

ECOLAB[®]



Maneuvering Critical Protection Points through CIP, Pest Elimination, & Water Treatment

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SEAL – Food & Beverage-GOBS

November 13, 2024

ECOLAB



Ecolab At A Glance

We partner to make the world cleaner, safer and healthier – helping customers succeed while protecting people and the resources vital to life.

- Based in St. Paul, Minnesota with Nalco Water's headquarters in Naperville, Illinois (Global Industrial)
- 48,000 associates globally with +10,000 Industrial associates located across 170+ countries
- 11,600+ patents, with innovations developed by global RD&E network with over 1,100 scientists

Global and growing:



Serving **millions** of customer locations



20 global technology and innovation centers



Over 110 manufacturing facilities

Protecting What's Vital™



PEOPLE & PET HEALTH

Help people and their pets thrive by protecting their individual health, the food they eat and the spaces where they live and work.

PLANET HEALTH

Help the planet thrive by protecting the earth's climate and its most valuable resource: water.

BUSINESS HEALTH

Help business thrive by protecting their reputations and their bottom line.

Protecting The World's Most Recognized Brands



Lodging

- Marriott
- Hilton
- CBRE



Healthcare

- Johns Hopkins
- Abbott
- Olympus



Restaurants

- McDonald's
- Panera
- Starbucks
- Darden
- Yum Brands



Food & Beverage

- Pepsi
- ADM
- Coca Cola
- Nestle
- ABInBev



Life Sciences

- Unilever
- L'Oreal
- GSK



Food Retail & Services

- Kroger
- Sodexo
- Walmart



Energy

- ExxonMobil
- Chevron
- Aramco



Industrial Technology & Manufacturing

- Apple
- Microsoft
- WestRock
- DOW

The World's Sustainability Company

48,000

Associates

40

Industries

170+

Countries

1,200+

Scientists

1,000+

Digital Experts



Water
1.1 Trillion
Gallons Managed



Food
36%
World's Processed Food Protected



Climate
22%
World's Power Generated



Health
60 Billion
Hands Cleaned

Ecolab Delivers Value By Ensuring The Best Outcomes



Breakthrough
Technology

On-site
Expertise

Global Know-
how

Predictive
Insights

**Best Results At
Highest Rate Of Return**

26,000 Field
Associates

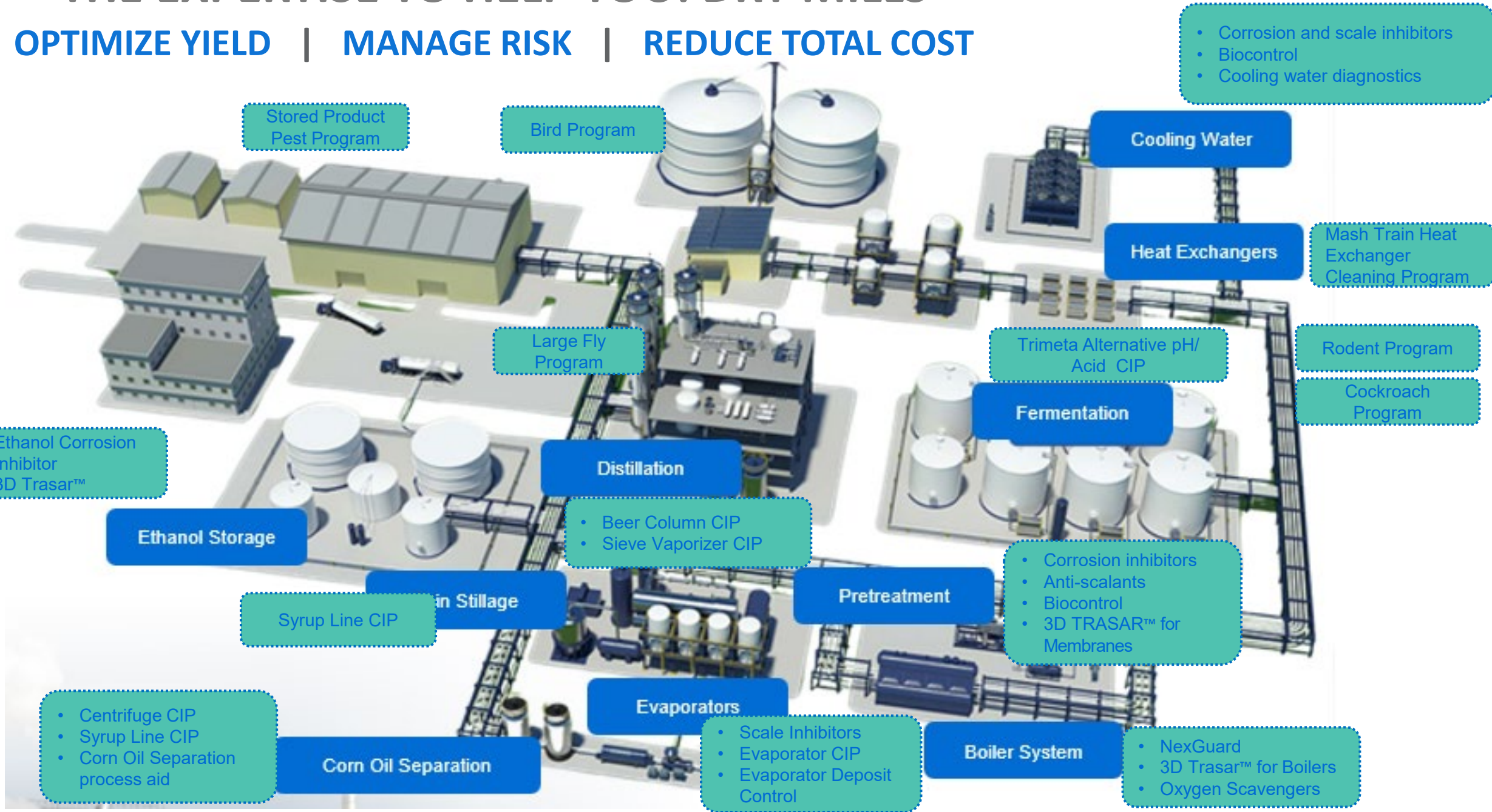
15,000+
Engineers

1,200+
Scientists

1000+ Digital
Experts

THE EXPERTISE TO HELP YOU: DRY MILLS

OPTIMIZE YIELD | MANAGE RISK | REDUCE TOTAL COST



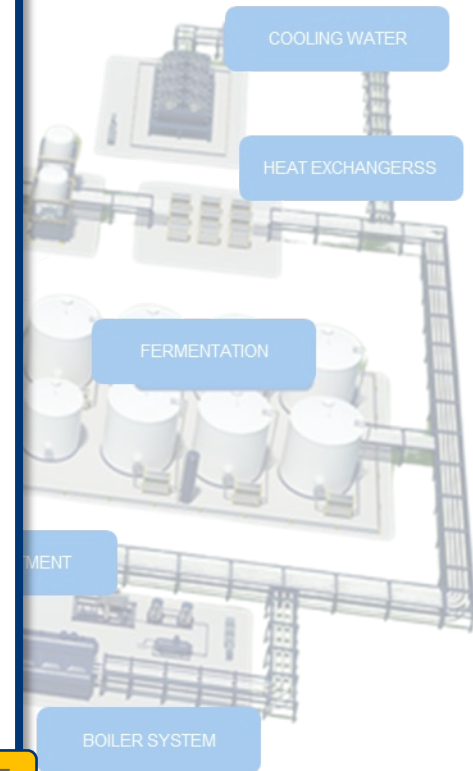
Fermentation



The Trimeta alternative pH CIP program is heavily built to take on the toughest cleaning challenges in fermentation.

