

## TACKLING TOXICS: U.S. MANUFACTURER OF PIPE PRODUCTS REWORKS PRODUCTION LINE TO REDUCE DANGEROUS WASTE

**ABOUT ROMAC INDUSTRIES INC.** Romac Industries, Inc. is a U.S. manufacturer of pipe products for the waterworks industry. Headquartered in the Seattle, Washington, suburb of Bothell, Romac Industries Inc. also has warehouse and production facilities on the east coast, near Charlotte, North Carolina, and in the central region in Fort Worth, Texas.

**THE CHALLENGE.** Romac's workers surface-finish stainless steel parts using a process called passivation, a chemical treatment for stainless steel and other alloys that helps treated surfaces resist corrosion. Unfortunately, this process generates about 32 tons of waste annually. Romac Industries decided to find a better way and called Ecology's Lean/Green program, a customized service offered to Washington manufacturers in which continuous improvement principles and environmental methods are applied to decrease operating costs and reduce environmental and energy impacts.

**MEP CENTER'S ROLE.** Between the spring and fall of 2021, Romac Industries, Inc. participated with the Washington State Department of Ecology, Impact Washington, and Lean Environmental Inc. (LEI) to train on lean and green principles. The initial engagement was participating in the Lean and Green (W.A.S.T.E.) Coaching Program that Impact Washington, part of the MEP National Network™, launched in late 2020. Partner B.P.I. provided lean and Six Sigma training (with a focus on environmental impacts) and project management support.

The team received assistance from Michael Johnson of Lean Environment, Inc. (LEI) to analyze the process and their reduction options. Romac's stainless steel ammonium bi-fluoride passivation process initially involved a series of four immersion tanks, two immersion rinses, and a high-pressure rinse that generated spent acid waste containing ammonia, fluorine, chromium, and nickel. In the reengineered process, Romac Industries Inc. set up a counter-current flow where acidic rinse tank water could circulate back into a process tank, effectively transferring reusable acidic plating solution back into the passivation process, ensuring rinse tank acid concentrations stayed low. This allowed process tank solutions to last longer and reduce the generation of spent acid waste.

Then, in 2022, Romac Industries Inc. added an ion exchange system to allow consistent water quality throughout the process and reduce waste by up to 50% more. The company continues implementing changes and, thanks to their efforts, Romac received the 2022 MVP2 (most valuable prevention award) Multimedia Award from the National Pollution Prevention Roundtable (N.P.P.R.).

"This program has benefited Romac Industries, Inc greatly. I would encourage any company that has the opportunity to work with Impact Washington's Ecology Lean and Green program to do so. We have not only had cost savings in our process but have increased throughput while reducing waste."

-Frank Caddy, Maintenance Supervisor

## RESULTS



4 jobs created and retained



50% reduction in waste



\$50,000 in annual cost savings



Product quality improvement



Greater process control

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