Nevada Small Business Development Center
Business Environmental Program

CS-FY9401013

WASTE REDUCTION AT VINTAGE CLASS MOTOR CARS

Waste Reduction Case Study

"A project like this can turn a negative or break-even cash flow situation into a profit center," says Eugenio Basa, Owner of Vintage Class Motor Cars, "I highly recommend a project similar to this in other autobody shops."

PROJECT

Vintage Class Motor Cars, a 8 employee autobody firm located in Carson City, received grant funding from the Nevada Division of Environmental Protection (NDEP) to install a solvent recycler, antifreeze recycler and HVLP paint guns. With the purchased equipment Vintage applies paint more efficiently, recovers spent solvents from painting and wash-up operations, and recycles antifreeze which they were previously disposing of off-site.

BACKGROUND

Vintage Class Motor cars specializes in restoration of vintage/classic cars. Their operation includes body work and painting. Most of the waste lacquer thinners used in painting operations and in waste paints are managed as hazardous waste due to their hazardous constituents. Typically, lacquer thinners contain hazardous constituents such as xylene, MEK, acetone and other F listed solvents (40 CFR 261.31). Under the State and Federal regulations, spent solvents containing more than 10% cumulative of the F listed constituents are considered hazardous when they are spent. The majority of businesses contract with an outside management company to haul waste off-site for recycling. An alternative is to recycle these solvents on-site with a distillation unit. This not only eliminates the cost of disposal, but also saves the business money on the cost of virgin solvent purchased. In the past, Vintage generated about 35 gallons of spent solvent per month, which was stored in 55 gallon drums for off-site disposal.

The business also generates 20 gallons a month of spent antifreeze. The spent antifreeze was picked up by an outside recycler. The installation of the antifreeze recycler has eliminated the generation of waste antifreeze and also the costs associated with disposal.

TECHNOLOGY

Vintage installed a *Resolv-R.2* solvent recycler manufactured by PBR Industries. The recycler is a distillation unit. The waste solvent is added to a 5.2 gallon capacity metal bucket tank and placed in a chamber. When the heat cycle is turned on, the solvents are vaporized. The vapors expand in the chamber and are then condensed by a refrigerated heat exchanger. The recovered solvent then flows out to a fresh solvent receiving bucket. The reclaimer can run from 1 to the total 5.2 gallons in a batch and shuts off when the solvent is reclaimed. The still can recover 85%to 95% of the spent solvent. The still bottoms generated during recycling are in the form of dry paint residue and are regulated as hazardous waste.

Vintage also installed a *Goodall* antifreeze recycler, a filtration based, closed loop system. The recycler has a capacity of 18 gallons and includes a 20 micron filter and a 5 micron filter. The antifreeze is pumped directly from the coolant circulation system of the vehicle into the recycler through two filters and back into the vehicle. The coolant is circulated for approximately 30 minutes in this loop to reclaim the antifreeze. Once reclaimed, the pH is adjusted to the range of 9.5 to 10.5, and other corrosion retardant additives are added. The filters used in the recycling process need to be changed, the frequency of which depends on the amount of antifreeze recycled. The spent filters generated during recycling will have to be analyzed by a laboratory for leachable lead using the Toxicity Characteristics Leaching Procedure (TCLP) to determine whether they are a hazardous waste. If the filters turn out to be a non-hazardous waste under TCLP, Vintage can dispose of the filters as normal trash.

Vintage purchased 2 *Sata Jet* HVLP spray guns. The High Volume Low Pressure (HVLP) spray technology is a proven alternative to conventional spray painting techniques in terms of spray efficiency and reduced overspray. The HVLP spray has a higher paint transfer efficiency, a low

Sata Jet HVLP paint guns at Vintage Class Motor Cars

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.

bounceback and good atomization of paint. This means more of the paint adheres to the vehicle and less is wasted.

COST SAVINGS

The initial costs associated with installation of the solvent reclaimer system was $5,189, the antifreeze recycler cost $2,133, and the HVLP guns were $918 a pair. The total waste reduction project cost at Vintage was $8,240. NDEP provided half the funding in grant money.

