

4.6.2 Plastics Manufacturing: Thermoforming

Case Study #1

BUSINESS: TriEnda Corporation; Portage, Wisconsin
WASTE ORIGIN: Plastics Thermoforming Process
WASTE TYPES: Plastic Production Scraps, Spent Plastic Liquid Color Drums, and Office Materials (Paper, Aluminum Cans, Plastic Strapping, Metals, Poly Bags)

COMPANY BACKGROUND

TriEnda, founded in 1975, manufactures custom thermoformed products such as shipping pallets and automotive handling trays.

MOTIVATION

Reduce the company's solid waste and their associated landfill disposal costs.

STRATEGIES

Evaluate materials used and recommend machinery improvements to cut costs, reduce waste, and conserve energy.

ORIGINAL PROCESS

The majority of office and production wastes were sent to the landfill. Hazardous wastes from solvent use required special handling requirements and disposal costs. Older plant lighting and machinery technologies required high energy consumption.

NEW PROCESS

Though involved in recycling since 1975, the company formed a recycling committee in 1990. Commitment to waste reduction is encouraged through all departments. Recycling bins are placed in the plant and office. Production plastic scrap and plastic liquid color drums are ground up and recycled. Customer's scrap or obsolete products are often bought back and recycled. Equipment is cleaned using only recyclable and biodegradable solvents. Heat is reclaimed from machinery and vented to other areas of the plant. Upgraded lighting, motors, and other production equipment doubled energy savings.

RESULTS

Waste Reduction

Total company solid waste volume was reduced 91 percent since 1987.

Plastic production waste was reduced from 1.7 million pounds to 215,000 pounds.

Liquid color drum waste was reduced by 99 percent.

Energy savings doubled from 4.1 million kilowatt hour in 1991 to 9.8 million kilowatt hours in 1993.

Economics (Information not available.)

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Case Study #2

BUSINESS: Placon Corporation; Madison, Wisconsin
WASTE ORIGIN: Plastics Packaging Manufacturing
WASTE TYPES: Scrap Production Plastics, Production Equipment Wastes (Oil, Cleaning Solvents, Lubricants), Office Materials (Paper, Cardboard, Magazines, Phone Books), Warehouse Materials (Pallets, Metal Packing Bands), and Cafeteria Materials (Plastic and Paper Cups, Paper Hand Towels, and Cleaning Rags)

COMPANY BACKGROUND

Placon manufactures plastics packaging for the consumer household, airline, and retail display industries.

MOTIVATION

Placon's production process generated large volumes of solid and associated disposal costs.

STRATEGIES

Reduce use of raw plastic materials, recycle plastic production scraps, reuse packaging wherever possible; minimize production of plastics with mixed, non-recyclable plastic resins; promote involvement of all departments in waste reduction, recycle, and reuse efforts.

NEW PROCESS

The company uses 10 to 50 percent recycled plastics content in many products. Redesigned products use less material or meet minimum product material requirements. Trim loss was reduced during production. Excess production plastics are ground up and sent to Placon's base supplier for recycling.

RESULTS

Waste Reduction

Plastic waste reduced 1.394 tons/year.

Economics

Savings: An estimated \$20,328/year based on reduced disposal costs.

Capital Cost: \$133,500 for plastic recycling grinders, scale, and forklift.

Operating/Maintenance Cost: Information not available.

Payback Period: Information not available.