



Solutions for

TISSUE & TOWEL MANUFACTURERS

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SAFETY MOMENT



COVID-19 & hand washing

TAKE 20 SECONDS TO HELP PREVENT THE SPREAD OF COVID-19

DID YOU KNOW?



Pathogens such as influenza or coronavirus can travel **up to 6 feet** when a sick person coughs or sneezes.¹



Handwashing can reduce the risk of respiratory infections by **21%**.²

HERE'S HOW TO PRACTICE GOOD HANDWASHING:



WET

hands with clean running water, turn off the tap and apply soap.



LATHER

the backs of hands, between fingers and under nails.



SCRUB

for at least 20 seconds.



RINSE

hands well under clean running water.



DRY

hands using a clean towel or air dryer.

IF SOAP AND WATER ARE NOT AVAILABLE, use an alcohol-based hand sanitizer that contains at least 60% alcohol.



> CLEAN HANDS ARE SAFE HANDS.

Contact your **Ecolab representative** to learn how to help your team practice good hand hygiene.

ECOLAB[®]

¹ https://www.cdc.gov/nonpharmaceutical-interventions/pdf/244999c-6_Slow-the-Spread-of-FU-Factsheet-final-508.pdf

² <https://www.ncbi.nlm.nih.gov/pubmed/18556606>

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NALCO Water
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About Ecolab



Headquartered in
St. Paul, MN

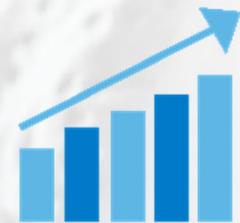
Founded in **1923**

25,000+
Sales & service team
members



44,000
Global employees

Serving customers in
170+ countries



\$13 billion
In 2019 sales

\$55 billion
Market capitalization

Ecolab in Southeast Asia

- 1** Technology Centre
- 10** Countries in the SEA Market
- 10** Plants & Warehouses
- 21** Offices
- 1,500+** Employees



AGENDA

Re-opening safe:
hygiene and
sanitation best
practices

**Water
sustainability:**
Holistic water
management

**Smart mill
operation:**
Yankee Operation
Intelligence

ECOLAB

Global Leader in Water, Food, Climate, Health Technology & Services



Water

Save customers **300 billion gallons [1.1 billion m³]** of water each year, equivalent to the needs of **1 billion** people



Food

Help customers provide high-quality and safe food to **1.8 billion people** for an entire year, preventing **11 million** foodborne illnesses



Climate

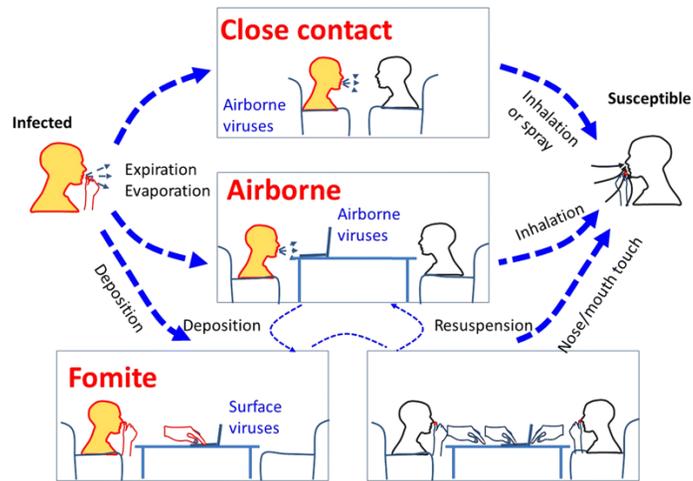
Help customers become carbon neutral by reducing greenhouse gas emissions by **4.5 million metric tonnes**, preventing **7.3 million** pollution-related illnesses



Health

Help clean **50 billion** hands and provide safe medical care for **116 million** people each year, reducing more than **1.7 million** infections

Transmission control



INFECTION CONTROL MEASURES

Hand Disinfection

7 Steps to Effective Cleaning & Sanitizing with soap and sanitizer

Surface Disinfection

Use chlorine disinfectants, verified sanitizer to wipe the surface of the item and spray the wall and floor

Space Disinfection

Using ultra low-volume spraying method, with special disinfectants disinfection of space and untouchable area

COVID-19 PREVENTION

▶ CLEAN THOROUGHLY & ROUTINELY

CLEAN & DISINFECT

frequently touched objects and surfaces with a properly registered disinfectant.

