

Enhance Your Operations with ZwitterCo Process RO Elements

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's process RO elements are here to help you increase your bottom line.**

Fouling-Immune Technology

ZwitterCo developed a breakthrough membrane technology **immune to irreversible fouling from fats, oils, grease, and proteins** based on the extreme hydrophilicity of zwitterionics. This has been proven by many commercial installations, the oldest being an industrial bioprocessing protein concentration in operation for nearly 3.5 years.

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 dairy and other food processes that enable a shorter, lower cost, and more sustainable cleaning program.

Time-Saving Benefits at Lower Costs

The simpler cleaning program for ZwitterCo 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, ZwitterCo membranes are cleaned at cooler temperature, lowering energy demands while taking less time for CIP solutions to heat up.

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

Save >50% on CIP
by switching to
ZwitterCo membranes

ZwitterCo can help you reduce:

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

Fast Facts:

- Easy drop-in replacement
- No CAPEX
- No system modifications
- Patented, zwitterionic chemistry

Seeing it in Action

In 2024, ZwitterCo process 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, CIP 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.

Typical CIP for Conventional RO Membranes	Typical CIP for ZwitterCo RO Membranes
Caustic + Detergent, 115-120°F, 30 min.	Caustic + Detergent, 95-100°F, 20 min.
Enzyme + Detergent, 115-120°F, 45 min.	Acid, 95-100°F, 20 min.
Acid, 115-120°F, 30 min.	Caustic, 95-100°F, 20 min.
Caustic + Detergent, 115-120°F, 30 min.	-
Soak + MBS	Sanitize

Table 1: Typical cleaning program comparison – Conventional RO vs. ZwitterCo 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 CIP, 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 range to 95-100°F, cutting heating time and energy costs. Notably, they also reported higher permeate production with ZwitterCo process RO membranes, which have delivered more stable performance than the membranes they replaced. As a seamless drop-in replacement, ZwitterCo 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? Contact us today!

Talk with a ZwitterCo Technical Expert

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