

POLLUTION PREVENTION

IN RHODE ISLAND

Case studies of the Rhode Island On-Site Technical Assistance Program

Jewelry Mfg. Freon

Jewelry manufacturer eliminates the use of Freon.

Industry \ Contact

SIC Code: 3471 Electroplater, Rhode Island

Contact: Company #14

Technology Description

The company is a costume jewelry job shop that employs about 45 people. The primary operation of the company is electroplating.

Originally, the company used approximately 900 gallons/year of Freon to flash-dry plated parts. This procedure was used to produce a completely dry, spot-free finish on the plated pieces. Due to increasing costs and liabilities associated with the use of Freon, the company decided in 1993 to switch to an aqueous rinsing and drying process. The company has eliminated all Freon use and now relies on a multi-step process that includes a deionized water rinse followed by hot air drying. The company was able to use existing ion exchange columns to generate the deionized water for the rinse and purchased two hot air dryers from New Holland to complete the drying process.

Feedstock Materials

Approximately 900 gallons of Freon was purchased annually

Wastes

900 gallons/year evaporated into the atmosphere

Costs

Two New Holland hot-air dryers were purchased at a cost of \$13,000

Operation \ Maintenance

Compared to the Freon flash-drying process, deionized rinsing and hot air drying has caused a slight increase in labor costs due to the added steps that are required.

Savings

The company's \$36,000 annual expenditure of Freon has been totally eliminated.

Treatment \ Disposal

The company no longer releases 900 gallons/year of Freon to the atmosphere.

Payback Period

The payback period is approximately 4-5 months

Impact

The company no longer purchases Freon, a substance with ozone-depleting properties, while simultaneously recognizing significant cost savings.

Initiating a pollution prevention program has led to improvements in the way the company handles chemicals, including more efficient labeling and storage of oils and cleaners.

Switching to a cleaner manufacturing process has made the company eligible for economic development incentives offered by local municipalities.