

4.11.2 Common Operations: Coating/Painting

Case Study #1

BUSINESS: Northern Engraving Corporation; La Crosse, Wisconsin
WASTE ORIGIN: Automotive Trim Manufacturing
WASTE TYPES: Petroleum-based Solvent Coatings, Solvent Cleaners, and Volatile Organic Compound (VOC) Air Emissions

COMPANY BACKGROUND

Northern Engraving decorates and forms automotive trim and assemblies. The company employs over 2,000 people in Wisconsin, Iowa, and Minnesota.

MOTIVATION

Reduce volumes of hazardous waste and associated disposal costs, reduce inefficient use of raw materials, and reduce future hazardous waste liabilities.

STRATEGIES

Improve design and operation of roll coating equipment to reduce paint and clean up wastes.

ORIGINAL PROCESS

Faceplates are decorated and formed prior to assembly. The process includes applying a primer and topcoat to aluminum sheets, which consist of solvent-based coatings. Several solvent blends were used to clean equipment during and after use.

NEW PROCESS

Northern Engraving modified its existing roll coater to increase its efficiency and eventually built its own, more efficient coater. Schedules were adjusted to maximize raw material usage and reduce the number of clean ups required. Coating operators were trained in proper use of the new coater.

RESULTS

Waste Reduction

Reduced coating wastes from 2,130 gallons/year to 1,400 gallons/year.

Reduced solvent wastes from 1,875 gallons/year to 700 gallons/year.

Economics

Savings: \$15,000 annual savings in raw material and waste disposal costs.

Capital Cost: Costs borne internally.

Operating/Maintenance Cost: No significant changes.

Payback Period: Less than two years.

HEALTH & SAFETY BENEFITS

Reducing hydrocarbon-based paint and solvent wastes reduced worker exposure to these suspected carcinogens and eye and skin irritants.

TECHNOLOGY TRANSFER

Northern Engraving worked with its suppliers to find ways to reduce roller swelling which reduced coating loss during operations. Realizing that the desired efficiency could not be achieved with existing equipment, the facility constructed its own, more efficient coater.