

DIRECT ASSISTANCE PROGRAM



CASE STUDY

NYSP21 Conducts Process Water Assessment and Evaluation of Galfan Delamination

Challenge

The New York State Pollution Prevention Institute (NYSP21) at the Rochester Institute of Technology (RIT) worked with a steel tubing manufacturer to try to reduce the approximately 7 million gal/year (22,000 gal/day) of well water used in their operation. Sources and amounts of contamination in the recirculating process cooling water (pit water) were not understood prior to the evaluation.

Solution

NYSP21 identified practical and cost-effective ways in which the company could improve the quality of pit water and total water reduction. The analysis also included how process water is used in different operations and how it can be better managed, in-order to allow for improved operation and evaluated intermittent problems associated with coating adherence on the tubing.

Results

NYSP21 performed a baseline analysis to determine pit water quality during each of the three working shifts over several days. Both grab and composite samples were taken and analyzed for Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS).

A heat exchanger efficiency study was also performed to compare heat transfer efficiency of a “dirty” heat exchanger with a “clean” heat exchanger and significant differences were observed.

NYSP21 identified several opportunities to improve the quality of the pit water and reduce total water use (listed in order of expected ease of implementation):

- Improved housekeeping and spill control to prevent accidental releases of process chemicals into the pit
- Extend the ultrasonic rinse overflow line to avoid contact with the soiled mill trenches where additional contamination is dragged into the pit
- Increase water re-use by diverting a higher percentage of non-contact cooling water back to process instead of straight discharge to wastewater treatment, a move that will reduce use of their reverse osmosis system by up to 40% and save approximately \$4,000/year in energy costs
- Divert the higher COD streams (e.g. ultrasonic rinse) away from the pit and send this rinse water directly to wastewater treatment

CHALLENGE

- The steel tubing manufacturer wanted to reduce the approximately 7 million gal/year (22,000 gal/day) of well water used in all phases of operation

SOLUTION

- NYSP21 worked with the steel tubing manufacturer to determine practical and cost-effective ways in which the company could improve the quality of pit water and total water reduction

RESULTS

- NYSP21 identified several opportunities to improve the quality of the pit water and reduce total water use

NYSP21 PARTNERS



New York Manufacturing Extension Partnership

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