

Performance:

RoClean P111 offers a variety of performance benefits:

Superior results in the removal of **organic** and **colloidal foulants**, especially when compared to generic solutions.

Compatible with the polyamide elements of all major membrane manufacturers.

NSF Certified for off-line use in systems producing drinking water.

Contains a specialized blend of buffers to dissolve organic foulants and disperse colloidal particles.

Highly buffered to resist pH changes during the cleaning process.

Temperature compensated to maintain optimum pH over a wide temperature range.

RoClean P111 is a powdered cleaner designed to remove silt and organic foulants such as colloidal silica, clays, organic color and bacterial slime from spiral wound polyamide elements.

This formulation is temperature compensated to ensure that the cleaning solution remains in the effective pH range regardless of variations in solution temperature. RoClean P111 has been certified by the National Sanitation Foundation under ANSI/NSF Standard 60 for off-line use in drinking water systems.

Use Instructions:

Below is a summary of the RoClean P111 cleaning guidelines. For detailed procedures, please consult the Avista technical bulletin entitled "Cleaning of Spiral Wound Membrane Systems".

1. Fill the cleaning tank to the desired volume with RO permeate or DI water. Heat the solution to the maximum acceptable temperature (see membrane manufacturer guidelines) as this will dramatically increase the cleaning efficiency. Add sufficient RoClean P111 to create a 2% wt/wt solution if the fouling is moderate/severe or 1% if the fouling is mild. Recycle the solution through the cleaning tank to ensure adequate mixing.

2. Recirculate the cleaning solution through each RO system stage, one at a time, for a minimum of 60 minutes at the flow rate recommended by the membrane manufacturer. If that rate is not known, use the guidelines listed below:

| Element Diameter | Flowrate per Vessel, gpm (m ³ /hr) |
|------------------|---|
| 4" | 10 (2.4) |
| 8" | 40 (9) |

3. If the membranes are heavily fouled and the recirculated cleaning solution becomes discolored or turbid, discard as much as 15% of the solution volume. Heavily fouled elements may also benefit from a soak period (up to 8 hours).

4. Monitor the pH of the solution during the cleaning process. If the pH remains in the desired range and the solution is not turbid, it may be used to clean subsequent stages. In the unlikely event that the pH falls, prepare a new batch and repeat steps 1-4.

5. When the clean is completed, rinse the membranes by recirculating RO permeate through each pressure vessel. To comply with NSF standards, the cleaner should be flushed out using 5 bed/volumes of water before putting the system back on-line.

Packaging and Storage:

Standard regional pack sizes are listed below.

| Specifications | |
|--------------------------|--------------|
| Appearance: | White powder |
| pH (2% solution at 25°C) | 10.5 to 11.5 |
| Density (kg/litre): | 1.05 ± 0.05 |

| Packaging Formats | Americas | EMEA |
|-------------------|----------|-------|
| Pails | 45 lbs | 20 kg |
| Fiber Carboy | 90 lbs | - |
| Fiber Drums | 350 lbs | - |



CLASSIFIED BY NSF INTERNATIONAL AS A DRINKING WATER TREATMENT CHEMICAL UNDER ANSI/NSF STANDARD 60 FOR USE OFF-LINE IN REVERSE OSMOSIS SYSTEMS.

Certified to NSF/ANSI 60