- Impacts fermentation batch quality by helping decrease glycerol, sodium and process organics
- Adds process consistency by running longer between cleanings and cutting down on unintended foam overs
- Potential for operational savings from reduced water, energy and waste treatment costs

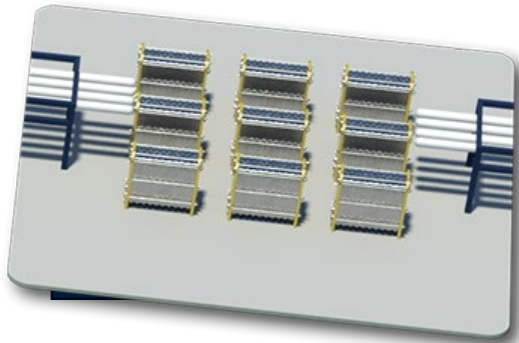
- Trimeta Alternative pH Clean in Place
- Trimeta Acid Clean in Place



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Heat Exchangers

Our Mash Train Heat Exchanger cleaning program:



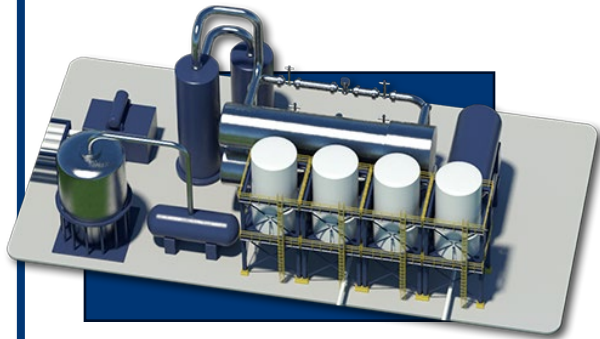
- Single phase cleaning
- Assists the plant in becoming FSMA compliant
- Improves heat transfer
- Enhances infection control by removing bio film formation

- Mash Train Heat Exchanger Cleaning Program
- Omni



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Evaporators



- Scale Inhibitors
- Evaporator Clean in Place
- Evaporator Deposit Control

Our Evaporator Management Program includes:

- FDA-approved scale inhibitor product line includes calcium oxalate/beer stone formation and magnesium phosphate formation inhibitors
- Evaporator modeling pinpoints exactly when and where to clean-in-place (CIP); then quantifies the impact
- Proprietary Evaporator CIP programs
- Partnership with Aquatech International that can enable design, construction and expansion of Evaporator systems

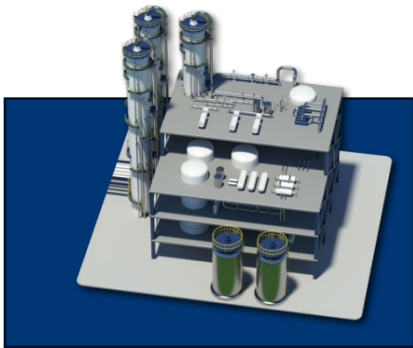
Benefits:

- Reduces total cleaning time
- Improves cleaning effectiveness
- Eliminates acid cleaning
- Improves heat transfer
- Reduces water usage
- Reduces or eliminates costly hydroblasting



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DISTILLATION



Our unique beer column / distillation cleaning helps:

- Reduce operating pressures
- Increase beer feed rates
- Reduce downtime
- Eliminate hydro-blasting
- Improve employee safety

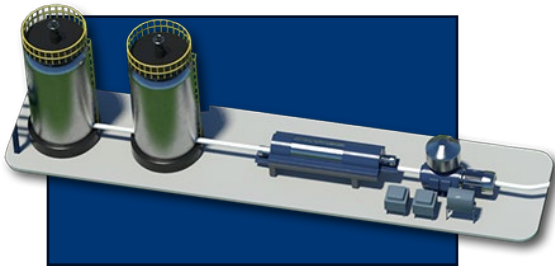
- Beer Column Clean in Place
- Sieve Vaporizer Clean in Place



