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 Infinitex 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 tubbing 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" tubbing process could be implemented. As a result, no wastewater is being generated or discharged to the sewer. Ultrafiltration allows for the recycling of the tubbing solution, including the tubbing soap while generating small amounts of sludge. Other advantages to ultrafiltration technology are that no hazardous chemicals are involved and operating costs are low.