

POLLUTION PREVENTION

IN RHODE ISLAND

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

Textile Printing Naphtha

Textile printer eliminates solvent use through replacement with an alkaline aqueous-based cleaner.

Industry \ Contact

SIC Code: 2291 Rotary Screen Textile Printing, Rhode Island.

Contact: Company # 89

Technology Description

The company is engaged in the continuous rotary screen printing of textiles principally for the home fashions industry. The printing facility employs approximately 150 people.

The company was interested in finding a suitable non-hazardous replacement for its naphtha solvent. The company contacted the DEM's Pollution Prevention Program for vendor and product information.

Several aqueous cleaners were tested for compatibility to the company's print machine conveyor belts (galvanized rubber) and to the metallic screens used to apply pigment onto fabric. In 1993, the company switched from using RI Screen Cleaner (100% naphtha) to Diversey's Jettacin (d-limonene) cleaner. Company employees have been pleased with the product's performance over the last 2 years.

Feedstock Materials

2 drums (110 gal) per year 100% naphtha screen cleaner

Wastes

110 gallons per year of spent naphtha disposed of (and released to air)

Costs

None

Operation \ Maintenance

Labor: (2 hours/month) \$192 annually

Labor is required to dilute the d-limonene cleaner to the proper concentration

Savings

Jettacin d-limonene cleaner (used at the required concentration) costs \$1.81/gallon and the naphtha screen cleaner cost \$15.00/gallon. Feedstock levels have remained the same, therefore, the company is saving \$13.18/gallon with the aqueous cleaner.

Treatment \ Disposal

Spent d-limonene cleaner is sent to the company's ultrafiltration (UF) system where the permeate is used for rinses in the screen printing operation. (UF costs are not included in this payback analysis because the UF system is part of a much larger project, and the flow from the spent d-limonene cleaner is considered insignificant.)

Payback Period

Immediate

Impact

The elimination of this solvent-based cleaner has reduced the company's environmental liability and increased worker safety. The company has realized that by replacing the hazardous solvent naphtha with an aqueous cleaner, it was also able to reduce cleaner costs by 75%.