



Wastewater Treatment for the Metal Finishing Industry: Ion Exchange Systems

Lancy closed-loop ion exchange technology provides and maintains high quality rinsewater to enhance product quality, reduce bath maintenance and eliminate or cut waste disposal.

Lancy has developed a Rinsewater Maintenance System specifically for treating metal finishing rinsewaters. The system successfully removes bath contamination and provides high quality water for reuse with elimination or reduction of sewer discharge. With this approach, those contaminants reaching the rinse are removed, thereby creating the opportunity for metal reclaim and reuse.

Lancy provides electrolytic plate out recovery systems for many metals which, in conjunction with the Rinsewater Maintenance System and EVAP Vacuum Evaporation Systems, provide closed-loop operation for most applications.

Features and Benefits

- Closed-loop; eliminates or reduces discharge to sewer and associated costs for water, sewer use and wastewater treatment.
- Prolongs process bath service life due to reduced drag-in contaminants.
- Reduces reject rate and improves plating quality.
- Resin combinations for treatment of chrome, cyanide and acid/alkali rinsewaters.
- Simple regeneration with water and chemical conservation features to minimise regenerant volume and reduce operating costs.
- Modular design, factory skid mounted, and pre-wired for ease of installation.
- Optional lift stations and D.I. makeup systems for complete system integration. Designed to be compatible with your existing waste management system.

Standard Equipment

RMS standard system components are skid mounted and pre-wired in the factory for easy on-site installation and include the following major components:

- Conductivity monitors and alarms.
- Rinsewater recirculation pump.



- Single-step metal recovery
- Reusable regenerant and cathodes
- Complete turnkey solution
- Low maintenance and operating cost
- Microprocessor control
- Long-life resins
- Handles concentrates
- Assured performance


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- Pre-filtration unit.
- Ion exchange columns with automatic regeneration.
- Two regenerant pumps.
- Two regenerant makeup tanks with level controls.
- One lot each proprietary Lancy cation and anion resin.
- Control panel with PLC and HMI controller.

Optional Equipment

- Rinsewater collection tank with level control.
- Spare process pump.
- Spent regenerant collection tank.
- Lancy Vacuum Evaporation System.
- Plate Out Cell System.
- Batch Treatment System.
- Activated Carbon Filter.
- Treatment Process



Lancy has developed ion exchange processes that will maintain high quality rinsing from a variety of metal finishing rinsewaters. These ion exchange systems are designed to be applied in conjunction with recovery techniques such as electrolytic recovery and/or evaporation that can lead to a closed-loop operation.

Rinsewaters are processed through specially selected ion exchange resins to remove bath contaminants. This is done by collecting the water in lift stations and processing the water first through a filtration section to remove suspended solids and then through the resin columns. The produced water quality is constantly monitored for purity.

A second set of columns is provided to allow for continuous operation during resin regeneration. When the water quality falls below a preset point, the active column set is switched off-line and regenerated. The rinsewater feed is redirected to the standby set of columns to maintain continuous treatment. After regeneration, the spent column set is returned to service in the standby mode.

The spent regenerants are appropriately treated or sent concentration through an evaporator (Zero Drain discharge option) before sent off-site refining or disposal.

Metal laden regenerant from selective IX units can be directed to a separate collection tank for recirculation through our Plate Out Cell System for metal recovery. The metal free regenerant can then be discharged or evaporated along with other spent process baths. By use of the EVAP Vacuum Evaporation system, a closed-loop operation can be effected. IX/ER Ion Exchange / Electrolytic Recovery Wastewater Treatment Systems.

Lancy Ion Exchange and Electrolytic Recovery Systems (IX/ER) consistently meet low discharge limits for key toxic metals. These systems recover copper sheets for disposal or resale with environmental discharge limits especially for printed circuit board facility wastewaters. The system achieves excellent results in removing copper from segregated streams, reliably removing the copper by ion exchange, and then recovering it in the form of a metal sheet.

Ion exchange resins normally process the majority of waste streams containing complexed copper; however, specific complexes may need to be segregated for treatment by other Lancy systems.

Consistently Meets Low Discharge Limits

The IX/ER design with two columns in a series, and regenerating as soon as the effluent from the primary column approaches the discharge limit, is designed to provide continuous environmental compliance.