

# Monitoring system prevents drain on water resources

Blaine Krause\* presents a case study of an automotive glass manufacturing plant in Northern Europe and the technology it is using to improve sustainability performance, by reducing fresh water demand and eliminating zinc from wastewater.

Changes in legislation around environmental quality standards required the elimination of zinc and other heavy metals from wastewater being discharged by the plant.

This was due to the sensitive nature of the receiving water course so deadlines and standards were to be put in place.

In addition, there was to be no increase allowed in the levels of phosphate being discharged.

At the same time, the customer wanted to evaluate new approaches to reduce the total cost of operation, and also improve operational reliability through automation.

In particular there was a specific interest in reducing operator involvement and time in water quality management activities, especially the manual testing of water samples on site. Any changes needed were to be implemented with no technical risk, with reliance placed upon the water treatment partner to deliver the necessary on-site expertise and support.

The company had made a public commitment to the sustainability of its global operations, being signatory to the United Nations Global Compact and CEO Water Mandate, the Caring for Climate initiative and placing



sustainability at the centre of its operational business strategy.

It has regularly published information on its sustainability goals and their achievement and also safety, health and environmental targets.

## Goals

The customer established clear Key Performance Indicators (KPIs) for the plant with Ecolab company Nalco; particularly for the cooling system

linked to the glass production area:

- Trouble-free glass production.
- Elimination of zinc in cooling water and wastewater blowdown.
- No increase in phosphate in blowdown and wastewater above current levels.

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- Reduction in the Total Cost of Operation, in particular for fresh water costs.
- Reduced operator involvement in manual tasks.
- Automation and improved reliability of the cooling water system treatment.
- On-site expertise and support from the supplier.
- No technical risk from changes to the current cooling water management system.

The customer decided to put the improvement project out to bid to meet these goals and to identify the best company to provide the on-site expertise and support necessary.

### Programme

As part of the evaluation, Nalco also carried out a full Mechanical, Operational, Chemical and Sustainability survey (MOCS) of the cooling water system.

To address the customer's KPIs for the elimination of zinc, control of phosphate, reduction in water demand and cost, automated monitoring and control, and reduction in staff time needed for manual water quality analysis.

Nalco recommended its 3D Trasar on-line monitoring and control system, advanced chemistry with zinc-free technology, and the 360 monitoring service.

The Trasar system automatically adjusts treatment levels in response to changes in water quality, predicting the development of adverse conditions and preventing the occurrence of scale formation and other problems.

Its 360 monitoring service delivers constant monitoring of the system to support resource management strategies and helps to protect the environment.



▲ A 3D Trasar control system.

### Results

Based upon the proposal offered, the customer awarded the additional business to Nalco. The 3D Trasar technology and 360 Service were duly installed and commissioned.

The Nalco cooling water management system delivered better cooling performance through on-line monitoring and control of key system parameters. This also provided plant management with new automated data management functions not previously



▲ The programme provided several improvements once it was installed.

available, and released staff time for other duties.

Specific benefits from the use of the Nalco 3D Trasar and 360 Service programme included:

- The change to a new organic chemistry eliminated the use of zinc-based treatment.
- Zinc was eliminated from blowdown and wastewater.
- Phosphate levels remained unchanged.
- Cycles of concentration in the system were increased, reducing annual water demand by more than 10,500m<sup>3</sup>/year (14%) and consequent wastewater emissions by 29%.
- Reduced annual water costs by €6200/year.
- Released 16.25 man-days of staff time for other duties by eliminating on-site testing.
- On-line real-time monitoring of system conditions gave the customer continuous assurance of protection from scale, corrosion, and biofouling.

### Conclusion

The Nalco programme provided improvements in terms of the control of scale formation, corrosion and microbiological activity.

This has resulted in an improved sustainability performance by conserving renewable resources. At the same time system operation has been improved through 24/7 monitoring with the new Nalco 360 Service.

Automation has improved the efficiency of staff utilisation on site, and has further reduced operational costs, meeting the customer's KPIs for process improvement with no technical risk. ■

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▶ The Northern European auto plant selected Nalco technology for its monitoring system.