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Corn Oil Separation



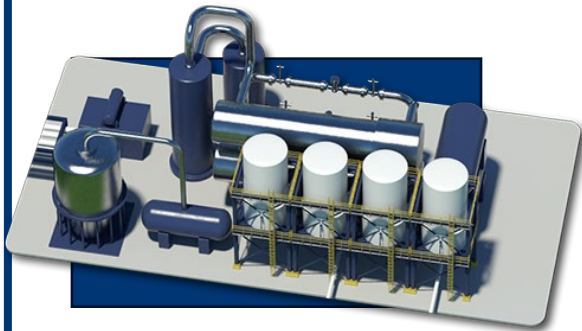
- Centrifuge Clean in Place
- Syrup Line Clean in Place
- 8110/8109 +

Our Corn Oil Separation Program boosts your bottom line.

- Increased corn oil yield
- Improved crude corn oil quality
- Optimized recovery with innovative monitoring, automation and control technology
- Improved cleaning effectiveness of Tri-canters/Disc Stacks reduces system vibration and cleaning time, and increases corn oil separation efficiency
- Enhanced recovery across multiple equipment platforms
- GRAS-approved chemistries



Thin Stillage



Our Thin Stillage Clarification process allows plants to increase ethanol output and corn oil capture.

- Nonfermentable solids reduced in back set
- Allows for higher starch loading in mash
- Reduces thin stillage suspended solids allowing for higher solids concentration in syrup leading to less water to the dryer
- Captures over 85% of all the crude oil present in thin stillage' easier downstream corn oil recovery

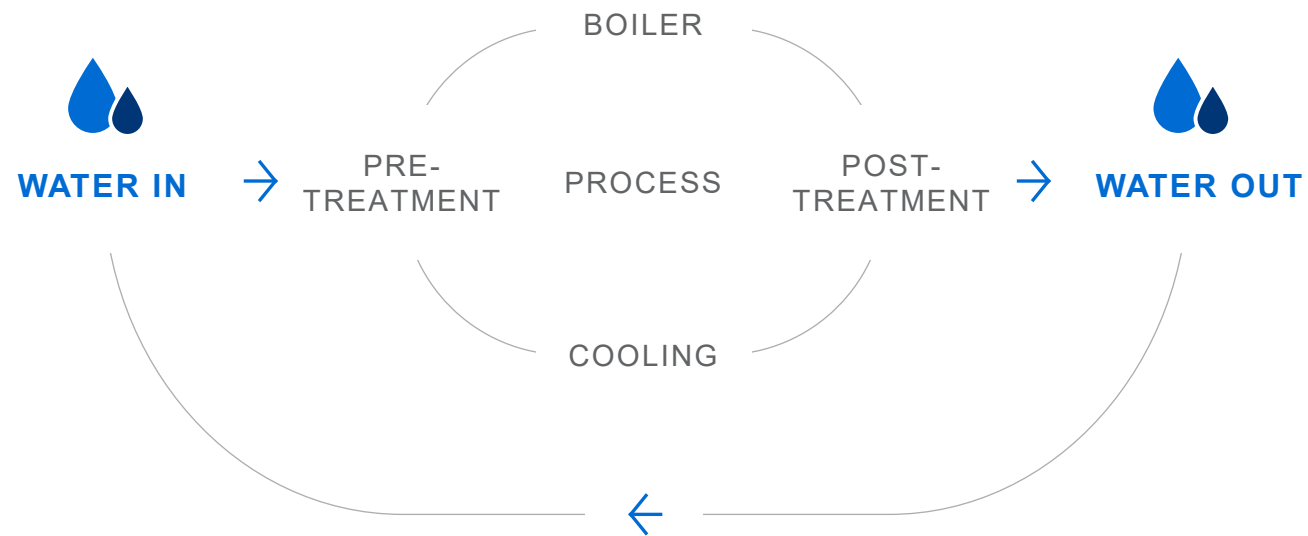
- Syrup Line Clean in Place



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Addressing water management holistically

We take a **comprehensive water management approach** to industrial water systems, combining chemistry with digital technology and expertise to help our customers only use what's necessary.

