

Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Closing the Loop on the Ferric Chloride Waste Stream Los Alamos National Laboratory

Original Problem

The Detonation and Science Technology Group (DX-1) uses ferric chloride solution to etch copper. Previously all of the spent ferric chloride solution was treated as waste. About 1100 gallons of spent ferric chloride solution were disposed of every year, making this routine waste stream the largest at the Los Alamos National Laboratory.

The Project Solution

A company called Phibrotech was found that could recycle the spent ferric chloride. Phibrotech's system recovered the copper and purified the ferric chloride solution so that it could be used again. DX-1 buys regenerated ferric chloride solution from Phibrotech and closes the loop on the former waste stream.

Value of Improvement

Approximately 1100 gallons of ferric chloride solution have been removed from the routine hazardous waste stream. Even with the extra shipping charges, DX-1 now avoids about \$8000 annually in waste disposal costs.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	~1100 gallons /year
Commencement Date	2002
Project Useful Life (Years)	Indefinite



DOE Monetary Benefits	
Total Project Cost	NA
Lifecycle Savings	>\$8,000 / year
Return on Investment	NA

Benefits At-A-Glance

- Approximately 9000 pounds of ferric chloride solution per year no longer needs to be treated as waste.
- DX-1 saves about \$8000 annually on waste disposal costs.
- Copper and ferric chloride can be reused indefinitely.

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	Summary Data
Priority Area:	Waste Minimization Projects
Project Type:	Process Improvement
Total Project Cost:	NA
Lifecycle Savings:	>\$8,000 per year in waste disposal costs.
Implementing Group:	DX-1
Benefiting Group:	DX-1
Useful Life Years:	Indefinite
Return on Investment:	NA
Lifecycle Waste Reduction:	~1100 gallons of ferric chloride solution annually
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