

# DIRECT ASSISTANCE PROGRAM



## CASE STUDY

### NYSP2I Performs Acid Control and Recovery Assessment for Control Electropolishing Corporation

Control Electropolishing Corporation (Control Electropolishing) is an electropolishing and metal finishing company located in Brooklyn, New York. Control Electropolishing provides finished corrosion resistant stainless steel medical components to the medical devices sector of the medical and surgical industries.

#### Challenge

Electropolishing is an electrochemical process that removes material from a metallic work piece and is used to polish, passivate, and deburr metal parts. Control Electropolishing's process includes cleaning, acid treatment, and the final deionized water rinsing as needed to meet the specifications of certain medical devices. As parts go through the various processes that involve acid treatments, acid is consumed and dissolved metals build up in the solutions. This leads to the acids becoming either over saturated with metals or too slow for continued use and must be disposed of as hazardous waste either after treatment (sludge) or as corrosive liquid. As a result, Control Electropolishing sustainability focus is to improve acid use efficiency to reduce acid purchase costs, treatment costs, and hazardous waste quantities.

#### Solution

The New York State Pollution Prevention Institute (NYSP2I) collaborated with Control Electropolishing to complete an acid control and recovery assessment to identify cost-effective options to reduce their acid purchases and acid waste along with sludge waste. An on-site assessment was conducted to review the processes that use acids in addition to the wastewater treatment processes.

NYSP2I conducted a baseline analysis to investigate acid control and recovery methods to minimize purchase, treatment and disposal costs of acids, and wastewater treatment methods to reduce sludge volume and weight.

Acid recovery technologies were addressed, which provided technically viable options to reduce Control Electropolishing's liquid acid waste. These technologies included; diffusion dialysis, acid sorption, membrane separation, PRO-pHx, and distillation.

#### Results

NYSP2I identified some cost-effective options for Control Electropolishing to reduce their acid use and sludge waste, which resulted in the following conclusions:

- Based on the short payback economic analysis, Control Electropolishing might want to consider converting five key process tanks to PRO-pHx (acid life extender) which could lead to a potential of \$4,400 annual savings
- The long term benefits of a sludge dryer suggest that there would be a reduction in both the weight and volume of the outgoing sludge with a projected annual savings of \$16,620

#### Testimonial

*"We have been voluntarily part of this research and the results have been extraordinary. Thank you, for allowing us to expand our knowledge, we are impressed with the professionalism and expertise of the people responsible for conducting the study. Through this research, NYSP2I collaborated with Control Electropolishing Corporation in identifying the best ways to reduce our carbon footprint on our planet, by helping us reduce our hazardous waste. Our commitment as a company in addition to offering quality, extraordinary service, and satisfaction to our customers, is the protection and conservation of the environment, we all must collaborate to guarantee a better planet for the next generations."*

- Nancy Zapata-Acosta, President; Control Electropolishing Corporation

#### CHALLENGE

- Control Electropolishing sustainability focus is to improve acid use efficiency to reduce acid purchase costs, treatment costs, and hazardous waste quantities

#### SOLUTION

- NYSP2I performed an on-site assessment to review the processes that use acids in addition to the wastewater treatment processes

#### RESULTS

- NYSP2I identified cost-effective options for reducing acid use and sludge waste



## NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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