

POLLUTION PREVENTION

IN RHODE ISLAND

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

Textile Printer Wastewater

Silk-screen printer recovers and re-uses rinse water from print room using ultrafiltration.

Industry \ Contact

SIC Code: 2291 Textile Printer, Rhode Island.

Contact: Textile Grant Company

Technology Description

The company is engaged primarily in the silk screen printing of textiles for aprons, towels and kitchen linens. The print facility employs approximately 100 people.

Until 1996 the facility had an existing tubular ultrafiltration system which could no longer keep up with the hydraulic loads. The membranes were over 3 years old and were fouled to the point where new membranes needed to be purchased. Permeate from the existing system was no longer clean enough for direct reuse and could not be discharged to the facility's septic system due to organic content. The company began shipping its print room rinse water off-site for treatment and disposal. The cost associated with replacing existing membranes with new tubular membranes was estimated at \$6,000.

With the assistance of URI's Pollution Prevention Center, the company investigated the possibility of replacing the tubular cartridges with spiral-wound cartridges. It was determined that permeate from the new tubular cartridges could be directly reused indefinitely in the print room's rinse operation. Also, permeate quality is adequate for periodic batch discharges to the company's ISDS.

Feedstock Materials

Rinse Water: 28,800 gallons/year

Wastes

Non-hazardous wastewater hauling and disposal 28,000 gallons/year

Costs

Membrex spiral-wound MX 50 membranes: \$3,000

Operation \ Maintenance

Labor: No change from existing system

Electricity

Solids Removal

Savings

Approximately 28,800 gallons per year off-site hauling and disposal:
\$13,000/year

Payback Period

2-3 months

Impact

Retrofitting the existing tubular ultrafiltration membranes with a spiral-wound configuration has eliminated the need to dispose of the print room wastewater off-site. This permeate can not only be recycled to a large extent, but can also be discharged directly to the facility's septic system.