


**PERFORMANCE BENEFITS:** *Green*

- A specialized blend of proprietary buffers, chelants and reducing agents to dissolve metal deposits.
- Highly effective against metal hydroxides, calcium carbonate and iron.
- Environmentally friendly formulation that is free of phosphate and EDTA.
- Certified for offshore use.
- Highly buffered to resist pH changes during the cleaning process.
- Compatible with polyamide and cellulose acetate elements.
- Suitable for use with other Avista cleaners.

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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.

Avista Technologies (UK) Ltd

**RoClean L404 Green**

CLEANER

RO/NF

RoClean L404 liquid is a multicomponent, low pH, phosphate free cleaner formulated to remove metal foulants from membranes more effectively than citric and hydrochloric acid solutions. This cleaner is successfully applied against manganese, aluminum, and calcium carbonate scale, rapidly returning the reverse osmosis (RO) and nanofiltration (NF) membranes' performance after a high pH clean.

RoClean L404 is temperature compensated to maintain optimum pH over a wide temperature range.

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

Below is a summary of the RoClean L404 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 L404 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 rises, 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. Then system can then be returned to service.

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

Standard regional pack sizes are listed below. Information on drumless or bulk tanker delivery is available on request.

**SPECIFICATIONS**

|                                     |
|-------------------------------------|
| Appearance: Pale yellow liquid      |
| pH (2% solution): 3.5-4.5           |
| Specific gravity (@25°C): 1.15-1.25 |

| PACKAGING FORMAT | AMERICAS/ ASIA | EMEA    |
|------------------|----------------|---------|
| Pail             | -              | 20 kg   |
| Drum             | -              | 200 kg  |
| IBC tote         | -              | 1200 kg |