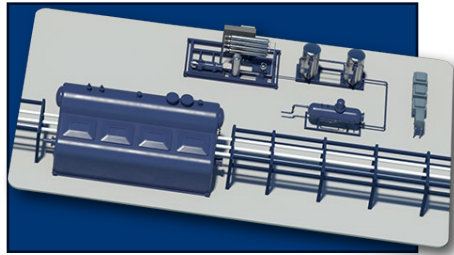


Reduce
Single Applications

Reuse
Between Applications

Recycle
Post-treatment

PRETREATMENT



- Corrosion Inhibitors
- Biocontrol
- 3D Trasar™ for Membranes

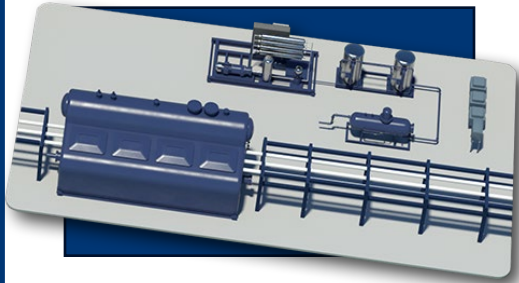
Our PermaCare™ product line helps resolve RP problems typically at a lower cost than using ion exchange to remove hardness.

- **Highly effective anti-scalants** prevent mineral deposits that cause fouling and downtime from buildup on your membrane
- **3D TRASAR™** Membrane Technology provides precise anti-scalant dosing
- **Specially formulated cleaners** remove mineral scale, insoluble scale, organic fouling or microbial residues
- **Biocides** to help minimize the impact of bio-growth on the operation of your RO system



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Boiler Systems



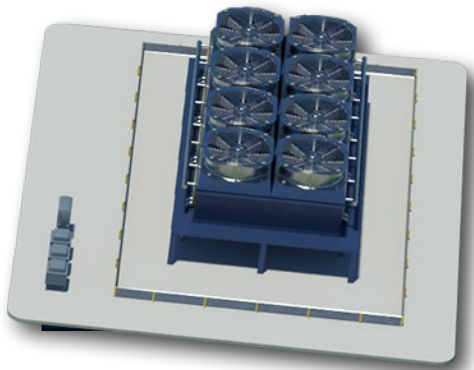
- NexGuard
- 3D Trasar™ for Boilers
- Oxygen Scavenger

3D TRASAR™ Boiler Technology helps you produce reliable, safe, and cost-effective steam via a total system approach.

- Water and energy savings delivered through optimized programs
- FDA-approved oxygen scavengers, internal treatment, and condensate corrosion inhibitor
- Monitoring and control of real-time internal treatment and pre-boiler system corrosion
- Steam system protection with programs tailored for your needs
- Our Hardness Response Program detects hardness events and provides immediate response to minimize potential impact



Cooling Water



3D TRASAR™ Cooling Water Technology detects system variability, determines the correct response, and delivers:

- Water savings with increased cycles of concentration
- Scale and fouling prevention reduces energy
- Extended asset life through customized applications
- Access to real-time system data via performance dashboards
- Confidence that system experts are watching your system 24/7

- Corrosion and Scale Inhibitors
- Cooling Water Biocontrol
- Cooling Water Diagnostics



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Ethanol Storage



- Ethanol Corrosion Inhibitor
- 3D Trasar™

With EC5624A Plus Ethanol Corrosion Inhibitor, corrosion rates improve, and costs go down.

