

Cleaning of membrane systems is an inevitable task faced by water treatment plant operators. The nature by which membrane systems operate leads to fouling and scaling of the membrane systems. When system performance deteriorates below acceptable levels, operators and municipalities are left with a decision, do I use generic cleaning chemicals or do I use a specialty membrane cleaner?

As with most items, this decision usually comes down to raw material cost. But what are you losing out by not utilizing specialty cleaners? We will try to explore the benefits and drawbacks of each type of cleaner so that next time you are faced with the decision, you can make an informed decision that is best for your plant.

Cleaning of membrane systems is a normal part of plant operation. Cleaning frequency can range from as often as weekly in some extreme cases to longer than every 5 years.

Each membrane manufacturer published guidelines for the cleaning of their membranes. The solutions typically consist of raw commercially available chemicals deemed compatible with their membranes.

For each scaling and fouling scenario, the membrane manufacturer gives a specific type and concentration of chemical to use. But how do you know what type of scaling and fouling your plant has? This is one of the drawbacks to using generic cleaners.

You must make an educated guess based on historical cleaning data and raw water data to determine what type of cleaner to use. Specialty cleaners are typically provided by specialty chemical companies who focus on membrane treatment, such as your current antiscalant supplier, PWT.



A good specialty chemical company should have the ability to perform membrane autopsies and cleaning studies, to identify the scalant/foulant and the appropriate cleaning protocol. By identifying the scalant/foulant, the cleanings will typically be more productive and reduce the time required to complete the cleaning.

**Membranes represent about 10% of the initial cost and up to 25% of the operational cost of a membrane system. Premature replacement of the membranes is very expensive making effective and safe cleanings paramount. With generic cleaners, you must handle the individual chemicals in a safe manner and mix them in a precise ratio.**

Exposing the membrane system to a cleaning solution with a pH too high or too low, may cause irreversible membrane damage. Specialty cleaners are buffered to achieve and maintain a target pH to avoid possible membrane damage.

Specialty cleaners were designed to be membrane compatible and contain multiple components, including dispersants to help lift and remove matter from the membrane surface.

Membrane cleaners are a necessary part of the healthcare of a membrane system. Whether you prefer generic or specialty cleaners, you will inevitably use them. The next time your system is ready for a cleaning, talk to your preferred specialty chemical vendor. You may be surprised at how reasonable the cost is. When you consider the greater effectiveness, and the safety, of both pH buffering and handling, the specialty cleaners may serve a greater value.

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