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WMRC

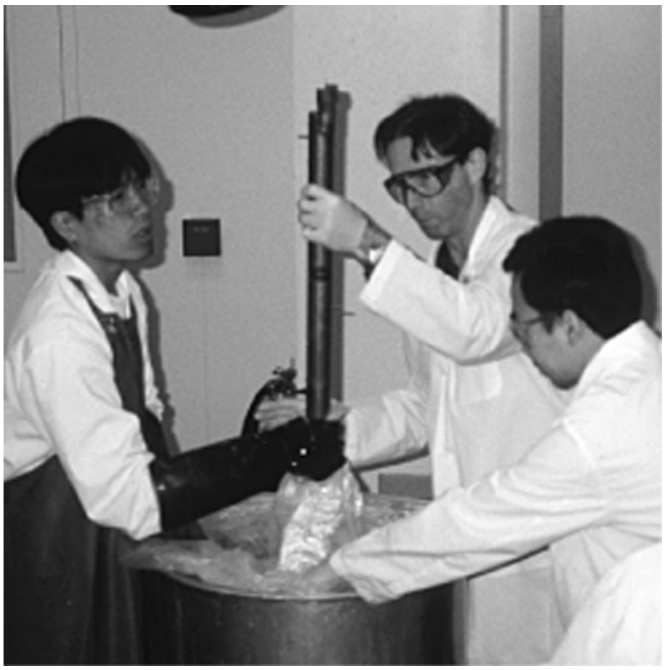
Improvements in
Process Efficiency

Alternative Cleaning Technologies Laboratory (ACTL)

Objectives

- Help industries incorporate cleaning technologies appropriate to their needs and which meet regulatory demands.
- Provide an unbiased evaluation of process alternatives.
- Explore new alternative cleaning options.

Today's manufacturing facilities face the dilemma of achieving cleaning standards appropriate to their business while meeting a myriad of environmental regulations on disposal of waste. Often, Illinois industries face a lack of information and/or resources to produce a clean product and achieve compliance. The ACTL at the Illinois Waste Management and Research Center, a non-regulatory division of the Department of Natural Resources, provides practical technical assistance in this area. The approach of WMRC's ACTL is both systematic and scientifically rigorous.



Potential clients learn of ACTL expertise through a variety of sources, from phone inquiries to references from state/federal regulatory agencies. ACTL staff will first visit the company for initial discussion on the nature of the cleaning problem. Follow-up discussions will also include defining and producing a systematic plan that emphasizes potential financial savings, improved positive public image, and a safer, healthier workplace.

A clear understanding of the client's situation results from the discussions, allowing for a specific approach to be targeted. The resulting work may range from a simple solvent substitution to reevaluation of a cleaning operation. Depending upon the approach,

ACTL staff, in close collaboration with the client company, can begin laboratory bench-scale evaluation of possible solutions.

With results obtained from the bench-scale study and in close interaction with the client, ACTL staff will move the technology to the pilot scale at WMRC's laboratory facility. Problems associated with scaleup can be addressed. Subsequently, the move from pilot scale to full-plant implementation can be guided by WMRC.

Equipment and Expertise

ACTL staff use the fundamental interactions between surfaces, contaminants and solvents (aqueous, semi-aqueous, non-aqueous) to look for possible alternatives to cleaning solutions. The available literature is searched and laboratory experiments conducted using the ACTL's cleaning technologies. Determining the level of cleanliness desired from bench-scale tests (gravimetric, water drop test, or visual inspection) leads to selecting a cleaning technology(ies) to be tested on the pilot scale.

Bench glassware and appropriate equipment are readily available in the ACTL. The pilot-scale equipment includes 4 55-gallon cleaning tanks (with temperature control, air circulation, or low pressure spray), a 50 PSI parts washer, and an ultrasonic cleaning tank. Should further testing be necessary, WMRC's analytical laboratory may be called upon for assistance.

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