

Electronic Manufacturing Company Identifies Opportunities to Become More Sustainable



Client

A global leader in the design and manufacture of engineered solenoids, solenoid valves, sensors, flame arrestors, and intelligent integrated subsystems.

Challenge

A successful electronic manufacturing company in the Finger Lakes region found that it was using approximately 3.7 million gallons of municipal water in its day-to-day operations, which equates to a cost of nearly \$20,000 per year. The cleaning of parts after machining presents challenges with higher-than-desired rejection rates. Some of the municipal water is processed to provide deionized water for some critical plating rinses and makeup water for certain plating tanks. In an effort to improve efficiencies and reduce environmental impacts, The company wanted to identify cost-effective water management options, and improved cleaning methods.

Solution

The New York State Pollution Prevention Institute (NYSP2I) worked with the company to review portions of their current operations as related to water use and parts cleaning. NYSP2I provided water meters and a conductivity meter for company personnel to measure flows and total dissolved solids over several weeks at key locations. Based on the water data gathered, NYSP2I evaluated opportunities that could improve efficiencies. Acid recovery was not deemed relevant since waste acid is used for pH-adjustment in the wastewater treatment operation. Several different parts obtained directly after machining were cleaned using Vacuum Cycle Nucleation (VCN) and compared to current cleaning methods, some of which use solvents. Finally, an economic analysis was conducted to provide the company an understanding of the feasibility of implementing the options identified.

Challenge

- An electronic manufacturing company wanted to identify cost-effective options to improve water management and parts cleaning at its facility in the Finger Lakes.

Solution

- NYSP2I staff identified opportunities to save water, improve parts-cleaning performance while reducing solvent use, and maintain more consistent product quality.
- Evaluated opportunities for potentially improving efficiencies and conducting an economic analysis to better understand the feasibility of implementing options identified.

Results

- Work performed by NYSP2I identified opportunities to save water, improve parts cleaning performance while reducing solvent use, and maintain more consistent product quality.

Results

The results of the work performed by NYSP2I highlighted areas where the company can potentially save water, improve parts cleaning performance while reducing solvent use, and maintain more consistent product quality. Based on the baseline water data, specific rinse locations were identified for more efficient use of water with proper flow control strategies. Isolation of critical rinse tanks with ion exchange would allow for continuous reuse of rinse water, resulting in less water used and less wastewater generated. Further evaluation of VCN is needed to more accurately determine potential impact to the cleaning operation. Improved water management and cleaning would reduce need for parts rework and increase productivity.

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