EcoCare®
Hygiene & Water

# EcoCIP: The Enzyme-Powered Cleaning Revolution

EcoCIP is a groundbreaking, enzyme-based cleaning solution designed to replace caustic soda in Cleaning-In-Place (CIP) systems within the processing industry. Developed by EcoCare's dedicated R&D team, EcoCIP offers a powerful, eco-friendly alternative with significant environmental and operational benefits. This innovative solution addresses the challenges faced by breweries in maintaining cleanliness and hygiene while prioritizing sustainability and worker safety.

# EcoCIP: The Key to Water Conservation-30%-40%

EcoCare®
Hygiene & Water

EcoCIP is an advanced cleaning solution that offers significant water conservation benefits for industrial cleaning processes. Its innovative formulation reduces the need for excessive rinsing, leading to substantial water savings with each Clean-in-Place (CIP) cycle.

## 1 Significantly Reduced Rinsing Steps

Unlike caustic soda, which requires extensive rinsing to neutralize, EcoCIP's advanced formulation requires only one rinsing cycle. This reduction translates to substantial water savings with each CIP cycle. The rinsing timing will get reduced significantly.

## 2 Efficient Cleaning Action

EcoCIP's powerful enzyme blend breaks down organic materials effectively, minimizing the need for repeated rinsing and thus conserving water.

## 3 Measured Impact

Trials have shown that using EcoCIP can save up to 2 kL of water per CIP cycle. This water efficiency not only lowers operational costs but also supports sustainable water management practices.

## 4 Lower Total Dissolved Solids (TDS)

EcoCIP reduces the introduction of ionic compounds into wastewater, leading to lower TDS levels and decreasing the burden on wastewater treatment facilities.

EcoCare®
Hygiene & Water

# The Problem with Caustic Soda

## 1 Environmental Impact

Caustic soda poses significant environmental risks due to its corrosive nature and potential harm to aquatic life if improperly disposed of. Studies have shown that it can negatively impact pH levels and overall water quality, making it an unsustainable choice for modern dairy, brewing and beverage operations.

## 2 Worker Safety Hazards

Handling caustic soda exposes workers to potential skin burns, respiratory irritation, and other safety concerns. This not only puts employee well-being at risk but also increases the likelihood of costly accidents and potential legal liabilities for dairy facilities.

## 3 High Water Consumption

Extensive rinsing is required to neutralize caustic soda after use, leading to unnecessarily high water consumption. With water becoming an increasingly precious resource, this wasteful practice is no longer viable for responsible dairy operations.

EcoCare®
Hygiene & Water

# EcoCIP: The Sustainable Solution

1

## Enzyme-Powered Cleaning

EcoCIP utilizes a proprietary blend of powerful enzymes that break down organic soils like milk, malt, sugar , residue, proteins, and minerals with unparalleled efficiency. These biological catalysts provide a targeted and effective cleaning action, ensuring optimal equipment hygiene.

2

## Biodegradable Formula

Unlike caustic soda, EcoCIP is formulated with environmentally friendly ingredients that decompose naturally, minimizing the risk of ecological harm. This biodegradable formula aligns with the dairy industry's commitment to sustainable practices and environmental stewardship.

3

## Reduced Water Consumption

EcoCIP's advanced formulation requires significantly less water for rinsing compared to caustic soda. Trials at dairies using EcoCIP demonstrated a 2kl water saving per CIP cycle, translating to substantial cost savings and a reduced environmental footprint.

# Benefits of EcoCIP

EcoCare®
Hygiene & Water

## Environmental Responsibility

By reducing reliance on harsh chemicals and minimizing the impact on Total Dissolved Solids (TDS) in effluent, EcoCIP promotes a greener cleaning process and aligns with the dairy industry's commitment to environmental stewardship.

## Cost Savings

The reduced water consumption and potentially lower disposal costs associated with EcoCIP can lead to significant cost savings for dairy facilities, improving their bottom line while promoting sustainability.

## Operational Efficiency

EcoCIP's gentle yet powerful formulation is less likely to cause damage to delicate equipment compared to caustic soda, reducing maintenance costs and downtime. Additionally, its effectiveness may allow for shorter cleaning cycles, further improving operational efficiency.