- Optimize treat cost with pinpoint dosage from our proprietary 3D TRASAR™ Technology
- Outstanding pHe buffering power in a wide range of fuels
- Better cold weather handling; no heated storage required
- Excellent corrosion protection without risk of intake valve deposits
- Inhibitor exceeding RFA recommendations for long term pHe buffering and corrosion inhibition
- Lowest approved treat rate



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Our Solutions

Delivering insights, action and value

- Innovative, science-based chemistry programs and deep domain expertise
- Industry-leading automation, monitoring and control technology
- Advanced digital intelligence solutions powered by the ECOLAB3D™ platform



WATER



ENERGY



GREENHOUSE
GASES



PRODUCTIVITY



CAPACITY

eROI™
by Ecolab

Smart Management

Powered by ECOLAB3D™



3D TRASAR™ Automation / Control Technology

- Systems installed in more than 20,000 plants
- More than 30,000 connected sensors and controllers



ECOLAB3D Data and Analytics Platform

- Industrial cloud-based intelligence platform
- Real-time and predictive analytics
- Enterprise visibility to track performance and benchmark



Ecolab Global Intelligence Center

- Team of experts who provide 24 / 7 / 365 monitoring
- 100% connected through remote locations
- Over 2 million actions taken to provide customer support



Pest Intelligence Overview



1 Innovative Technology

- 24/7/365 connected rodent monitoring
- Alerts managed by the Ecolab Global Intelligence Center

2 Advanced Analytics

- Predictive Analytics model
- Pest trends and analytics
- Risk-based reporting



3 Insight-Driven Service

- Root cause analysis and prevention
- Risk assessment visits and risk-based service

4 Customer Actions

- Corrective actions tools and insights
- Robust, closed-loop resolution and accountability

Targeted Root Cause Analysis Reduces Reoccurrences

	FROM	TO Pest Intelligence
Service Visit	Catch confirmed during scheduled visit	Catch detected at 10:02am; Service Specialist arrives for unscheduled visit
Root Cause	Begin looking for holes, harborage, and other points of entry	Review trap data. Delivery arrived at 10am, receiving doors were left open
Corrective Actions	No obvious root cause found	Team instructed to close doors immediately, sealed gap near door
Next Scheduled Service Visit	<p>Additional rodents located; reproduction occurring</p>  <p>Infestation likely</p>	<p>No new alert activity; zero interior pest activity</p>  <p>Infestation avoided</p>

RODENTS



- Connected Rodent Devices
- In-house fumigation services
- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

Our Rodent Program includes:

- Digital portal to monitor pest trends/activity, service reports, and documentation
- Inspection of the perimeter to identify signs of Rodent activity, possible entry points, and conditions conducive to Rodent activity
- Exterior Services: Install and maintain Rodent traps and Rodent bait stations
- Interior Services: Install and maintain interior Rodent traps
- Inspect, clean, and date Rodent bait and trapping equipment during regular service visits



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COCKROACHES



Our Cockroach Program includes:

- Inspect the facility to locate and record noted Cockroach activity, harborage sites, and conditions conducive to Cockroach activity
- Utilize non-chemical methods to suppress pests utilizing IPM techniques and methods.
- If necessary, provide appropriate targeted product applications

- In-house fumigation & fogging services
- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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STORED PRODUCT PESTS



Our Stored Product Pest Program includes:

- Inspect the facility to determine pest species, locate breeding sites, and look for other signs of Stored Product Pest activity and conditions
- Establish a pheromone monitoring program to help identify location and activity early
- Provide recommendations on structural and sanitation practices to minimize stored product pest activity
- Provide targeted product applications during regular service visits

- In-house fumigation & fogging services
- Moth Mating Disruption
- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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BIRDS



Our Bird Program includes:

- State-of-the-art techniques and technology including non-lethal, non-disruptive, discreet, and humane methods in compliance with the latest legislation
- Meet health inspection requirements and comply with OSHA standards
- Full-site survey and risk assessment
- Cleaning areas with bird activity and removing nests
- Using audio, visual, and approved targeted baiting

- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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MOSQUITOS



Our Mosquito Program includes:

- Inspect the property and grounds for potential breeding and adult resting sites.
- Provide recommendations to mitigate potential breeding sites
- Targeted applications to those sites to minimize breeding activity
- If necessary, installation of Ecolab's mosquito traps in areas where people congregate

- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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SMALL FLIES



Our Small Fly Program includes:

- Thorough inspection to identify and treat the breeding source
- Both targeted and widespread services to eliminate Small Fly infestations and help prevent them from returning
- Recommendations to improve conditions and reduce fly activity

- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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LARGE FLIES



Our Large Fly Program includes:

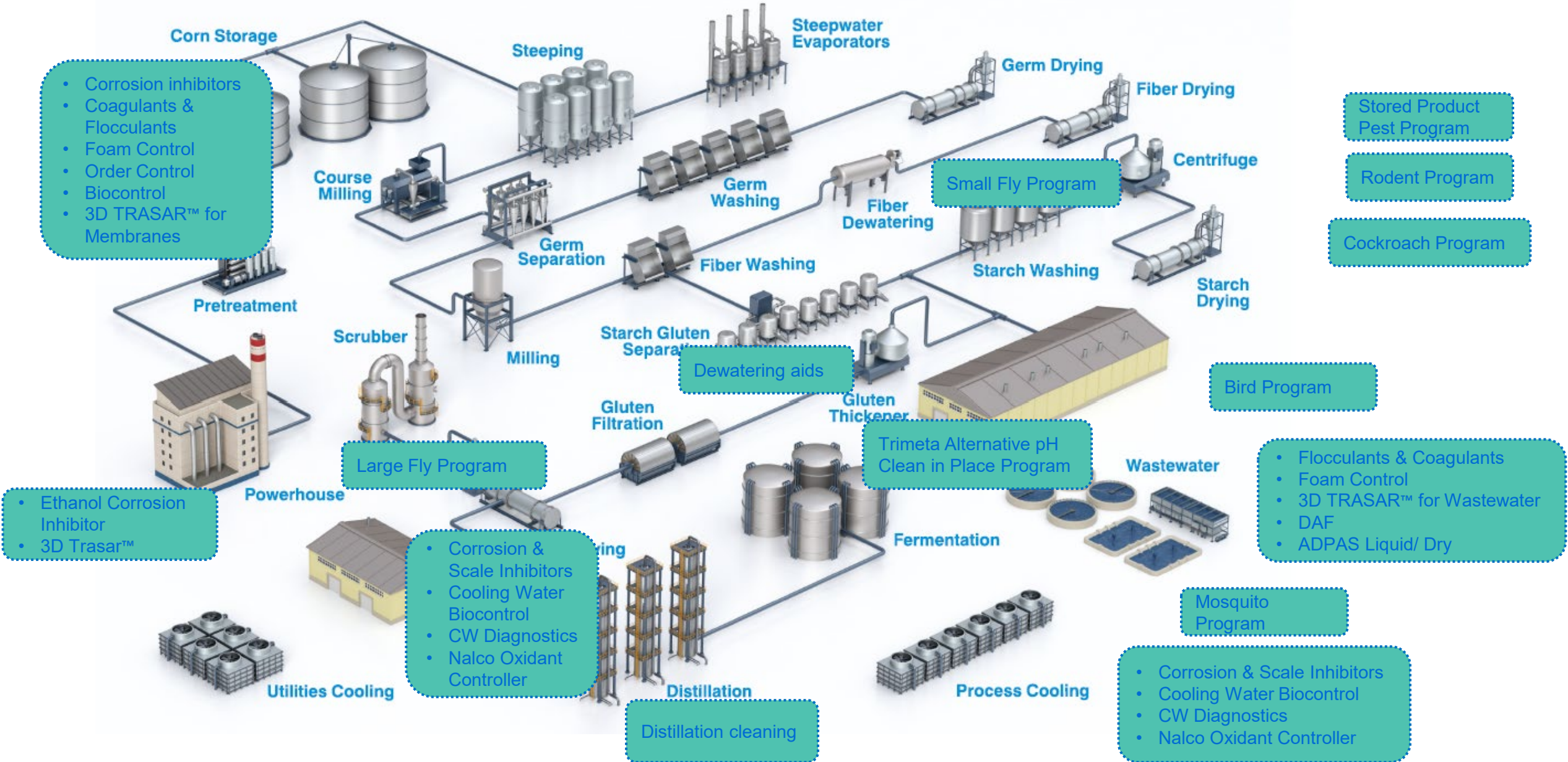
- Inspect the facility and identify possible sources and entry points.
- Install and service fly stations and equipment
- Interior Services: Provide targeted product applications and install Ecolab insect light traps
 - For Ecolab Insect Light Traps, glue boards and light bulbs will be replaced as needed. Ecolab will ensure proper recycling of bulbs.
- Exterior Services: Provide targeted product applications in dumpster areas and facility entry points.

