

Nevada Small Business Development Center Business Environmental Program

CS-FY9401002

SPIN DISK FILTRATION OF SPENT PERC AT FABRIC CARE SPECIALIST Waste Reduction Case Study

PROJECT

Fabric Care Specialist, a 20 employee drycleaning firm located in Reno, received grant funding from the Nevada Division of Environmental Protection (NDEP) to replace traditional cartridge filters with a spin disk filter system in their drycleaning operation. The spin disk filtration system can recover more of the usable solvent and generates less filter waste thus reducing the amount of hazardous waste generated and the associated management and disposal costs.

BACKGROUND

There are various solvents used in drycleaning. They include but are not limited to petroleum/stoddard solvents, perchloroethylene (perc), trichlorotrifluoroethane (CFC-113), and 1,1,1-trichloroethane (TCA). Perc is the most widely used solvent. Spent perc is a F002 listed solvent. Still bottoms, cartridge filters/filter muck from drycleaning operations using perc are also regulated as hazardous waste. The majority of drycleaners contract with an outside hazardous waste management company to haul their waste off-site for disposal.

Cartridge filters are typically changed after 8000 lbs of clothes have been cleaned. Fabric Care was generating approximately 8600 lbs of still bottoms, cartridge filters, and filter muck a year.

TECHNOLOGY

Disk filtration is an alternative to cartridge filters. It can also be used in tandem with cartridge filters. The spin disk system is composed of a hard screen in the form of a tubular canister. Inside the canister, several disks with fabric (generally nylon) filters are lined up in a row. The dirty solvent flows through the disks which may or may not contain a filter medium like carbon or diatomaceous earth. Fabric Care Specialist decided to use the powderless system. The solvent is filtered through the spin disk system and then passed through a carbon tower where the solvent is further cleaned to remove dyes. Periodically when the spin disk canister is loaded, the solvent is emptied and the canister is spun. This action slings the soiled perc into the still where usable perc is recovered. The spin disk filtration system is a reusable filter system as the filter is not discarded when the canister is spun.

"The spin disk filter saves disposal of cartridge filters" says Gene, "however, I find that the cartridge filters are still an important component of my system. With only the powderless spin disk and a carbon tower, removal of dyes from the solvent is not up to my satisfaction." Fabric Care is currently experimenting with different combinations of the spin disk filter, carbon tower and cartridge filters to fine tune the system. The solvent now flows through the spin disk filter first and then through the cartridge filters. A part of the solvent, about 10%, is diverted to the carbon tower, which polishes the solvent. This operation has increased the life of the cartridge filters by almost 100%; 16,000 lbs of soiled clothes can be cleaned before the cartridges need to be changed.

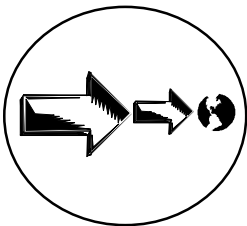
WASTE MANAGEMENT

Prior to installation of the spin disk system, Fabric Care Specialist generated approximately 720 pounds a month, including still bottoms, cartridge filters, and filter muck. After installing the spin disk filtration system, Fabric Care generates almost half of what they were generating. The waste is stored in 55 gallon drums and picked up by a private waste hauler for disposal off-site.

COST SAVINGS

In 1993/1994, Fabric Care Specialist was generating approximately 8,600 pounds of hazardous waste a year, managed as a F002 listed hazardous waste. The total cost of waste handling was \$5,500 a year. The spin

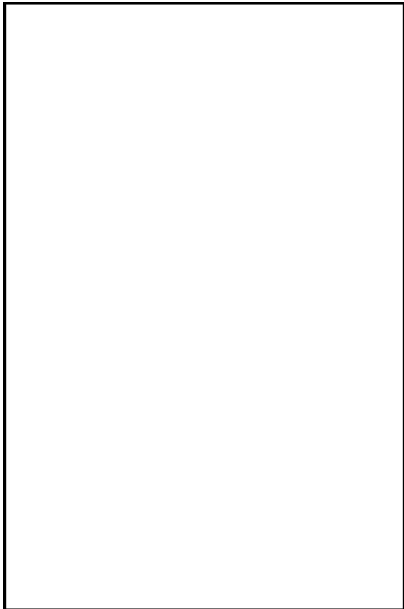
"I think this project is really worthwhile; more and more drycleaners must better their business by cutting down on hazardous waste," says Gene Spear, owner of Fabric Care Specialist.



This case study was developed by the Business Environmental Program of the Nevada Small Business Development Center with funding provided by the Nevada Division of Environmental Protection.



disk filter cost Fabric Care \$7,275 and NDEP funded approximately half this amount. As the disk filter has doubled the life of the cartridge filters, the waste disposal costs have come down to \$2,200 a year, which is a saving of \$3,300. With the higher operating efficiency of the spin disk system, more spent solvent is recovered and recycled, thereby reducing the raw perc purchasing cost by approximately \$300 a year. Gene also claims approximately \$180 savings in employee time involved in filter change out and other waste handling costs. By installing the spin disk filter, increasing the perc recovery efficiency, and reducing the waste disposal costs, Fabric Care Specialist is realizing \$3,780 in savings a year. It will take a little less than two years to break even on this project. Gene Spear of Fabric Care Specialist comments, "I think this project is really worthwhile; more and more drycleaners must better their business by cutting down on hazardous waste." Congratulations to Fabric Care; Gene Spear can be reached at (702) 827-1411.



COMMENTS

About 90 percent of the dry cleaners in the U.S. use cartridge filters. Replacing cartridge filters with spin disk filtration systems substantially reduce waste disposal costs. Fabric Care Specialists could not completely eliminate the use of their cartridge filters. "There are obvious savings by switching over to a spin disk filter, however, what works for one business need not necessarily work for another," says Gene Spear, "it is important to try out different options and find out what works for you." Some drycleaners have successfully switched to a spin disk filter system and completely eliminated the use of cartridge filters.

SPIN DISK FILTRATION SYSTEM VENDORS

Boewe Passat
2700 Commerce Street
Wichita Falls, TX
(817) 723 1065

Marvel Manufacturing
5922 San Pedro
San Antonio, TX
(800) 467 1326

IOWA Technique
POB 1322
Cedar Rapids, IA
(319) 365 9788

VIC Manufacturing
941, 73rd Ave
Brooklyn Park, MN
(800) 6 BUYVIC

Columbia Drycleaning Company
(800) 446 5634

Spin disk filter and four cartridge filters in tandem at Fabric Care Specialist

Note: The above listing of vendors and manufacturers is provided for informational purposes only. This list is provided as a service to Nevada businesses in order to assist them with proper waste management. This listing of businesses is not to be construed as actual or implied endorsement of their products or services. Additionally, other business which provide similar products and services may not be listed; this omission is not to be construed as an actual or implied denouncement of those businesses.

printed on recycled paper