## Improved Worker Safety

EcoCIP eliminates the safety risks associated with handling caustic soda, such as skin burns and respiratory irritation. This creates a safer work environment for employees, reducing potential injuries and legal liabilities.

## Brand Enhancement

By adopting EcoCIP, dairy and breweries or any processing industries can showcase their commitment to eco-friendly practices and environmental responsibility, enhancing their brand image and appealing to consumers who prioritize sustainability.

EcoCare®
Hygiene & Water

# Reducing TDS in Effluent

1

## Caustic Soda Dissociation

Caustic soda contributes to increased TDS levels in effluent due to its dissociation into sodium and hydroxide ions during the cleaning process. **0.1 % caustic soda contribute 2800 ppm TDS in water.**

2

## Enzyme-Based Cleaning

EcoCIP's enzyme-based formula effectively breaks down organic soils without leaving behind ionic residues, minimizing its impact on TDS levels. **01.% of EcoCIP will contribute only 700 ppm of TDS.**

3

## Lower TDS in Discharge

By reducing the introduction of ionic compounds, EcoCIP can potentially lead to lower overall TDS in the effluent discharged from dairy facilities, promoting environmental responsibility.

# Improved Cleaning Efficacy

## Satisfactory Cleaning Performance

The trial results demonstrated that EcoCIP achieved satisfactory cleaning efficacy, comparable to the performance of caustic soda. This was a critical factor, ensuring that the transition to a more sustainable cleaning solution did not compromise the quality and safety of the dairy and beverage products.

## Reduced Rinsing Steps

Another significant advantage of EcoCIP was the reduction in the number of required rinsing steps. While caustic soda-based CIP systems typically required three rinsing cycles, the EcoCIP system only needed one rinsing cycle, resulting in a substantial water savings.

## Lower pH for Safer Handling

**The EcoCIP solution maintained a pH range of 8.5-9, significantly lower than the 12.5-13 pH of caustic soda**. This lower pH makes the EcoCIP solution safer for employees to handle, reducing the risks associated with highly alkaline chemicals.

# Significant Water Savings

## Water Consumption Reduced

The reduced rinsing steps with EcoCIP resulted in a water savings of 2 kL per CIP cycle of pasturizer, a significant reduction compared to the caustic soda-based system.

## Long-term Cost Savings

The water savings achieved through the EcoCIP system can lead to long-term cost savings for dairy and beverage producers, further enhancing the economic viability of this sustainable cleaning solution.

1

2

3

## Sustainable Water Management

This water savings translates to a more efficient and sustainable water management strategy, aligning with the growing industry-wide focus on environmental responsibility and resource conservation.

# Adapting to Unique Challenges

## 1 Versatile Application

The EcoCIP solution has been successfully trialed and implemented in various dairy and beverage processing facilities, demonstrating its adaptability to different equipment and production environments.

## 2 Customized Formulations

The EcoCIP team worked closely with the trial site to develop customized formulations that addressed the specific cleaning challenges faced by the dairy and beverage processors, ensuring optimal performance.

## 3 Ongoing Support

The EcoCIP team provided comprehensive technical support throughout the trial, collaborating with the quality managers and engineers to ensure a seamless transition and successful implementation of the new cleaning system.

# A Roadmap to a Sustainable Future

1

## Regulatory Compliance

The adoption of EcoCIP aligns with the growing regulatory focus on environmental protection and sustainability, positioning dairy and beverage producers as industry leaders in responsible manufacturing practices.

2

## Competitive Advantage

By embracing EcoCIP, dairy and beverage companies can differentiate themselves in the market, showcasing their commitment to sustainability and attracting environmentally conscious consumers.

3

## Long-term Sustainability

The successful implementation of EcoCIP paves the way for a more sustainable future, where dairy and beverage producers can continue to thrive while minimizing their environmental footprint and contributing to a greener, more responsible industry.