- Outside-In, Science-based Protocols
- Pest Trends/Activity dashboards
- Digital Service Reports & Documentation

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THE EXPERTISE TO HELP YOU: WET MILLS

OPTIMIZE YIELD | MANAGE RISK | REDUCE TOTAL COST



- Corrosion inhibitors
- Coagulants & Flocculants
- Foam Control
- Order Control
- Biocontrol
- 3D TRASAR™ for Membranes

Stored Product Pest Program

Rodent Program

Cockroach Program

Small Fly Program

Bird Program

Large Fly Program

- Flocculants & Coagulants
- Foam Control
- 3D TRASAR™ for Wastewater
- DAF
- ADPAS Liquid/ Dry

- Ethanol Corrosion Inhibitor
- 3D Trasar™

- Corrosion & Scale Inhibitors
- Cooling Water Biocontrol
- CW Diagnostics
- Nalco Oxidant Controller

Mosquito Program

- Corrosion & Scale Inhibitors
- Cooling Water Biocontrol
- CW Diagnostics
- Nalco Oxidant Controller

Distillation cleaning

Moving forward, faster, together

By 2030 we aim to:



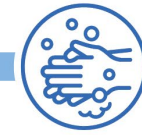
Help customers save **300 billion gallons** of water, equivalent to the drinking water needs of **1 billion people**



Help customers avoid the generation of **6 million metric tons** of greenhouse gas emissions, preventing nearly **10 million pollution-related illnesses**

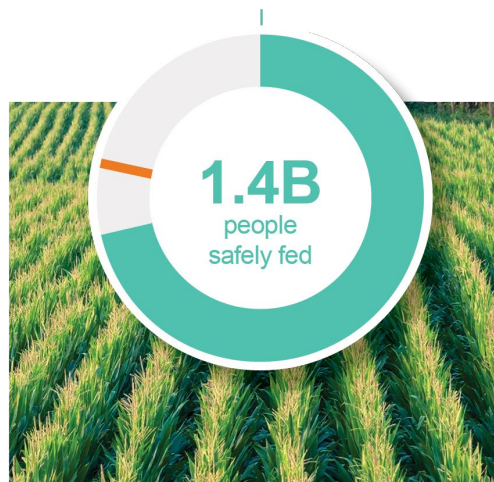


Help customers provide enough high-quality and safe food to feed **2 billion people** and prevent **11 million foodborne illnesses**



Help clean **90 billion hands** and provide safe medical care for **116 million people** each year, reducing more than **1.7 million infections**

HERE'S HOW WE PARTNERED WITH CUSTOMERS IN 2023 TO GROW OUR POSITIVE IMPACT:



ECOLAB[®]
PROTECTING WHAT'S VITAL[™]

