

## Cleaning Procedures for AM-11 Thin Film Composite RO Membrane Acid Cleaner

Before proceeding, read the MSDS on this product carefully. Use RO permeate water if possible. Water used for cleaning must be free of chlorine. Whether the system needs acid or alkaline cleaning will depend on the type of foulant suspected. We recommend alkaline (AM-22) cleaning be performed first, followed by an acid (AM-11) cleaning. For applications in which the foulant is known, such as calcium carbonate or iron, an acid cleaning alone could be sufficient.

### CLEANING SYSTEM

Connect cleaning tank and pump system to the membrane system. For systems with multiple stages, clean each RO stage separately, i.e., first stage then second stage. Pump pressure must not exceed 60 psi. Permeate and concentrate lines must return to the cleaning tank. Include a 5 micron filter in the CIP discharge line leading to the RO membranes.

### PREPARATION OF SOLUTION

Slowly add 18 lbs (8 kg) of AM-11 per 100 gallons (380 liters) of water to the cleaning tank, or enough to bring the water pH to between 2 and 3. Mix thoroughly with the CIP pump & recirculation line.



**Caution:** Mix with care. Wear rubber gloves, facemask or goggles, & protective clothing.

### CLEANING PROCEDURE



**Caution:** Do not allow the cleaning solution temperature to exceed 105°F (40°C) or the flow to exceed 4 GPM for 2.5 inch elements, 12 GPM for 4 inch elements, and 40 GPM for 8 inch elements. Recirculate solution.

1. Operate system at 50 psi. for 10 minutes. During this first 10 minutes of the cleaning cycle, the flow rate should be maintained at less than 1 GPM for 2.5" elements, less than 3 GPM for 4" elements, and 12 GPM for 8" elements, to allow the foulants to loosen. The flow rate should then be increased to 3 GPM for 2.5" clear elements, 9 GPM for 4" elements, and 40 GPM for 8" elements, for 20 minutes to clear foulants from the system.
2. Do not let tank run dry. Add more water and cleaner if necessary.
3. Dispose of the cleaning solution after adjusting the pH per local regulations.
4. Fill tank with clean water and flush system to drain for 10 to 15 minutes. Add clean water as necessary. Rinse the system until the concentrate pH is almost the same as the clean water pH.