- Light and air control switches
- TV and remote controls
- Door handles and push plates
- Faucets and toilet flush levers
- Telephones and computers
- Other surfaces as needed



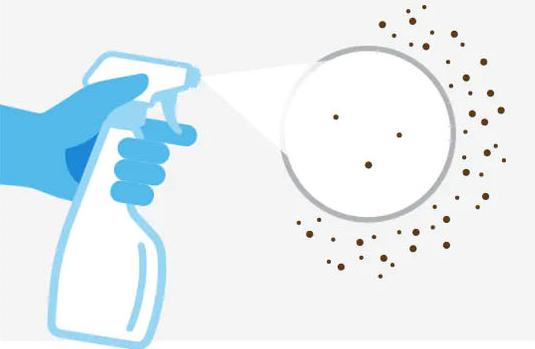
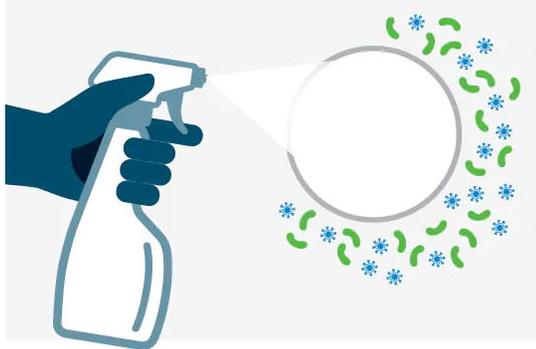
All surfaces that may have contacted respiratory secretions, urine or feces according to standard infection control procedures.

CLEAN & SANITIZE

Follow warewashing standards for plates, glass, silverware and other ware.



Differences between **CLEANING, SANITIZING AND DISINFECTING**

Cleaning	Sanitizing	Disinfecting
REMOVES SOIL from a surface but <i>does not kill</i> any organisms.	REDUCES the number of BACTERIA in the environment, significantly.	DESTROYS or irreversibly inactivates BACTERIA AND VIRUSES*
		

 Sanitizers and disinfectants are regulated by the U.S. Environmental Protection Agency (EPA) and are used to manage public health risks. It is a violation of Federal law to use these products in a manner inconsistent with labeling.

*See product label for specific organism claims



RECOMMENDED PRECAUTIONS

Reduce the risk of virus infection at all levels by strictly practicing and enhancing cleaning and disinfecting standards

- ❑ **Food contact surfaces:** apply disinfection procedures to reduce the amount of microorganisms
- ❑ **General surface:** practice disinfection exercises, and stimulus free to protect facilities and personnel.
- ❑ **Hand hygiene:** apply anti-bacterial hand soap, shall be visible and easy to access.



Space & surface disinfection

Indoor disinfectant ultra-low-volume spray treatment uses professional equipment and specific disinfectants. This is specialized [contingency measures](#) for spraying disinfectants on the interior of the site during outbreak period.

- This measures can reduce instant risk of outbreak disease, but not primarily defense means to reduce the risk of outbreak disease, eventually environmental sanitation ([surface disinfection](#)) and personal hygiene ([hand sanitization](#)) are essential.
- Equipment: Portable electric ultra-low volume sprayer or other advance equipment.
- Material Used: Sanitizer / disinfectant
- Preparation of the plan: Understand the site conditions in the treatment determine the types of equipment used and disinfectant application.
- On-site implementation: Strictly follow [standard operating procedures](#) to service effectiveness and personnel safety protection.
- Note: Personnel is not allowed to enter or stay in the treatment area during the entire operation, closed period and ventilation to prevent safety issue.



