

# POLLUTION PREVENTION

## IN RHODE ISLAND

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

### Screw Machine Manufacturing Tubbing Solution

**Screw machine product manufacturer uses ultrafiltration to recycle tubbing solution.**

#### **Industry \ Contact**

SIC Code: 3451 Screw Machine Product Manufacturer, Rhode Island.

Contact: Company #66

#### **Technology Description**

The company manufactures screw machine products. Average employment of the company is 82.

Originally the company discharged spent tubbing fluid to the sewer. After consulting with DEM's Pollution Prevention Section, the company installed an ultrafiltration system to recycle its tubbing solution. The company originally used Clepo 8-10A powdered soap in its tubbing operation, but parts spotting occurred when this soap was recycled through ultrafiltration. Spotting was eliminated by switching to Clepo 8-18 liquid soap in the tubbing operation. This system recycles much of the water and soap solution while creating much less sludge than would otherwise be generated by chemical treatment.

#### **Feedstock Materials**

100 gallons per week of process water. Clepo 8-10A tubbing soap manufactured by Frederick Gumm Chemical Co. of Kearny, NJ

#### **Wastes**

100 gallons-per-week of spent tubbing solution

#### **Costs**

50 gallons-per-day (GPD) Splitter Jr. ultrafiltration system manufactured by Infnitex of Buffalo, NY: \$3,500

**Operation \ Maintenance**

Annual energy and labor costs: less than \$500

**Savings**

Process water reduced from 5,000 gallons per year to approximately 100 gallons per year.  
Clepo 8-18 liquid soap recycled

**Treatment \ Disposal**

100 gallons per week of spent tubing solution discharged to sewer.

**Payback Period**

Estimated less than 5 years

**Impact**

The company has decreased its use of 5,000 gallons of process water per year to 100 gallons per year. The company has found that, by utilizing ultrafiltration, a "closed-loop" tubing process could be implemented. As a result, no wastewater is being generated or discharged to the sewer. Ultrafiltration allows for the recycling of the tubing solution, including the tubing soap while generating small amounts of sludge. Other advantages to ultrafiltration technology are that no hazardous chemicals are involved and operating costs are low.