



# CASE STUDY

## Evaporator Staining

### INTRODUCTION

In May 2024, a large dairy processing plant faced a regulatory violation due to severe staining in its skim milk evaporator. The buildup had accumulated over 15 years under their previous chemical supplier. Seeking a solution, the plant turned to Hydrite for assistance.

### CHALLENGE

A piece of equipment this large requires careful pre-planning, considering factors like wastewater impact, proper chemical balance, and safety concerns—especially since this isn't a routine CIP process.

### GOALS

Perform destain and return the evaporator cosmetic appearance to the original state without compromising safety or effluent limitations.

### VALUE CREATED

- Meet local regulatory requirements
- Improve cosmetic appearance

### SOLUTION & RESULTS

- Met with the plant and city prior to discuss plan and impact
- Scheduled destain well in advance to properly plan approach and communicate safety protocol
- Calculated system volume and ordered chemistry
- After routine CIP, the plant dropped vacuum on the evaporator
- Worked with the plant to check for leaks and balanced system
- Started the destaining process by adding chemicals through the evaporator balance tank
- Temperatures ran between 170-180 degrees
- Used portable 2-gal sprayers to treat and remove stains from exterior equipment and discoloring on floors and equipment
- Due to severity of staining, two complete destain cycles were utilized, recovering chemistry, when possible, to minimize waste
- After destain was complete both Potassium Permanganate and Oxalic solutions were discharge within a short period of time to self-neutralize at the wastewater holding tank
- Inspected the interior of evaporator with plant personnel after the final rinse
- Total destain time from start of cleaning was 14.5 hours

## CONCLUSION

Based on the pictures shown below, the plant was very pleased with the results and considered this procedure a success. No issues around employee safety or wastewater were noted. The facility's team was fantastic to work with, providing all the support needed to make this project a success.



## The HYDRITE Advantage

### Chemical Experts

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Every plant is unique, and we understand that. We customize a solution for each location and application. Contact us today to learn more about our quality products, services, technology, and solutions.

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We understand how important it is to protect your brand and maintain the trust your customers place in you. Let us help you by delivering a quality solution at the most efficient cost.

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