- #The above equipment picture for reference only and may differ from actual used on site

Space & surface disinfection

- Space treatment can, on the one hand, complement routine cleaning and wet sanitizing to target less accessible surfaces. On the other hand, its comprehensive coverage can make every corner you touch becomes germ-free and safe
- Effective air sanitizing. Through this treatment, the air circulating in the Air Handling Units (AHU) will be sanitized and disinfected, minimizing the exposure of undesirable air to your employees and customers
- This Space-and-Surface Treatment should be complemented with regular cleaning and sanitation services, and it is not a substitute for them.

INDUSTRY MARKET DRIVERS: TISSUE & TOWEL



RISING FIBER COSTS

- Less softwood while maintaining strength
- Recycled fiber use while maintaining softness
- Evaluation of non-wood alternatives
- Increased Bulk/BW



SUSTAINABILITY & INCREASED ENVIRONMENTAL COMPATIBILITY

- Sustainability is a major attribute in product and company image promotions



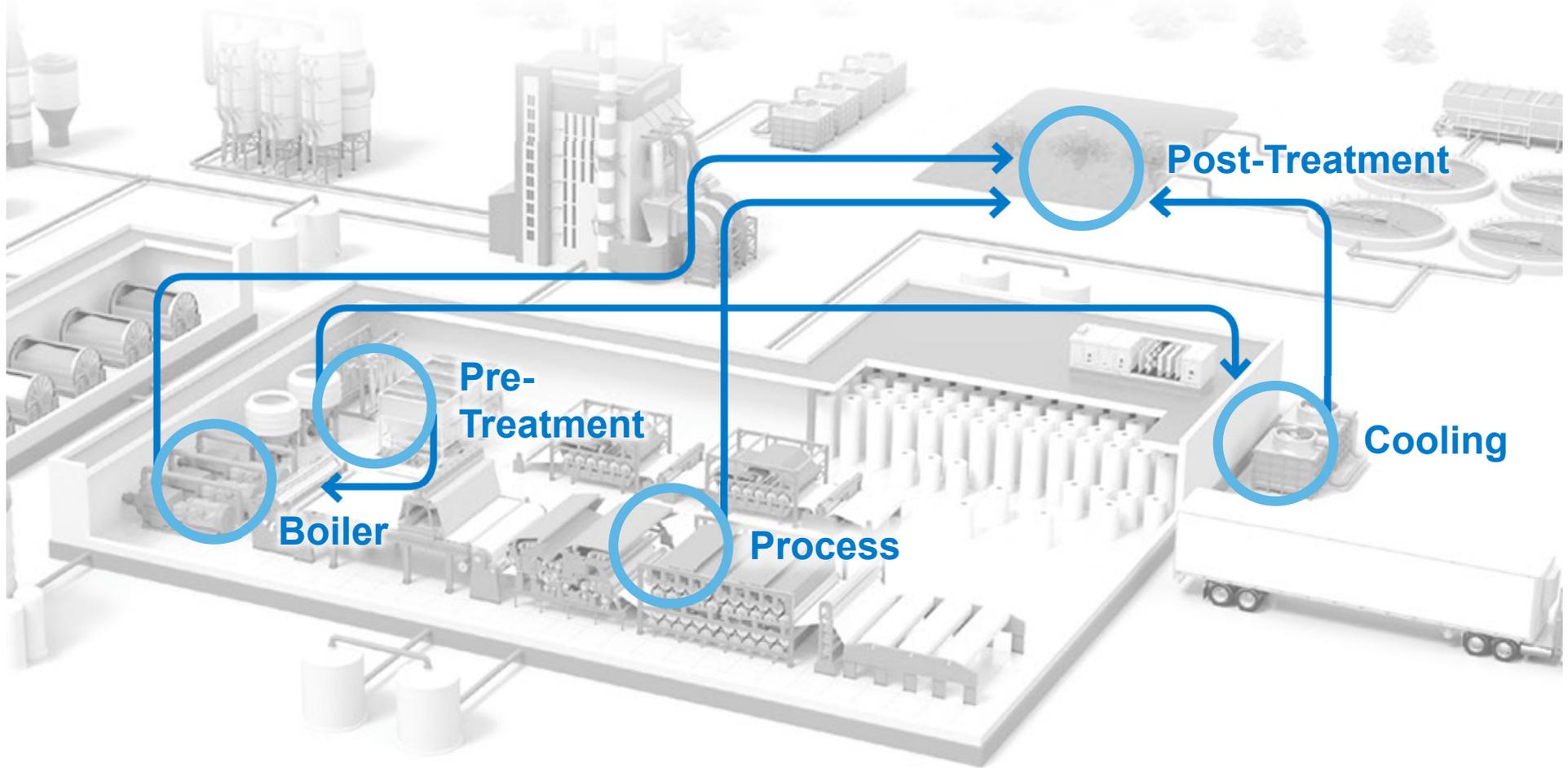
CONSUMER DEMAND

- Ultra Soft
- Strength
- Absorbency



HOLISTIC WATER MANAGEMENT:

managing impact at all flow points





HOLISTIC WATER MANAGEMENT:

managing impact at all flow points

PRE-TREATMENT

- Improve water clarity
- Prevent scale buildup & corrosion
- Reduce off-specification product

POST-TREATMENT

- Meet regulatory discharge compliance
- Enable water recycle capability
- Minimize sludge hauling costs

BOILER

- Increase reliability & uptime
- Reduce cleaning maintenance & service calls
- Avoid unnecessary costly repairs & total asset replacement

Pre-Treatment

PROCESS

- Optimize reuse or process effluents to minimize overall water demand