EcoCare®
Hygiene & Water

# Versatile Applications

## Pasteurizers

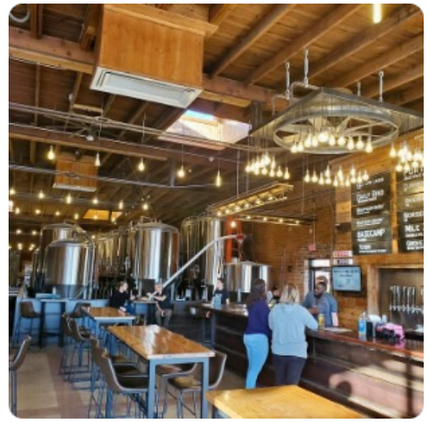
EcoCIP is highly effective in cleaning pasteurizers, ensuring thorough removal of milk residues and maintaining optimal hygiene standards.

## Homogenizers

The powerful enzymes in EcoCIP can efficiently break down the organic buildup in homogenizers, maintaining their peak performance.

## Storage Tanks

EcoCIP is an ideal solution for cleaning storage tanks, ensuring a pristine environment for dairy products and minimizing the risk of contamination.



## Pipelines

With its ability to penetrate and clean intricate piping systems, EcoCIP ensures optimal hygiene in dairy pipelines, preventing potential blockages and contamination.

# Applications in the Brewery Industry

### Fermentation Tanks

EcoCIP effectively removes yeast residues and protein buildup from fermentation vessels, ensuring optimal conditions for the next batch.

### Kegging Lines

The enzyme-based formula cleans keg filling equipment thoroughly, preventing cross-contamination and maintaining beer quality.

### Bottling and Canning Lines

EcoCIP ensures hygienic conditions in packaging equipment, crucial for maintaining product shelf life and quality.

### Transfer Lines and Pipes

The solution effectively cleans transfer lines and pipes, preventing buildup of beer stone and other residues that can affect flavor.

# Caustic Soda vs. EcoCIP: A Comparative Analysis

This comparison table highlights the key differences between Caustic Soda (NaOH) and EcoCIP, a sustainable alternative, in terms of pH, TDS, rinsibility, water consumption, corrosiveness, biodegradability, and cost. The data provides insights to help dairy, food processing and beverage industry professionals make informed decisions.

EcoCare®
Hygiene & Water

# Comparison Table

| Description | Caustic Soda (NaOH) | EcoCIP |
|---|---|---|
| pH (1% solution) | 12.5-13 | 8.5-9 |
| **TDS (0.1% solution) - PPM** | **2700** | **700** |
| Rinsibility | Slow | Fast |
| **Water consumption** | **High** | **Low** |
| Corrosiveness | High | Low |
| **Biodegradability** | **Not Biodegradable** | **100% biodegradable** |
| Safety | Hazardous | Non-hazardous |
| **Cost** | **Low** | **High** |

# Conclusion: Embracing a Sustainable Future

The trial results of EcoCIP have demonstrated the immense potential of this organic and enzyme-based cleaning solution to transform the dairy, brewing and beverage industries. By delivering superior cleaning performance, reducing water consumption, and enhancing worker safety and environmental sustainability, EcoCIP represents a groundbreaking innovation that can propel the industry towards a more responsible and eco-friendly future.

As the global focus on sustainability continues to intensify, the adoption of solutions like EcoCIP will become increasingly crucial for dairy, brewing and beverage producers to maintain their competitive edge, comply with evolving regulations, and meet the growing demands of environmentally conscious consumers. By embracing this sustainable alternative, the industry can not only reduce its environmental impact but also pave the way for a more prosperous and innovative future.

# Championing Sustainable Innovation

## Collaboration

The successful implementation of EcoCIP was the result of a collaborative effort between the dairy, brewing and beverage producers and the EcoCIP team, working together to identify and address the unique challenges faced by the industry.

## Innovation

EcoCIP represents a pioneering step towards more sustainable and environmentally responsible cleaning solutions, setting a new standard for the dairy and beverage industries and championing the adoption of innovative technologies.

## Continuous Improvement

The EcoCIP team is committed to ongoing research and development, continuously refining the formulation and exploring new ways to enhance the performance and sustainability of their cleaning solutions.

# Research and Development

EcoCare's commitment to innovation and sustainability is reinforced by its dedication to ongoing research and development. Through collaborations with industry experts and academic institutions, EcoCare aims to further enhance the performance and environmental benefits of EcoCIP, solidifying its position as a leader in eco-friendly cleaning solutions for the dairy industry.