CASE HISTORY

Chemical Processing

RECORDED BENEFITS

- 60% Improvement in Heat Exchanger Performance
- 25% Reduction in Water Consumption
- 37.5% Reduction of PO4 in blowdown water
- 54% Reduction in Chemical Use and Handling
- Elimination of routine downtime for cleanings
- Elimination of ongoing deposition
- Effective control of variable, high phosphate levels in makeup water

Production Plant Improves Critical Heat Exchanger Performance by 60%

Performax™ MX Chemistry

Customer Challenge

A chemical industry customer in the Northeast U.S. was experiencing progressive scaling of both the critical process heat exchangers and the hot deck of the cross-flow cooling tower. Despite several adjustments of an industry-standard, all-organic cooling water chemistry program, the persistent system challenges required facility downtime and multiple, costly cleanings each year. The stress in the system was compounded by variable phosphate levels in the makeup water which increased risk and resulted in unpredictable scaling tendencies in the cooling water system.

Recommended Solution

Solenis recommended the use of Performax MX chemistry for this alkaline pH system, utilizing the Zero Phosphate Inhibitor (ZPI) for calcium carbonate control and High Tolerance Dispersant (HTD) for calcium phosphate control. The Performax MX programs allow customers to operate their assets under highly stressful water conditions while reducing the risk of deposition and corrosion. Organic programs based on phosphonate chemistry break down in cooling water systems, directly contributing to the deposition risk in a cooling system. Performax MX programs, based on ZPI (a non-phosphate chemistry), eliminate this risk and reduce phosphate contribution by up to 50%. The HTD component of the program allows customers to handle up to 2X the previous limits for calcium phosphate saturation and will prevent, disperse and remove calcium phosphate deposition in the most challenging waters.

Results Achieved

After 45 days of operation using the Performax MX chemistry, the customer reported a 60% improvement in heat exchanger performance and the remaining deposit on the hot deck was soft and being removed with water flow under normal operation. The customer was able to reduce water consumption by 25%, reduce the phosphate contribution to discharge, eliminate the need for tower and heat exchanger cleanings and improve safety by reducing chemical usage and handling by 54%.

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