

Bartell Machinery Systems Evaluates Alternative Metal Surface Cleaning Opportunities

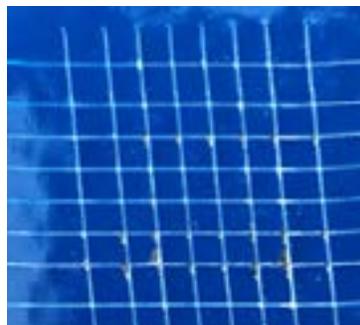
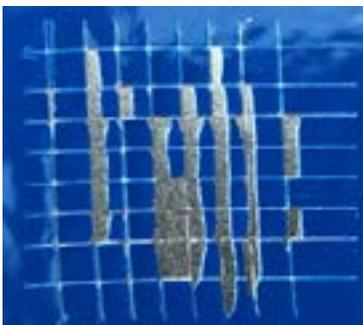
Located in Rome, New York, Bartell Machinery Systems (Bartell) has been a global leader in highly-engineered industrial manufacturing solutions for over 75 years. Being an ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certified company has provided Bartell a framework to deliver the most advanced and proven machinery systems for the production of a wide array of products in the most demanding applications.

Challenge

Bartell's products operate in harsh environments which require controlled preparation for paint coating. To help with this preparation, Bartell utilizes lacquer thinner to remove residual machining coolant and Cosmoline (heavy petroleum jelly/vaseline) from parts before painting. Although the lacquer thinner is effective and meets their requirements for containment removal, this substance is considered a hazardous waste due to flammability, requiring disposal of cleaning wipes as flammable waste. As a result, Bartell would prefer alternate cleaning approaches that are less hazardous but provide the same or better paint adhesion performance as the lacquer thinner.

Solution

Bartell requested assistance from the New York State Pollution Prevention Institute (NYSP21) with investigating alternative cleaners to reduce or replace lacquer thinner. NYSP21's work consisted of a baseline analysis on Bartell's current cleaning operation, experimentation using potential lacquer thinner alternatives to test for adhesion performance, and a basic economic analysis for the best potential alternatives.



Left photo: is typical paint adhesion with Cosmoline contamination and cleaning.
Right photo: is typical paint adhesion with machining coolant contamination and cleaning.

Results

The work performed by NYSP21 led to key findings that could potentially help Bartell with identifying an alternative cleaner to lacquer thinner.

CHALLENGE

- Bartell wanted to identify alternate cleaning approaches that are less hazardous and provide similar paint adhesion performance as lacquer thinner

SOLUTION

- NYSP21 investigated alternative cleaners to reduce or replace lacquer thinner

RESULTS

- The work performed by NYSP21 led to key findings that could potentially help Bartell identify alternative cleaners to lacquer thinner
- Ecophor A 447 was identified as an environmentally-friendly alternative that reduces hazardous chemical use and liabilities



- There were a limited number of alternative cleaners that could be applied similarly to the current lacquer thinner cleaning method.
- There was no significant difference in paint-adhesion performance on test panels contaminated with cutting fluid. In addition, there was no statistical difference in adhesion performance between Ecophor A 447 and lacquer thinner for Cosmoline.
- Based on purchased volume, replacement costs of the Ecophor A 447 would be less than two times the cost of lacquer thinner. Ecophor A 447 would cost twice as much. However, because the water-based Ecophor A 447 evaporates much more slowly, this would result in less Ecophor A 447 needed per unit area.

Based on these results, Ecophor A 447 was identified as an environmentally-friendly alternative that reduces hazardous chemical use and liabilities for Bartell.

TESTIMONIAL

“As a guiding principle, Bartell continually works to reduce environmental, health and safety hazards through proactive initiatives and programs. We identified the NYSP2I as a key partner in the effort to solve a complex challenge and through open collaboration, we were able to identify an alternative to a well-established process that will have a positive impact on our customers, employees, and the environment. The NYSP2I team continuously went above and beyond in support of our efforts while always being mindful of the need to meet our overall business objectives. It was a very positive experience and we are looking forward to future collaboration.”

– Mike Magnanti
Manufacturing & EHS Manager
Bartell Machinery Systems, LLC

NYSP2I PARTNERS



New York Manufacturing Extension Partnership

Funding provided by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

© 2019 Rochester Institute of Technology
Any opinions, results, findings, and/or interpretations of data contained herein are the responsibility of Rochester Institute of Technology and its NYS Pollution Prevention Institute and do not represent the opinions, interpretation or policy of the State.

For more information please contact us:

111 Lomb Memorial Drive, Bldg. 78
Rochester, NY 14623

Tel: 585-475-2512
Web: nysp2i.rit.edu
E-mail: nysp2i@rit.edu

