

POLLUTION PREVENTION

IN RHODE ISLAND

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

Jewelry Manufacturing Tubbing Solution

Costume jewelry manufacturer uses ultrafiltration technology to recycle tubbing fluid.

Industry \ Contact

SIC Code: 3961 Costume Jewelry Manufacturer, Rhode Island.

Contact: Company #50

Technology Description

The company manufactures souvenirs, religious jewelry, and advertising specialties. The average employment of the company is 30.

A tubbing operation for metal parts originally generated approximately 100 gallons per week of metal-contaminated waste solution. The waste solution was originally discharged to the municipal sewer system. After consulting with DEM's Pollution Prevention Section, the company found an acceptable method for recycling the tubbing solution. The first step in recycling the tubbing solution was to install two new water-efficient Mirro-brite vibratory units, in addition to the original tubbing units already existent in the plant. Subsequently, the company installed a used Splitter ultrafiltration system to filter and recycle all of the tubbing solution used in the facility along with the Roto-Brite tubbing soap.

Feedstock Materials

100 gallons per week of process water

Roto-Brite tubbing soap, Compound L-980, manufactured by Roto Finish Co. of Kalamazoo, MI.

Waste Releases

100 gallons per week of metal bearing wastewater.

Costs \ Capital

Capital costs include a 55 gallon-per-day Splitter ultrafiltration unit, manufactured by Infnitex of Clarence, NY.

2 vibratory units, manufactured by Mirro-brite of Pawtucket, RI.

Pumps and piping

Total capital investment (including parts and labor): approximately \$6,000.

Operation \ Maintenance

Annual operation/maintenance costs: less than \$500

Savings

Annual feedstock savings: 5,000 gallons process water

Annual cost savings: Sewer fees for discharging 5000 gallons of metal-bearing wastewater.

Payback Period

Estimated at less than five years

Impact

The company has eliminated the use of 5,000 gallons of water per year from the parts finishing operation. The company has found that, by utilizing ultrafiltration, the soapy water can be recycled thereby producing satisfactory finishes on the parts. By recycling the soapy water, the company has also realized savings in soap purchases in addition to savings in water and sewer fees.