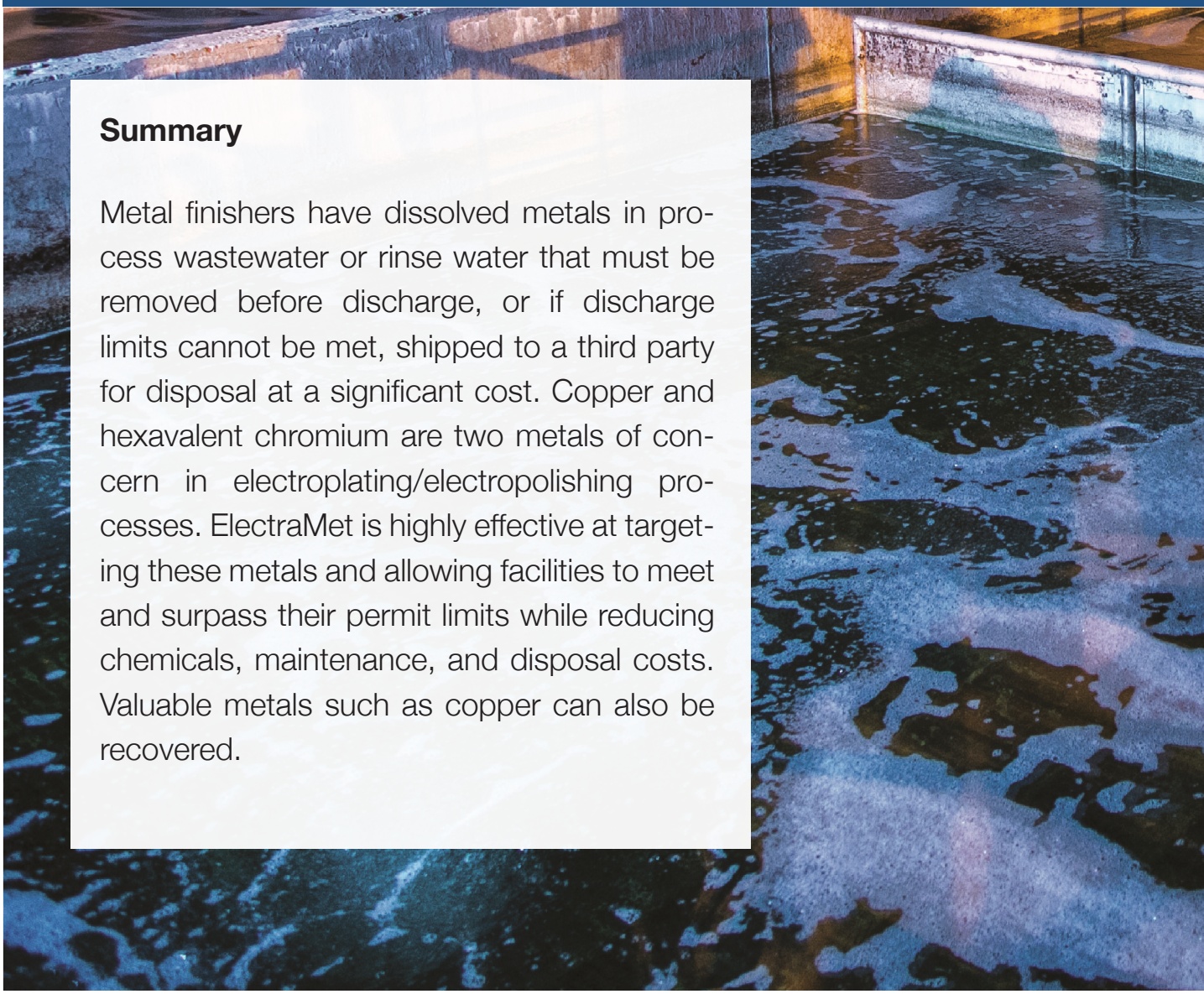
ElectraMet™

White Paper

ElectraMet™ Removes Dissolved Metals from Metal Finishing Rinse Water and Wastewater to Meet Discharge Compliance



Summary

Metal finishers have dissolved metals in process wastewater or rinse water that must be removed before discharge, or if discharge limits cannot be met, shipped to a third party for disposal at a significant cost. Copper and hexavalent chromium are two metals of concern in electroplating/electropolishing processes. ElectraMet is highly effective at targeting these metals and allowing facilities to meet and surpass their permit limits while reducing chemicals, maintenance, and disposal costs. Valuable metals such as copper can also be recovered.

