

POLLUTION PREVENTION

IN RHODE ISLAND

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

Textile Printing Color Reuse

Textile printer eliminates concentrated pigment discharge to the sewer through a "waste work-off" color matching system.

Industry \ Contact

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

Contact: Company # 89

Technology Description

The company employs 230 people. It is engaged in the preparation, printing, and finishing of textile. The company principally supplies its product to the home fashions industry.

The company's printing facility applies aqueous-based pigment emulsions onto its prepared fabric with 5 rotary screen print machines. The print machines can produce patterns with up to 24 different colors and yield approximately 6,000,000 yards of printed fabric monthly. During an individual print pattern's run through the machine, a print machine operator calls for more pigment to be made by the color shop. The operator bases the need for more color on the machine's consumption of each color per yard of fabric previously run (i.e. liters/yard).

Excess pigment left at the end of a pattern's run was originally washed out to the sewer in a barrel washer. With the aid of DEM's Pollution Prevention Program, the company purchased an ACS Spectrophotometer equipped with a personal computer and "Waste Work-off" software to reduce this waste stream at the source. Operators now run waste pigment samples through the spectrophotometer, which yields shade-change formulas for matching the pigments to other patterns not yet printed. Approximately 5 barrels of waste color is produced and reused daily.

Feedstock Materials

150 drums of pigment concentrate used per day

Wastes

5 drums of waste pigment concentrate sent to sewer daily

Costs

ACS Spectrophotometer, PC, and Software; \$40,000.

Operation \ Maintenance

Labor: 3 hr/day, 5 day/wk, 50 wk/yr; \$9,000 Annually

Energy: Negligible

Savings

5 drums of pigment concentrate recovered daily (\$100 /drum); \$125,000 annually

Pigment concentrate no longer discharged to sewer

Sewer surcharges on Biological Oxygen Demand and Total Suspended Solids eliminated;
\$1,000 annually

Payback Period

Approximately 4 months

Impact

The company has eliminated a 5 drum-per-day discharge of pigment concentrate to the local sewer. The company has found that by utilizing computer and spectrophotometer technology it can reformulate leftover pigments to match the colors needed in upcoming patterns. This reshading procedure has not only eliminated the concentrated pigment discharge and the rinse waters associated with it, but it has also reduced the pigment feedstock requirements by 5 drums per day.