

# POLLUTION PREVENTION

## IN RHODE ISLAND

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

### Finishing Job Shop Tubbing Solution

**Tubbing job shop recycles process water with the aid of an ultrafiltration system.**

#### **Industry \ Contact**

SIC Code: 3915 Mass Finishing Job Shop, Rhode Island.

Contact: Company #43

#### **Technology Description**

The company is a mass finishing job shop which specializes in vibratory finishing, wet tubbing, and dry finishing of jewelry and industrial components. The average employment of the company is 5.

In vibratory finishing and wet tubbing operations, the company originally generated approximately 500 gallons per day of metal bearing process water. A chemical treatment system and a filter press were originally used to concentrate metal sludge. After consulting with the DEM's Pollution Prevention Section, the company implemented a cost effective, non-chemical means of recycling the soap and water.

An Infnitex Ultra 500 ultrafiltration system was installed to remove contaminants from the spent tubbing solution while recycling process water and soap. The company originally used several different types of soaps in its daily operations. By selecting one soap in the finishing operations, the company has simplified the recycling process. The company has also been able to eliminate its dependence on chemical treatment and sewer discharge, as well as reduce the amount of sludge produced.

#### **Feedstock Materials**

500 gallons of process water per day

Various tubbing soaps

#### **Wastes**

500 gallons per day of metal bearing process water

Mixed-metal sludge

**Costs**

500 gallons-per-day (GPD) Ultra 500 ultrafiltration system manufactured by Infnitex of Buffalo, NY: \$12,000

**Operation \ Maintenance**

Annual energy and labor costs: \$1,000

Roto-Finish XL 1076 tubbing soap manufactured by Roto-Finish Co., Inc. of Kalamazoo, MI.

**Savings**

500 gallons per day of tubbing solution recycled

Roto-Finish XL-1076 soap recycled

Treatment chemicals eliminated

Disposal savings of 500 gallons per day of spent tubbing solution

**Payback Period**

Less than 2 years

**Impact**

The company no longer discharges 125,000 gallons per year of spent tubbing solution to the sewer. The company has found that an ultrafiltration system enables them to recycle the tubbing solution as well as the tubbing soap. By installing an ultrafiltration system, the company has eliminated its need for treatment chemicals and the hazards associated with them. The amount of sludge generated by ultrafiltration is far less than that generated by chemical treatment.