

This technical bulletin provides information related to preservation and flushing of RO/NF elements.

To preserve membranes from biological growth during extended periods of standby without a loss of performance, Professional Water Technologies, Inc. recommends the use of Preservol™ powder or liquid membrane preservative. Once a preservation solution is used, It is advised to properly flush out the preservatives prior to use in order to eliminate residual preservatives in the permeate stream.

Prior to Preservation

PWT recommends that prior to preservation with Preservol, the membrane elements be cleaned with Lavasol or OptiClean line of cleaners. If the system is shutdown as the result of emergency conditions, at the least, the membranes should be flushed to within 10% conductivity of the highest quality flush water available.

Preservation Guidelines

Elements should be preserved in a preservative solution:

- When elements have been used and removed from the pressure vessel for storage or shipping
- When elements are stored in-situ for extended periods of time

Note: Preservative solutions may need to be refreshed for long term storage.

Product Application

- Thoroughly clean membranes with specialty membrane cleaners.
- Prepare the preservative solution: Mix Preservol™ with good quality water, preferably RO permeate or better.
- Recirculate solution for at least 15 minutes, at a recommended recirculation pressure of less than 60 psi
- Shut-down the system. Do not allow the solution to drain from the membranes.
- Store membranes in-store in separate sealed container (i.e. original bag provided by element manufacture).
- In the latter case, Identify element serial number, preservation solution, and date on the outside of the bag.

- Inspect preserved elements every 12 weeks.
- Elements should be re-preserved and re-packaged if the preservation solution does not appear to be clear
- Monitor pH of solution for any changes. Re-preservation is advised if the pH of the solution changes.

Flushing Guidelines

Prior to Flushing

Ensure that all valves are in the open position. Both permeate and concentrate valve(s) should be in the fully open position prior to flushing/ at start-up to prevent damage to the membranes (see Technical Bulletin 501). A low pressure start-up is recommended first in order to purge any air that may have been introduced to the system. Often times, this can be accomplished through the use of a soft start mechanism or a variable frequency drive. To prevent damage to the membranes, air must be purged slowly. Additionally, a low pressure start-up will help to prevent 'water hammer' which can also be physically damaging to the membranes.

Once all of the air has been purged from the system the feed pressure can be increased gradually up to the working pressure of the RO/NF unit.

Preservative Flushing Guidelines

Potable Applications:

Discard the product water for at least 2 hours prior to drinking or using in food applications.

Industrial Applications:

Discard the product water for at least 30 minutes prior to returning to service.

Safety Procedures for chemical solutions

Follow the safety procedures when using chemical solutions: Follow the safety procedures when using chemical solutions:

- Wear the necessary personal protection equipment : gloves and sleeves to avoid prolonged contact with skin when working with chemicals.
- Refer to respective safety sheets supplied by the chemical manufacturer

