



Enhance your Operations with Evolution RO



What would you do with more time?

Think about it - every step of your daily cleaning program takes about an hour. Each step uses chemicals and make-up water, creates wastewater to treat, and requires energy for heating, pumping, and recirculating the cleaning solution. **What if you could eliminate one or more steps?**

Whether your system is concentrating products or treating wastewater, your cleaning program requires multiple steps, each requiring additional time to heat the cleaning solution and flush it out of your system. Considering every minute of downtime translates to lost productivity, how could you benefit by shortening your CIP? **ZwitterCo Evolution RO elements are here to help you increase your bottom line.**

Anti-fouling Technology

ZwitterCo developed a breakthrough membrane technology that exceptionally resists fouling from fats, oils, grease, and proteins based on the extreme hydrophilicity of zwitterioncs. This has been proven by many commercial installations, the oldest being an industrial bioprocessing protein concentration in operation since 2021.

Following the early success of our first superfiltration (SF) membrane, ZwitterCo is now implementing this technology across a range of membrane types, from RO to UF, and designing sanitary products specific for food and dairy processors that enable a shorter, lower cost, and more sustainable cleaning program.

Fast Facts

- ✓ Easy direct replacement
- ✓ Save time and money
- ✓ No system modifications
- ✓ Patented, zwitterionic chemistry

Save >50% on Cleaning

By switching to ZwitterCo membranes, you can reduce:

- ✓ Cleaning chemicals
- ✓ Make-up water
- ✓ Wastewater generated
- ✓ Energy
- ✓ Cleaning time

Time-saving Benefits at Lower Costs

The simpler cleaning program for Evolution RO membranes delivers time savings of *at least* an hour and **eliminates the need for enzyme washes**, cutting your cleaning costs. Depending on your plant, you may be able to run your system longer and/or allow your personnel to focus on other critical tasks. Additionally, Evolution membranes are

cleaned at cooler temperature, lowering energy demands while taking less time for cleaning solutions to heat up.

Beyond saving time, Evolution membranes **reduce chemical usage, water consumption, and wastewater generation**, creating a more sustainable and cost-effective operation.

Seeing it in action

In 2024, ZwitterCo Evolution RO elements were installed at two whey processing facilities to treat plant wastewater streams. These systems handle a diverse range of feed sources, including permeate from other membrane systems, cleaning solutions, and flushes from various products entering the waste silo. In both facilities, the customers have benefitted from reduced cleaning costs and minimized downtime due to a more efficient cleaning program. Since these systems concentrate wastewater, processing more permeate ultimately reduces the volume that requires further treatment or transportation.

Step	Cleaning Program for Conventional RO Membranes	Cleaning Program for Evolution RO Membranes
1	Caustic + Detergent, 122°F (50°C), 15 min.	Caustic + Detergent, 100°F (38°C), 25 min.
2	Enzyme + Caustic, 122°F (50°C), 40 min.	Acid, 100°F(38°C), 25 min. (as needed)
3	Acid, 122°F (50°C), 10 min.	Caustic, 100°F (38°C), 25 min.
4	Soak + MBS, Ambient Temp., 30 min.	Sanitize, Ambient Temp.,10 min.

Table 1: Typical cleaning program comparison – Conventional RO vs. ZwitterCo Evolution RO

Both locations were able to immediately reduce chemical costs by eliminating the enzyme step from their cleaning program, their most expensive cleaning step. This is often the longest cleaning step in a cleaning program, and they were able to shorten their overall cleaning time by over an hour by also eliminating the time to heat the solution and flush it from the system.

Both customers successfully reduced their cleaning temperatures from the typical 115-120°F (46-49°C) range to 95-100°F (35-38°C), cutting heating time and energy costs. Notably, they also reported higher

permeate production with ZwitterCo Evolution RO membranes, which have delivered more stable performance than the membranes they replaced. As a seamless direct replacement, Evolution RO membranes require no system modifications—only adjustments to the cleaning program.

Ultimately, time is one of the most valuable resources in your operation. ZwitterCo membranes are delivering superior performance with a shorter, lower-cost, lower-temperature cleaning program compared to conventional RO membranes.

Lowest total cost of ownership

Ready to see for yourself?

Talk with a
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