Managing Cyanide Effluents: Field Evaluation of Reverse Osmosis For Recycling Copper Cyanide Rinses

N. Rajagopalan, J.M. Pickowitz, C.J. Jahp, J.L Talbott & T. Chow

Membrane-based processes, such as reverse osmosis (RO), offer potential advantages (such as the ability to recover and recycle the cyanide to the process) as compared to methods that focus on chemical transformation of cyanides to less toxic substances. RO has been reported to be particularly suitable for recycling cyanide rinse waters, but very few electroplating facilities have adopted this technology. It is well known that innovation is primarily impeded by the associated uncertainty. The Illinois Waste Management & Research Center has pioneered an approach to accelerate the diffusion of pollution prevention technologies ($ADOP^2T$) through a combination of extensive piloting, customer education, and facilitating peer-to-peer networks, with the major focus on reducing uncertainty at every level of technology integration. This report will focus on a pilot of managing cyanide rinse waters from copper strike through RO. The primary uncertainties addressed deal with (1) fouling productivity of the membrane; (2) effect of feed concentration on flux and rejection; and (3) suitability of the RO concentrate for reuse.

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For more information, contact:
N. Rajagopalan
WRMC
1 East Hazelwood Dr.,
Champaign, IL 61820
Phone: 317-244-8905
FAX: 217-333-8941