
# 3D TRASAR™ TECHNOLOGY FOR CIP & ECOLAB'S PERSONAL SERVICE

ECOLAB®

CH-1857

## Ecolab innovation helped dairy achieve consistent CIP performance – and consistently high quality milk

### BACKGROUND

Kemps, a wholly owned subsidiary of Dairy Farmers of America and major dairy producer since 1914, operates six manufacturing plants in Minnesota and Wisconsin. Driven by a mission to "nourish families," Kemps has long embraced innovation to achieve excellent taste and quality in its fresh milk, premium ice cream, frozen yogurt and other products. Its focus on excellence has paid off: today, Kemps continues to be a leading brand among consumers in the Upper Midwest.

Fresh milk is the primary product manufactured at Kemps' plant in Rochester, Minnesota. Like other high-volume operations, the Kemps Rochester plant uses clean in place (CIP) systems to effectively clean and sanitize its milk processing equipment and help protect its products from microbial contamination.

"It is critical that our CIP process performs well," said Roger Domask, Operations Manager at the Kemps Rochester plant. "The safety and quality of our products – as well as our reputation – are at stake. We always look for ways to operate more efficiently, but never at the cost of safety and quality."

### CHALLENGE

In 2011, Kemps broadened their product portfolio, putting new demands on their CIP system. Working with Ecolab, they initiated a concerted effort to enhance CIP performance and increase preventive maintenance to help achieve more operational efficiency and consistency across their CIP operations.

| Customer Impact | eROI℠ | Annual Economic Impact |
|---|---|---|
| Product quality improvement | PRODUCT QUALITY | Monthly variability in % passing decreased by 55% from 2013 to 2014<br><br>Average % passing end of code increased by 1.1% from 2013 to 2014 |
| Reduced cleaning time | PRODUCTIVITY | Saved 1295 hours cleaning time |
| Reduced water consumption for cleaning | WATER | Conserved 963,750 gallons of water |
| Optimize cleaning cycles | ENERGY | Saved 1215 kWh electricity, avoiding 1,847 lbs of $CO_2$ emissions<br>Calculated from www.epa.gov/cleanenergy/energy-resources/calculator.html |
| Decreased chemical usage | COSTS | Reduced CIP cleaner consumption by 3,000 gallons |

*eROI is our exponential value: the combined outcomes of improved performance, reduced costs and sustainable impact delivered through our services and programs.*

## CHALLENGE cont.

Like other dairy manufacturers, Kemps has relied on periodic, manual sampling and review of extensive electronic data and paper records generated by its systems to gauge CIP performance. But traditional monitoring methods have been unable to provide comprehensive insight. "The physical checks and manual data analysis we performed could assess only a fraction of all the possible CIP parameters," said Prem Thakur, Kemps Quality Assurance Manager in Rochester.

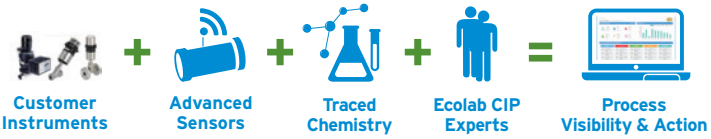
Although numerous CIP improvements were made, the manual process of identifying opportunities was too time consuming and resource intensive. Kemps needed a way to analyze multiple washes, across various unit operations to truly understand what was going on. With this valuable information they would be able to prioritize projects to gain further efficiencies. The manual CIP performance audits were good; however, they knew they could do more.

## SOLUTION

In 2013, Kemps installed Ecolab's new 3D TRASAR™ Technology for CIP, an important step in its journey to achieve increasingly consistent CIP performance – and product quality.

3D TRASAR CIP Technology provides round-the-clock monitoring of both the plant's existing controls and Ecolab's advanced chemical sensors to monitor cleaning and sanitizing performance. The data collected goes to Kemps' PLC, where an Ecolab Smart Box reads and sends the data to a secure server. Ecolab analysts then access the data and translate it into recommended corrective actions, which the customer and on-site Ecolab account manager can, in turn, implement.