Project Background

ElectraMet and three clients worked together to evaluate the ElectraMet system, a chemical-free metals separation process, for metals removal from wastewater. For these clients, we demonstrated:

- ElectraMet removal rates up to 99% for dissolved copper and hexavalent chromium.
- The ability to recover trace copper from complex streams as a copper sheet.
- A fully automated and chemical-free process to meet discharge compliance.

Results

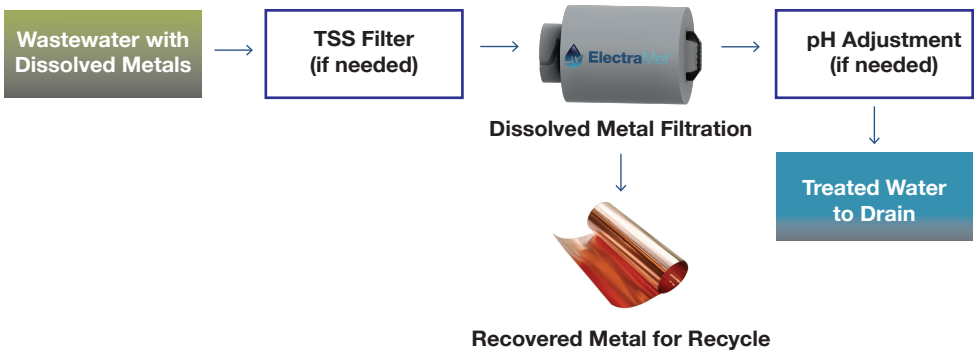
ElectraMet can replace, or be installed as a post-treatment to, a manufacturer's existing chemical wastewater treatment system, reducing overall chemical treatment cost and improving consistency to meet discharge requirements. ElectraMet successfully treated various customers' wastewater streams to meet discharge compliance for hexavalent chromium and/or copper. Pure copper sheets were recovered from a complex wastewater stream being generated at an electroplating facility while also meeting the client's discharge limits.

Customer Application	Contaminant	Wastewater Input (ppm)	Treated Output (ppm)
Steel Coatings	Cr(VI)	2000	0.02
Electroplating	Cr(VI)	115	0.292
	Cu	3000	1.4
Electropolishing	Cr(VI)	178	0.08

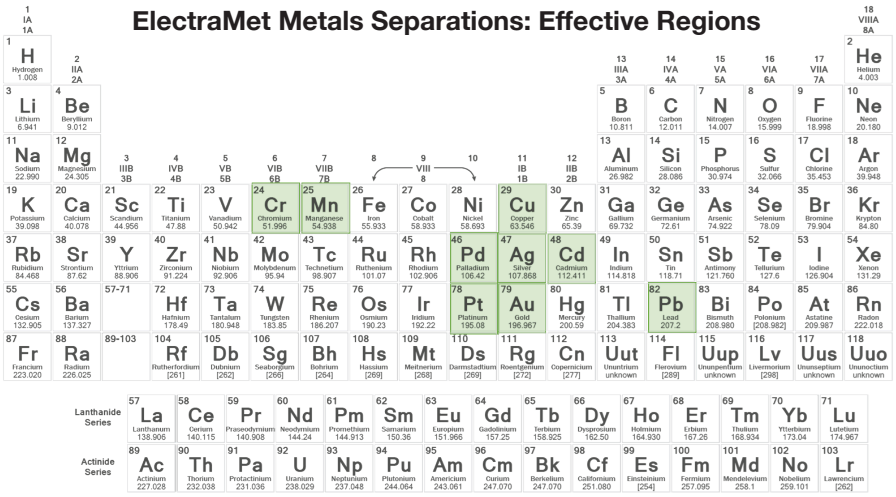
How ElectraMet™ Works

The ElectraMet process uses a small amount of electricity to attract and target specific metals for removal and/or recovery. Clean water is sent to the drain or reused in the plant. Copper is collected within the ElectraMet cartridge and can be recovered as a copper sheet and sold as a new revenue source. Hexavalent chromium is converted to trivalent chromium for further processing and disposal downstream.

Process for Electrochemical Separation of Dissolved Metals



ElectraMet Dissolved Metal Filtration System



ElectraMet system shown includes filter cartridges, PLC box, 5 µm particle filter, and pump.

To learn more about this and other ElectraMet applications, please visit our website at www. electramet.com or contact us at sales@electramet.com.