

Engineering Bulletin 17

Ely Energy Inc.

Bulletin: Water Glycol Chemistry for Waterbath Vaporizers



NOTE TO USER

THESE INSTRUCTIONS DO NOT PURPORT TO COVER ALL DETAILS OR VARIATIONS IN EQUIPMENT NOR TO PROVIDE FOR EVERY POSSIBLE CONTINGENCY TO BE MET IN CONNECTION WITH INSTALLATION, OPERATION OR MAINTENANCE. SHOULD FURTHER INFORMATION BE DESIRED OR SHOULD PARTICULAR PROBLEMS ARISE WHICH ARE NOT COVERED SUFFICIENTLY FOR THE PURCHASER'S PURPOSES THE MATTER SHOULD BE REFERRED TO ELY ENERGY INC.

WATER-GLYCOL CHEMISTRY

The Waterbath must be filled with a mixture of fresh, clean water and glycol that contains anticorrosion additives. In cold climates and in situations where the heat source is switched off for long periods, fill the waterbath with the appropriate ratio of water – glycol (e.g., 75% clean, potable water and *25% glycol). *The ratio will be determined based on the expected low temperature.* ONLY use HIGH QUALITY GLYCOL as specified below:

Specification of the glycol (anti-freeze):

Maximum: 95% Monoethylene glycol

Minimum: 5% Additives to prevent foaming, oxidation and corrosion.

NOTE: *The type of water used (distilled, potable, or dematerialized) will need to be specified by the Glycol Manufacturer to insure performance and compatibility with the glycol solution and corrosion inhibitors.*

1. During commissioning, turn the vaporizer **ON** (Refer to OM). Bring the water bath up to operating temperature. This is required to “roll over” the water-glycol (that is now stratified) and provide thorough mixing of the two fluids (water and glycol). **Do not leave the water-glycol static in the vaporizer without mixing it.** As glycol is heavier than water, it will remain separated! And, if the outside temperature falls below 0C or 32F, freezing can DESTROY the vaporizer walls!
2. Conduct a test for the pH level of the water glycol.
 - a) Water/glycol chemistry:
 - Glycol, (Wt%): 35-50% (refer to freeze protection curve in general information section)
 - Freeze point, (deg. F) (desired protection at or below expected low temperature)
 - pH: 9.0 - 9.5
 - Color, Clarity (visual): (not cloudy or high in particulate)
 - Oil, (visual): NONE

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