

CASE STUDY

Faster membrane cleaning in dairy processing facilities – without the chlorine

Major dairy manufacturer and one of the largest U.S. dairy cooperatives in the United States, producing millions of pounds of dairy products every year.



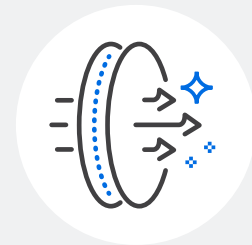
Problem

Like the majority of North American dairy processors, this manufacturer historically used chlorinated solutions to keep their production membranes operational and safe. But while they succeed at keeping production facilities productive and hygienic, over time, these chlorine-based cleaners damage the membranes, shortening their usable lifespan and leading to more frequent replacement. Additionally, when used incorrectly, chlorinated products can contribute to product quality issues and wastewater concerns. In an effort to mitigate these challenges, the manufacturer sought to lessen their environmental impact, and lengthen the usable lifespan of production membranes, the dairy manufacturer sought an alternative to chlorine.

Solution

In partnership with Ecolab®, the customer completed a trial of ULTRASIL™ CONNECTED, a revolutionary membrane care program that combines advanced chemistry with digital insights. During the trial period, Ultrasil™ Connected was utilized across the manufacturer's membrane systems including: whey and brine ultrafiltration (UF) systems as well as their reverse osmosis (RO) system.

Ultrasil™ Connected uses specially formulated chemistries, including fast-acting enzymes and high-performing surfactants, to effectively remove chlorine (and its damaging impact on membranes) from the process. The digital monitoring tool analyzes key cleaning and production performance indicators, providing increased visibility and remote monitoring for faster troubleshooting and continuous improvement. The result is a simple, optimized and chlorine-free cleaning regimen that reduces clean-in-place (CIP) time and supports sustainable production.



Faster membrane cleaning



Zero chlorine



Actionable digital insights

Results

During the trial period, the producer saw an immediate ROI using Ultrasil™ Connected. Both the whey and the brine UF systems were successfully cleaned without chlorine, and the decrease in CIP time related to whey UF delivered a net gain of roughly 360 annualized hours – an increase in uptime resulting in >24.5 million pounds of annualized product. What's more, the successful cleaning without the use of chlorine eliminated wastewater concerns, and the energy savings translated into a significant reduction in greenhouse gas emissions.

ESTIMATED ANNUAL SAVINGS

October 2023 – September 2024



ENERGY

857 therms
across all systems
(\$840)



PRODUCTIVITY

360 hrs/year
returned on whey UF



GREENHOUSE GASES

1312 kg
of CO₂e



ASSETS

\$5,371
value from extension
of membrane life



CHLORINE REDUCTION

8.1
metric tons of chlorine

TOTAL VALUE FORECASTED

**\$408,200/
year**

Because of factors outside of Ecolab's control, such as water conditions and facility cleaning processes, results to be obtained including but not limited to water and energy savings cannot be predicted or guaranteed by Ecolab. This site is a whey processing plant making protein concentrate with UF membrane applications.

Contact your Ecolab representative today to learn more.

ecolab.com/ultrasil