

## OP-1: WINTERIZING OR PICKLING WITH ANTIFREEZE

**WARNING:** Use only propylene glycol-based drinking water system antifreeze. Do not use ethylene glycol based automotive antifreeze, which is toxic.

Propylene glycol can be used instead of Spectra SC-1 storage chemical for storage in any climate up to one year by following this procedure.

The antifreeze formulations sold in marine and RV stores are pre-diluted with water. Since the water remaining in the watermaker before the storage procedure begins will further dilute the antifreeze, this will reduce the microbial protection and increase the temperature at which the mixture will freeze.

Straight out of the bottle antifreeze labeled “Minus Fifty” is a 25% solution and will begin to form an icy slush at about +15Degrees F (-10C) and will only provide burst protection to about Zero F (-18C). After a further 50% percent dilution by water remaining in the watermaker, “-50” antifreeze will only protect from bursting down to about +25F (-4C). Therefore if good freeze protection is required a 60% or stronger antifreeze should be used. 60% solutions are labeled as “Minus 100” antifreeze and will provide burst protection to -15F (-27C) even after a fifty percent dilution with residual water. If greater than -15F protection is required the pickling procedure should be carried out twice.

Complete microbial preservative protection requires a 25% solution, so care must be taken that the solution remaining in the watermaker during long term storage is at least 25% even if freeze protection is not required. For these reasons Spectra recommends that all pickling be carried out with a 60% antifreeze product.

1. Flush the system with fresh water until the brine discharge water is below 1000 ppm or until the brine discharge does not taste salty. Drain out as much water as possible from the system.
2. Set up the system for pickling according to the directions for your model.
3. Place enough antifreeze in a bucket to fill your system. This will be about two gallons for a 150 or 200 model, three gallons for a 380 or 400, and larger systems will take more.
4. Run the system DEPRESSURIZED with the feed pump drawing from the bucket and the brine discharging overboard until the colored antifreeze solution begins to appear at the brine discharge then switch the brine discharge into the bucket and recycle the remaining solution until the glycol and water are completely mixed, (about ten minutes). On some models you will have to shut down the unit to switch the brine discharge into the bucket.
5. Replace the prefilters with clean dry ones.

6. The product water side of the system will not contain antifreeze and should be protected from freezing by blowing or draining it dry if necessary.
7. Turn off power to the system, leaving the pressure relief valve open ½ turn.

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