### Customized Continuous CIP Optimization Program




## RESULTS

With 3D TRASAR CIP Technology, the team was able to "see" the volume of chemicals used across every single wash. This insight enabled them to compare washes and quickly determine which 3D TRASAR wash summaries to examine for variations in cleaner or sanitizer concentration levels – and identify and prioritize opportunities for improvement. In addition, the automated system eliminated the need to pour through the 1,500 charts generated each month by the plant's CIP system to identify chemical concentration deviations.

With the technology's ability to monitor chemical concentration continuously, the Kemps quality team and Ecolab CIP analysts revised the concentration range to target 4,000 ppm – a level that would help assure safe, great-tasting milk without over- or underusing cleaning and sanitizing chemicals.

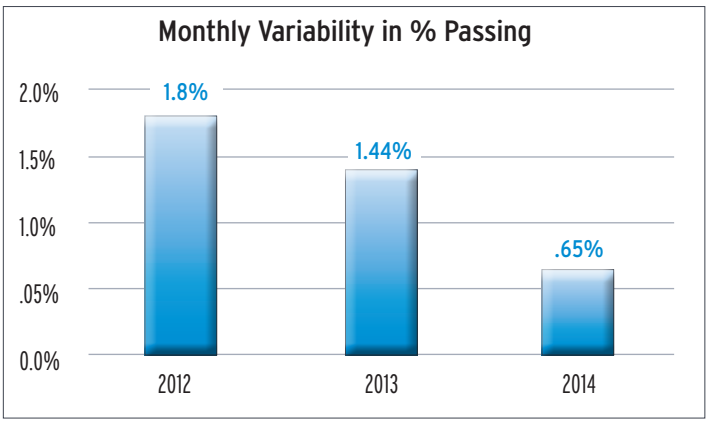
Of course, consistent chemical concentration is only one factor in an effective CIP program. 3D TRASAR CIP Technology also provided the Kemps-Ecolab team with insights into other key cleaning factors, including time, temperature and mechanical action/flow pressure, as well as the performance of CIP sensors, valves and pumps.

"The added visibility helps us pinpoint opportunities that affect critical outcomes in efficiency and product quality," said Quality Assurance Manager, Thakur.

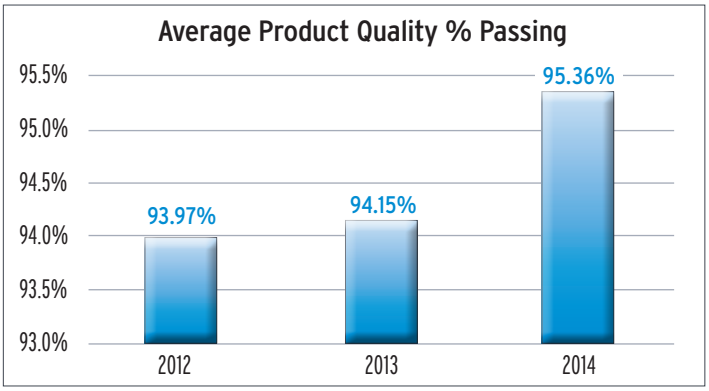
"3D TRASAR CIP has allowed us to uncover opportunities that weren't on our radar before," added Domask, the Operations Manager.

With 3D TRASAR CIP Technology, the Kemps plant recorded a further increase in overall quality and consistency. Over 12 months in 2014, the plant saw improvement and more consistency in two key indicators of shelf life.

## Percent Passing End of Code – White & Chocolate Milk




Monthly variability in % passing decreased by 55% from 2013 to 2014




Average % passing end of code increased by 1.1% from 2013 to 2014

## RESULTS cont.

Additionally, more consistent CIP performance helped the plant reduce water, thermal energy and chemistry use, save hundreds of hours of run time and thus extend asset life, as well as help ensure safer milk by lowering the risk of cross contamination. Looking ahead, 3D TRASAR CIP Technology and Ecolab's expert analysis will enable Kemps to sustain these benefits.

## CONCLUSION

"3D TRASAR CIP Technology helped us discover many opportunities for improvement," said Plant Quality Assurance Manager, Thakur. "The information it generated was certainly important. But the personal service provided by Ecolab has also been critical. The combination of data and expertise gives us confidence to continue to make improvements."

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