- Repurpose water-energy sources to minimize energy costs & optimize performance
- Ensure proper chemical mixing for maximum efficacy

COOLING

- Enable water reuse for utility & process streams
- Reduce energy consumption with clean cooling tower surfaces
- Meet operational temperature specification to meet product & discharge requirements

 **BACK**

CREPING TECHNOLOGY

CASE STUDY: Tulip Creping Technology
replaces PAE resin to increase production rate and extend asset life, making better quality products with less energy and chemical consumption



ASSET
PROTECTION



REDUCED
COSTS



PRODUCTIVITY
GAINS



PRODUCTIVITY

Incremental Profit



Increased
productivity with
protected critical
assets

= **\$520K/YR**



CHEMICAL



Decreased
creping adhesion
and release
chemical uses

= **\$200K/YR**



FRESH WATER



More than
500,000
gallons
water saved
per year



OxiPRO™ MICROBIAL CONTROL TECHNOLOGY



OxiPRO Microbial Control Technology enhances control of microbial growth and deposit-formation, improving **production efficiency and product quality**.

- Improved environmental impact
- Prevents unnecessary downtime
- Lowered cost of operation

- **Patented chemistry** and tailored application strategies
- Proactive, **real-time** monitoring
- Experienced and committed **on-site service expertise**





OxiPRO™ MICROBIAL CONTROL TECHNOLOGY



- BENEFITS & VALUE:
 - Reduced deposits and off quality production
 - Proactive monitoring for real-time response
 - Improved uptime



ASSET

Incremental Profit



Boilout reduced from 12 to 6 saving \$887,949/yr and Reduced machine microbial count levels saving

= \$55K/YR



WATER



Reduced boilout freshwater consumption by 1,440 m3/yr
Reduced 7,200 kg/yr of caustic soda discharged into wastewater

