



Waste Management and Research Center (WMRC) has developed a technical assistance program to improve adoption of pollution prevention technologies in the metal finishing industry. The ADOPT²T program is a process of identifying best practices and executing brief demonstrations and extended pilot trials of pollution prevention practices and technologies in actual metal finishing facilities. These pilot trials will provide the site specific information required to influence companies decisions to adopt these technologies where economically and technically feasible.

The Chicago Metal Finishers Institute (CMFI) and Scientific Control Laboratory, Inc. will work in cooperation with WMRC to conduct over thirty individual projects at eleven volunteer metal finishing shops in the Chicago area. Project engineers will develop and execute projects including demonstrations and pilot trials of innovative pollution prevention processes and technologies at these “mentor” sites. Results of this effort will be used to promote the adoption of the technologies and practices at other metal finishers in the region.

With the help of local metal finishers and technical consultants, a list of pollution prevention practices was developed and prioritized by the metal finishers and developed into project opportunities for technology demonstrations, pilot trials and basic research. Below is a summary of the nine selected ADOPT²T projects.

1. **Cyanide Management Trial** - This project will take a two phased approach to reducing the utilization and treatment of cyanide. The project will include:
 - 1) evaluating alternative chemistries such as non-cyanide copper and non-cyanide silver in a job shop environment.
 - 2) evaluation of nanofiltration and evaporation technologies to remove cyanide from rinse waters and replace the filtered cyanide into the plating bath while reusing the rinse water.
2. **Aqueous Cleaners Recycling Trial** - This project will evaluate ultrafiltration technologies and lipophilic filtration for their capabilities to remove contaminants from the cleaners and extend their useful life.
3. **Acid Recycling Trial** - This project will evaluate diffusion dialysis and acid sorption technologies for recycling acids within a metal finishing operations.
4. **Conductivity Control Trial** - This project will involve installation of conductivity controls on plating lines to assess water usage before and after utilization of this technology while determining an acceptable upper conductivity limit in the rinses.
5. **Evaluation of Barrel Design** - This project will evaluate different design characteristics of plating barrels and the effect on drag-out, plating quality and barrel toughness in an actual job shop environment.
6. **Energy Reduction Trial** - This project will be conducted in cooperation with Commonwealth Edison to perform energy utilization assessments at participating shops. These assessments will identify opportunities for reducing energy usage. Technical assistance will be provided with respect to implementation of the more energy efficient options.
7. **Electroless Nickel Trial** - This project will evaluate two alternatives for reducing the waste that usually accompanies this process including:
 - 1) evaluation of alternative chemistries
 - 2) evaluation of dialysis technology for contaminant removal



8. **Reuse of Treated Wastewater Trial** - Most metal finishers go to great lengths to treat wastewater prior to discharge. A few shops have had success reusing some of this water in the process and others speculate that it might be possible. In this project, wastewater will be analyzed to determine suitability of reuse within the operation and to determine what additional treatment might be required to facilitate reuse of the water.
9. **Bath Filtration Trial** - This project will evaluate which plating processes benefit most from filtration and which types of filters perform this function best.

The ADOP²T pilot trials will be conducted at the volunteer metal finishing shops over a two year period. Evaluation of the various technologies advantages, complexity, and compatibility will be addressed during the projects. Particular emphasis will be placed on the technical and economical feasibility of the technologies evaluated. WMRC and CMFI will coordinate demonstrations of the technologies that are adopted by shops as well as existing innovative practices. Metal finishers that are favorably impressed by the demonstrations will be encouraged to pursue a pilot trial of the technology at their own shop.

ADOP²T pilot trials are currently being conducted at a number of the volunteer "mentor" metal finishing facilities. Participating companies include:

Ace Plating Chicago	Gerlin, Inc. Carol Stream	Skild Plating Chicago
API Industries Elk Grove Village	Nobert Plating Chicago	SWD, Inc. Addison
Arlington Plating Palatine	Northwestern Plating Chicago	VP Plating Chicago
Craftsman Plating Chicago	Reinewald Chicago	



For additional information on the ADOP²T program or any of the above projects, please call:

Christine Hayes, Process Engineer
 WMRC
 111 E. Erie Street
 Chicago, IL 60611
 phone: 312/751-5757
 fax: 312/751-5048
 e-mail: chayes@eagle.ais.net

Tim Lindsey, P2 Program Manager
 WMRC
 1 E. Hazelwood Dr.
 Champaign, IL 61820
 phone: 217/333-8955
 fax: 217/333-8944
 e-mail: tlindsey@wmrc.uiuc.edu

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