

**PERFORMANCE BENEFITS:**

- A specialized blend of proprietary buffers to dissolve organic foulants and disperse colloidal particles.
- Highly buffered to resist pH changes during the cleaning process.
- Compatible with polyamide membranes from all major manufacturers.

**LENNTECH**

info@lennotech.com

www.lennotech.com

Tel. +31-152-610-900

Fax +31-152-616-289

Please consult your sales representative for further technical or logistical details and always review the SDS before use to ensure suitable safety precautions are followed.

**CORPORATE OFFICES**

Avista Technologies, Inc.


 Certified to  
 NSF/ANSI 60

Avista Technologies (UK) Ltd

RoClean P111 powder is a multicomponent, high pH buffered cleaner formulated to remove biological fouling, humic and fulvic acids, organics, colloidal material, and clays from reverse osmosis (RO) and nanofiltration (NF) membranes. Where powder is preferred, RoClean P111 is successfully applied to systems operating on seawater, brackish water and waste water. This product is temperature compensated to ensure that the cleaning solution remains in the effective pH range regardless of variations in solution temperature.

RoClean P111 is certified by NSF International under NSF/ANSI Standard 60 for off-line use in drinking water systems.

**INSTRUCTIONS FOR USE**
**Cleaning**

Below is a summary of the RoClean P111 cleaning procedure. For more detail, please refer to our technical bulletin, "Cleaning Spiral Wound Membrane Elements."

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

| Element Diameter, inches | Flow Rate per Vessel, gpm (m <sup>3</sup> /hr) |
|--------------------------|--|
| 4                        | 10 (2.4)                                       |
| 8                        | 40 (9.0)                                       |

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 soaking 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 cleaning is complete, rinse the membranes by flushing RO permeate through each pressure vessel. The system can then be returned to service.

**PRODUCT INFORMATION**
**Packaging and Storage**

Standard regional pack sizes are listed below.

**SPECIFICATIONS**

**Appearance:** White powder

**pH (2% solution):** 10.5-11.5

| PACKAGING FORMAT | AMERICAS/ ASIA | EMEA  |
|------------------|----------------|-------|
| Pail             | 45 lb          | 20 kg |
| Fiber carboy     | 90 lb          | -     |
| Fiber drum       | 350 lb         | -     |