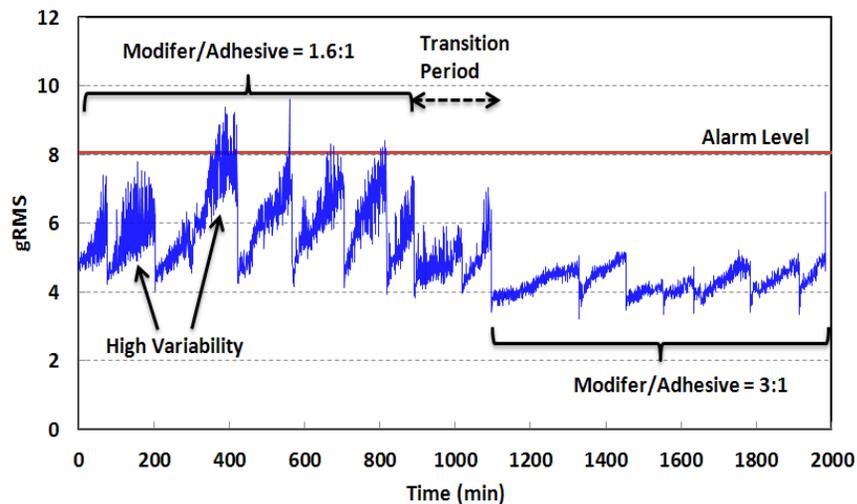


EARLY WARNING CHATTER DETECTION (EWCD)

Produce **high quality creped products** while optimizing **operation efficiency** and **increasing bottom line financial results**

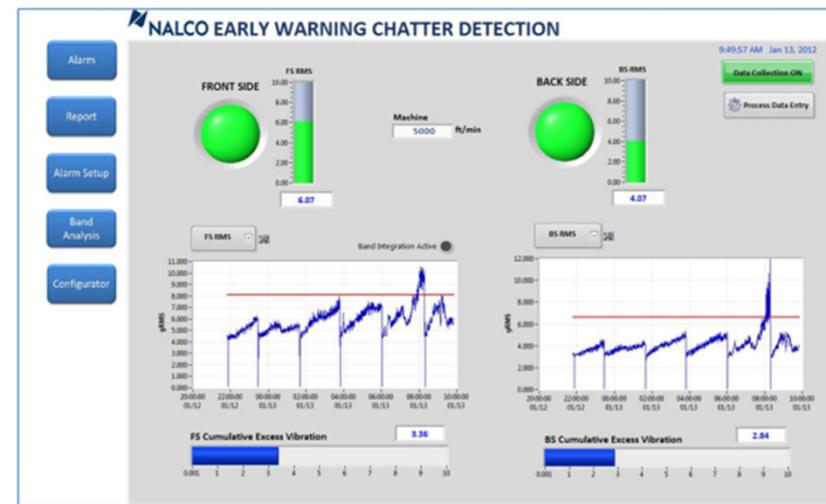
Protecting Vital Assets

Use EWCD to optimize the dryer unit operation mechanically, operationally and chemically to reduce vibration below historical chatter inducing levels.



Continuous Real-Time Monitoring

Reduce overall blade vibration with an intuitive operator interface that monitors vibration and alerts the operator when levels approach alarm limits.





EWCD + DIGITAL INNOVATION = YANKEE OPERATION INTELLIGENCE

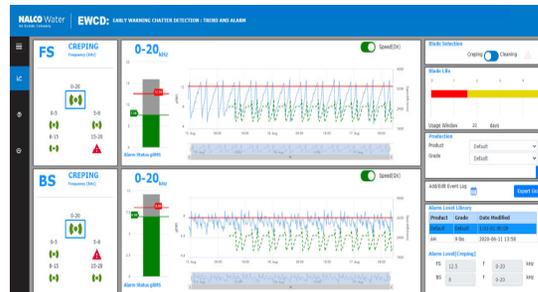
A digitally-enabled holistic platform that optimizes unit operations around Yankee dryer by combining patented chemistries, proprietary monitoring technologies, process data, and data analytics.

New EWCD hardware



- New hardware: 67% lighter and 41% smaller volume
- Fanless industrial PC

Next-Generation EWCD software



- Monitoring expanded to both creping and cleaning blades
- Multiple frequency band trending and alarming
- Blade performance analysis

Ecolab 3D Performance Index Reporting & Predictive Analytics



- Data aggregation for EWCD and process data
- Performance tracking
- Predictive Analytics
- WEM data potential integration

The background features a grid of white toilet paper rolls. The bottom portion of the image is dominated by a vibrant blue water splash with ripples and droplets, creating a sense of freshness and purity.

THANK YOU

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