

# Nevada Small Business Development Center Business Environmental Program

CS-FY9501016

## ALTERNATIVE CLEANER SUBSTITUTION AT INLAND EMPIRE EQUIPMENT Waste Reduction Case Study

### PROJECT

Inland Empire Equipment, a 23 employee firm located in Las Vegas, received grant funding from the Nevada Division of Environmental Protection (NDEP) to switch from a low-flash point/hazardous waste solvent to a high flash point alternative cleaner to be used in degreasing operations for routine automotive maintenance and repair work. Prior to switching to an alternative cleaner, Inland Empire was using solvent in a parts cleaning sink and paid to have each batch of solvent removed and managed off-site every two months. Along with the alternative cleaner, Inland Empire purchased a new solvent sink system that constantly filters the alternative solvent. The filtration system removes the suspended solids and contaminants, which dramatically extends the bath life of the solvent. Not only does this process allow Inland Empire to save money on the amount of raw product they purchase, it also dramatically reduces the amount of hazardous waste they generate and ship off-site.

### BACKGROUND

Inland Empire Equipment conducts sales and service of equipment for handling industrial materials. The majority of waste solvents used for degreasing of heavy equipment are managed as a hazardous waste due to the low flash point of the solvent as well as the oils, greases, and heavy metals pulled off the parts through cleaning. Under Federal and State regulations, if a waste has a flash point of less than 140 degrees Fahrenheit, it is considered an ignitable hazardous waste. The flash points of most naphtha-based solvents traditionally used in automotive and heavy equipment maintenance degreasing are between 105 and 120 degrees Fahrenheit, hence the solvents are considered ignitable hazardous wastes. Many automotive repair facilities contract with an outside solvent management firm that supplies solvent and picks it up for off-site waste management when it is spent. Under this management contract, a business' choice is limited as to how often the waste solvent is changed out and raw solvent is supplied. Each time a solvent sink is changed out under these arrangements, a business is paying for both the new raw solvent provided and for the waste solvent to be recycled and disposed of. Even though the business hires an outside firm to provide raw solvent and manage waste solvent, the business is still responsible for the hazardous waste generated.

In the past, Inland Empire Equipment had one Safety-Kleen tank at the facility for degreasing operations. The solvent was changed out every other month by the solvent management firm. Inland Empire Equipment spent approximately \$798 a year and generated approximately 85 gallons of waste solvent that was managed as a hazardous waste.

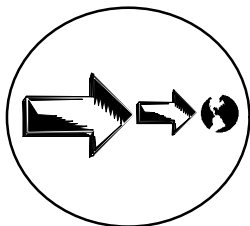
### TECHNOLOGY

Inland Empire Equipment purchased one of Inland Technologies Edge Tek solvent tank and filtration systems and Inland's Skysol alternative cleaner. Inland's Skysol solvent has a flash point of 152 degrees Fahrenheit. The Inland system provides a traditional solvent sink to hold the solvent for degreasing but also supplies a compact filtration system that attaches to the side of the tank. The filtration system is fitted with a 1micron filter which is capable of filtering out oils, greases, dirt and other metal parts and keeps the solvent relatively clean. When the tank is in use, the solvent is constantly being filtered to remove suspended particles and contaminants. When the filters become loaded with contaminants, they are replaced but the alternative cleaner is constantly polished and does not need to be changed out on a regular basis. Many businesses that have switched to an alternative solvent, use the solvent for 18 to 24 months or longer before change out. Instead of purchasing new solvent and paying to dispose of waste solvent once every two months, Inland Empire Equipment is generating only spent filters (approximately four filters a year) and adds seven gallons per year of make-up cleaner due to drag-out and evaporation.

### WASTE MANAGEMENT

Prior to switching over to an alternative cleaner, Inland Empire Equipment was generating approximately 84 gallons of spent solvent per year which was handled as a hazardous waste. Inland Empire Equipment is

*"By owning our own tank we don't have the costs of Safety Kleen service, and more importantly, this solvent is safer to the skin and the environment." says Mark Schechinger of Inland Empire Equipment.*



***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.***



currently accumulating spent filters on-site, and has not changed out the solvent. When Inland decides to dispose of their spent filters, they have to analyze the filters by using the 7-11 Toxicity Characteristics Leaching Procedure (TCLP). If the laboratory results indicate that the filters are not a hazardous waste, Inland Empire Equipment will be able to dispose of their waste filters as non hazardous solid waste. Businesses that generate waste filters from a solvent filtration system should have a spent filter tested by a laboratory to determine if the used filters are hazardous waste. After using their new alternative cleaner system for over a year, Inland Empire Equipment has not had to dispose of any alternative cleaner. When they do generate spent alternative cleaner, they will have a laboratory run a 7-11 TCLP on the waste solvent. If the laboratory results indicate the waste passes the TCLP, and since the alternative cleaner has a flash point greater than 140 degrees Fahrenheit, it can be picked up by a used oil hauler.

### **COST SAVINGS**

In 1994 and 1995, Inland Empire Equipment was generating approximately 84 gallons of waste solvent per year that was being managed as an ignitable hazardous waste at a cost of \$798. The initial cost associated with switching over to an alternative cleaner included one Edge Tek filtration units (\$1000 per unit) and 30 gallons of Skysol cleaner (30 gallons @ \$21.95 per gallon for a cost of \$658.50) was \$1,658. NDEP provided half the amount in grant money. A pack of 10 filters cost \$160 and the 7 gallons of make up solvent cost \$153.65 per year. The yearly operating cost is \$217.65 (4 filters at \$16 and 7 gallons of makeup at \$21.95 a gallon). **It will take Inland Empire Equipment approximately 2.9 years to break even on the investment made in the new equipment and alternative cleaner. After that, they will save approximately \$571 per year.**

### **COMMENTS**

There are a variety of alternative cleaners on the market. They range from pure water, to combinations of water, hydrocarbons, detergents, saponifiers, surfactants, corrosion inhibitors, and special additives. Ideally, an alternative cleaner will have a flash point above 140 degrees Fahrenheit so that it will not need to be managed as an ignitable hazardous waste. Selecting an alternative cleaner can be a challenge; what works for one shop may not work for another and what some employees are happy with, others may not be. Mark Schechinger from Inland Empire Equipment says, "By owning our own tank we don't have the costs of Safety Kleen service, and more importantly, this solvent is safer to the skin and the environment." Mark Schechinger of Inland Empire Equipment can be reached at (702) 873-1382.

### **ALTERNATIVE CLEANER SUPPLIERS**

Inland Technology 401 East 27th Street Tacoma, WA 98421 (800) 552-3100	Zep Manufacturing POB 15404 Las Vegas, NV (702) 367-4288	Ecolink-Sentry 1481 Rock Mountain Blvd. Stone Mountain, GA 30086 (800) 886-8240
PurChem 614 Chris Ave. Elko, NV (702) 753-7033	Enviro-Motive Service Institute 220 W. Santa Ana Street Anaheim, CA 92805 (714) 778-5155	

*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 waste minimization. This listing of businesses is not to be construed as an actual or implied endorsement of their products or services. Additionally, other businesses 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.*