Case History
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Midwest Oilseed Processing Plant Reduces Operating Costs with ChemTreat Solutions®

Background

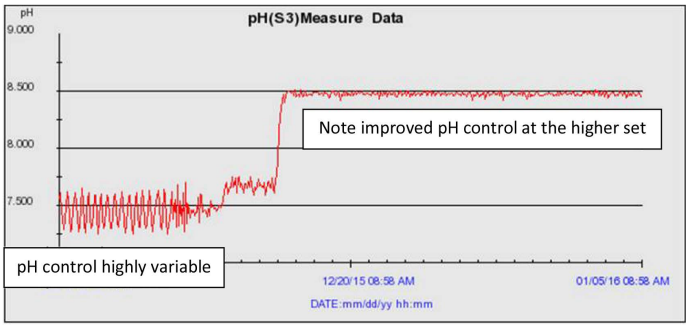
A large Midwest Soybean Processing facility faced challenges in their cooling tower systems which increased their water usage and operating costs. ChemTreat was invited to survey the current systems to see if potential savings were possible and recommend alternatives to reduce costs and water consumption. Based on the survey results and lab analysis, a customized treatment program using on-line monitoring and control was introduced, addressing TDS limits and makeup water.

Results

The ChemTreat Solutions® control system was engineered, built, shipped, and installed within 30 days. The customer wanted the control system up and running before the chemical transition began. This allowed the refinery to gather baseline data for comparison and to slowly use up the existing treatment chemicals. After approximately 45 days of using up remaining inventories, ChemTreat's CL5530 multi-functional tower scale and corrosion inhibitor was introduced. CL5530 replaced a two-drum stabilized phosphate treatment program.

pH Control

Tower pH control is often critical to the results of a tower treatment program. The pH set point was raised from 7.5 to 8.5 since CL5530 is designed to work at a higher pH. By raising the tower pH set point, sulfuric acid usage was reduced by ~40 ppm, which saved 11,676 lbs./year ($2,335/year) for a tower using 35M gpy (makeup). The change from a (+/-) 0.5 to (+/-) 0.05 pH differential also helped improve results.



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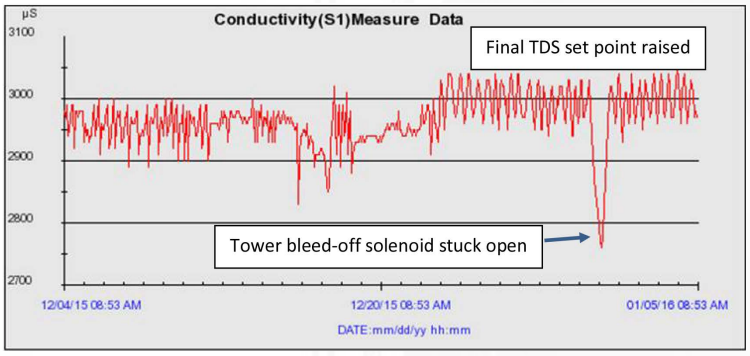
Tower TDS (µmhos)

The tower TDS µmhos set point was slowly raised from 2,200 to 3,000 umhos in order to reduce water usage and CL5530 inhibitor costs.



A tower operating at 4 versus 3 cycles will reduce water usage by 12%, inhibitor by 33%, saving approx. $35,000 on acid, water, and treatment costs.

Tower Cycles Water Comparison

Based on 25 MM GPY tower evaporation

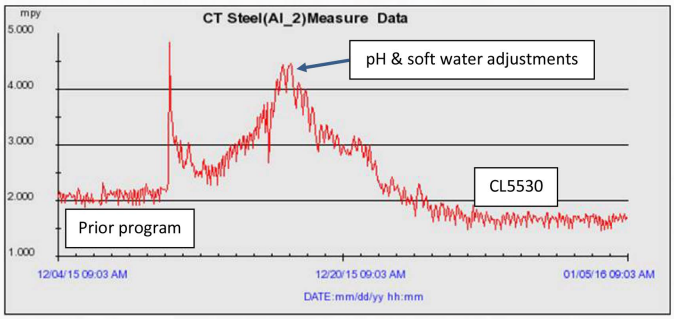
Conc. Ratio	Evaporation	Make Up	Bleed-Off	Difference
3.0	25.0	37.5	12.5	
4.0	25.0	33.3	8.3	4.2

Water & Sewer Savings	
$5.65 per M gal.	$23,541.67
Inhibitor	$9,700.00
Acid	$2,335.00
Total	$35,576.67

**Above savings offset annual treatment costs

On-Line Corrater (Corrosion)

One of the key performance indicators of a chemical treatment program is corrosion minimization. After transitioning to the new treatment, corrosion rates were reduced from 2.2 to 1.6 mpy (mild steel corrater). Industry guidelines for mild steel corrosion rates are less than 3 mpy.



As shown on the graph to left, once all of the system chemistries were set, corrosion rates eventually decreased from 2.1 to 1.6 mpy. Corrosion coupons are also being used to monitor program performance and have correlated very well with the on-line corrater readings.

ChemTreat's Solutions® control system helped improve monitoring/control, saving on annual water usage and treatment costs. We appreciate the opportunity to help our new customer manage their tower treatment programs and save water and operating costs. If we can be of any assistance, or if you have any specific questions on how ChemTreat can help you with your water treatment systems, please contact us at 800-648-4579.

Results are examples only. They are not guaranteed. Actual results may vary.