

Technical Information

Plant Start-Up/Shutdown Instructions

Plant Start-Up

The following procedures should be followed step-by-step for the start-up of Osmonics Desal spiral wound element systems.

1. Flush system without elements to remove any residual debris from system fabrication.
2. Recheck and test all in-line sensors, set points of interlocks, time delay relays and alarms.
3. Feedwater quality should be checked prior to plant start-up. Pretreatment systems must be fully operational.
4. Purge all air out of the system at low feed pressure and flow.
5. Check systems for leaks.
6. Slowly increase feed pressure and flow to obtain design performance by adjusting feed and brine throttle control valves.
7. For reverse osmosis plants, sample the reject stream to check that the Langelier Saturation Index is negative and CaSO_4 and silica concentrations are within acceptable limits.
8. After the system has reached design conditions and has stabilized (about 1 to 2 hours), record operating conditions and performance parameters.
9. Let the system run to waste for about 2 hours to flush out residual chemicals from the elements.

Plant Shutdown

1. At shutdown, flush the system with permeate or pretreated DI water, if available. The flush water must be free of any chemical additives.
2. Relieve system pressure and shut down feed pumps.
3. When the system is secured, insure that water does not drain from the elements. Also insure that there is no back pressure on the elements from the permeate side.*
4. For extended shutdowns (greater than one week), a preservative solution should be added to the system to eliminate biological growth.
5. If the plant is to be secured for less than one week, it is usually sufficient to merely flush the system with fresh, pretreated feed once per day to minimize biological growth.

** If there is greater than atmospheric pressure on the permeate line during operation, check valves should be included in the permeate line to prevent even momentary back pressure on the membrane elements during a shutdown.*