

4.2.2 Garment Cleaning: Wet Cleaning

Case Study #1

BUSINESS: Greener Cleaner; Chicago, Illinois

WASTE ORIGIN: Dry Cleaning Process

WASTE TYPES: Toxic Cleaning Solvents, Petroleum-based Solvents, and Volatile Organic Compound (VOC) Air Emissions (Primarily Perchloroethylene)

COMPANY BACKGROUND

Greener Cleaner is the first Midwest shop to professionally clean clothes using only wet cleaning.

MOTIVATION

Growing evidence shows that the primary chemical used in dry cleaning — perchloroethylene, perc or PCE for short — can pose serious contamination risks to customers, workers, and property.

STRATEGIES

Convert operations to water-based garment cleaning, using specially designed computer-controlled washing and drying systems.

ORIGINAL PROCESS

Traditional dry cleaning uses petroleum solvents creating air emissions of volatile organic compounds (VOCs). Perchloroethylene is the primary cleaning solvent for its nonflammable properties. Air emissions are generated by exhaust stack fumes, transfer of damp solvent-treated clothes, and leaking machine gaskets and seals.

NEW PROCESS

Wet cleaning uses only mild detergents. Stubborn stains are removed by hand, excess wrinkling often requires pressing, and clothes are dried in equipment where temperature is computer-controlled to prevent shrinking.

RESULTS

Waste Reduction

Perchloroethylene is eliminated from the cleaning process.

Economics

Information will be available soon on labor and equipment costs and annual profits. Wet cleaning is more labor intensive than dry cleaning, but Greener Cleaner is able to charge similar prices, such as \$6.50 for a wool suit.

HEALTH & SAFETY BENEFITS

Perchloroethylene is a suspected carcinogen, is moderately toxic by inhalation, is an eye and severe skin irritant, and has shown experimental teratogenic and reproductive effects.

TECHNOLOGY TRANSFER

As part of a wet cleaning national demonstration project, Greener Cleaner works with industrial, regulatory, environmental and community groups to assess this new process. This project includes testing and demonstrating wet cleaning in a operation shop, developing training materials, providing accurate cost data and business information, and offering technical assistance to dry cleaners wanting to convert to wet cleaning.

PROBLEMS

More extensive tests of wet cleaning are required to measure the cleaning performance on a full range of fabrics. More information is needed on customer satisfaction and claims. More tests are needed to rate how regular wear would affect wet cleaning performance. More equipment and labor cost data are needed.

TECHNICAL ASSISTANCE

As part of the demonstration project, Greener Cleaner is working with the U.S. EPA's Dry Cleaning Partnership Program, Chicago's Center for Neighborhood Technology, the International Fabricare Institute, the Neighborhood Cleaner's Association, the Massachusetts Toxics Use Reduction Institute, and Greenpeace. All test information is available to businesses and the general public.

SOURCE REFERENCE

For more information on the Greener Cleaner research, contact: The Center for Neighborhood Technology, Bill Eyring, 2125 W. North Avenue, Chicago, IL 60647-9886; or call 312/278-4800, ext. 116; or fax 312/278-3840.