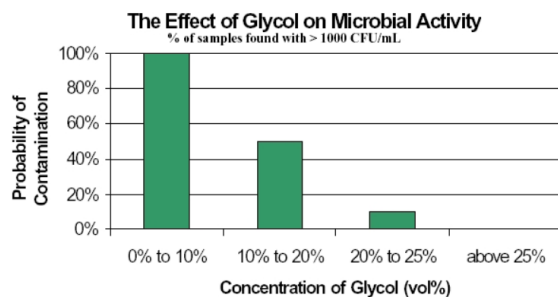
Many questions have been raised about the recommended minimum glycol concentration of 25-30%, as stated in Dow's product literature. For example, if a system only requires freeze protection to 20°F (-7°C), and this can be achieved with 18-20% glycol, why should at least 25% be added?

There are several reasons for the recommended minimum concentration. The first is corrosion protection. Dow glycol-based heat transfer fluids are designed to work in both heating and cooling systems at a wide range of concentrations. For this to work successfully, the starting fluid must have the right balance of inhibitors in order to maintain proper corrosion protection at various concentrations. The inhibitors are formulated to give optimum performance and fluid lifetime at glycol levels between 25 and 60%. Reducing the glycol concentration below 25% reduces the inhibitor concentration to a level that may not provide adequate corrosion protection for a system.

The second reason is stability of the fluid. Both ethylene and propylene glycol break down on exposure to high temperatures. With a higher concentration of fluid, there is also a greater concentration of inhibitor present in the solution. The higher level of inhibitor provides more buffering for any organic acids that may be formed due to glycol degradation.

The third reason for using at least 25% glycol in the system concerns the possibility of bacterial growth. With concentrations at or above 20%, both ethylene and propylene glycol inhibit the growth and proliferation of most microbes and fungi. The reduced surface tension in the glycol solution interrupts the cell walls of the bacteria, resulting in an environment that will not support bacterial growth. At very low glycol concentrations, for example below 1%, both ethylene and propylene glycol act as a nutrient for bacteria. At these concentrations, bacteria will biodegrade the glycol causing rapid growth of bacterial contamination. At levels above 1 and below 20%, some bacteria can survive with limited growth, especially at moderate temperatures.

See the table below for microbial testing data.



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