

Performance:

AvistaClean L011 offers an array of performance benefits:

- Contains a proprietary blend of buffers, low foaming surfactants and chelants to remove **organic foulants** including oil.
- Compatible with the polyamide elements of all the major membrane manufacturers.
- Highly buffered to resist pH changes during the cleaning process.
- Superior results, especially when compared to generic cleaners.
- Can be used in conjunction with other applicable cleaners as shown in the Avista cleaner selection guide.
- Temperature compensated to maintain optimum pH over a wide temperature range.

AvistaClean® L011 is a high pH, liquid cleaner formulated to remove silt and organic foulants such as oil, colloidal silica, clays, organic color, and bacterial slime from spiral wound thinfilm elements.

AvistaClean L011 is highly buffered to resist pH changes during the cleaning process and it contains a proprietary blend of buffers, low foaming surfactants and chelants to dissolve organic foulants and disperse colloidal particles.

Use Instructions:

Below is a summary of the AvistaClean L011 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 50°C or maximum acceptable temperature (see membrane manufacturer guidelines) as this will dramatically increase the cleaning efficiency. Add sufficient AvistaClean L011 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 of 10.5 and the solution is not turbid, it may be used to clean subsequent stages. In the unlikely event that the pH falls below 10, 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. Custom packaging can be provided worldwide to meet customer needs. Information on drumless or bulk tanker delivery is available on request.

Specifications	
Appearance:	Amber liquid
pH (2% solution):	10.5 to 11.8
Specific Gravity:	1.10 to 1.15

Packaging Formats	Americas	EMEA
Pails	45 lbs	20 kg
Drums	500 lbs	200 kg
IBC's (totebins)	2375 lbs	-