With the new solvent reclaimer, Vintage has eliminated the paint thinner waste, saving them $90 in disposal costs per month. Prior to the installation of the recycler, Vintage was purchasing 7-8 drums a year of thinner at $200 a drum. With the solvent recycler, Vintage purchases one 55 gallon drum per year. The thinner purchase savings are approximately $1,400 a year. This system saves $2,480 per year on both purchase and disposal costs. The still bottoms generated during recycling are required to be handled as a hazardous waste. Presently Vintage is accumulating the still bottoms on-site for disposal. Vintage estimates they will generate one 55 gallon drum of still bottoms a year which will cost approximately $300 for disposal. With savings of $2,180 per year, the equipment cost will break even in 2.3 years.

Prior to the installation of the HVLP guns, Vintage's paint purchase costs were $830 a month. The higher efficiency HVLP guns have reduced their paint purchase by 25%. Today Vintage spends $622 a month, saving them $2,490 in material purchase costs a year. Vintage also claims an increase in the life of their paint booth filters by about 33%. The equipment cost will break even in approximately 5 months.

Vintage generated 20 gallons of spent antifreeze per month which was costing $40 to dispose of offsite. The installation of the antifreeze recycler has eliminated the cost of disposal and also reduced new antifreeze purchases. Vintage purchases about 5-6 gallons on fresh antifreeze a month instead of the 20 gallons per month they were previously purchasing. The savings from avoided disposal costs are $480 a year and savings from avoided antifreeze purchase costs are $1,092 a year. The filters generated during recycling are accumulated on-site. Vintage will have to run a TCLP lead test before disposal to determine if the loaded filters are hazardous. The two 5 micron and the 20 micron filters cost $5.53 and $5.62; in the past year, filters were changed 5 times at a total cost of $55.75. The pH additive and other corrosion retardant additives cost $96 a gallon which is enough for 100 vehicles. The equipment cost will be recovered in 1.5 years.

Yearly savings:	Solvent purchase	$1,400
	Antifreeze purchase	$940 (reflects costs of filters and additives)
	Paint purchase	$2,490
	Waste disposal	$1,560
Total:		$6,390

With a total savings of $6,390, it will take Vintage about 1 year and 4 months to break even on the initial $8,240 investment. Each subsequent year, Vintage will save an additional $6,390 in avoided waste management and material purchase costs.

Goodall antifreeze recycler at Vintage Class Motor Cars

COMMENTS

"A project like this can turn a negative or break-even cash flow situation into a profit center," says Eugenio Basa, Owner of Vintage Class Motor Cars, "I highly recommend a project similar to this in other autobody shops." Cost savings may vary from one shop to another depending upon the equipment purchased and waste management practices. There are various technologies and equipment available in the market to reclaim solvents. The most popular technology is the use of a solvent still or a distiller. The solvent distillation units are available in various batch sizes and can be purchased based on the amount of spent solvent generated at a shop. Congratulations, Vintage Class Motor Cars, Eugenio can be reached at (702) 885-1415.

Transfer efficiency on the HVLP guns is dependent of various parameters; excessive air pressures and flow rates will reduce the efficiency. Proper maintenance of guns is important to maintain proper paint spray. While HVLP guns provide higher spray efficiency than traditional atomizing, additional efficiency improvements are possible with the use of systems like air assisted HVLP systems. For further information on air assisted or heated air assisted HVLP systems, contact the Business Environmental Program at (800) 882-3233.

SOLVENT RECYCLING EQUIPMENT SUPPLIERS

RE-NEVA AUTO PAINT & SUPPLY
935 S Rock Blvd.
Sparks, NV 89431
(702) 331-2866
Don Ellis

FINISH THOMPSON INC.
~~Automotiv~~e of Nevada
2901 S Highland #10 b
Las Vegas, NV 89109
(702) 791-0177, Bob Seltzer

POPE
P.O. Box 495
Menomonee Falls, WI 53051
John Oxendorf; Dean Segal

PURASTILL
(419) 536-7384
Thomas Hoffman

SUPPLIERS OF ALTERNATIVE PAINTS AND PAINT RELATED ACCESSORIES

Reno Area

Allied Auto Parts (702) 323-2756
Barretts Paint Supply (702) 329-2756
Fuller Color Center (702) 329-4478
ReNeva (702) 331-2886
Reno Paint Mart (702) 826-2900
Sierra Filtration (702) 348-7010

Las Vegas Area

B&L Auto Paint (702) 457-8882
Charleston Auto (702) 642-0616
Sherwin William (702) 367-1622

ANTIFREEZE RECYCLING EQUIPMENT SUPPLIERS

BG:CASCO, Temple Hills, Maryland
Bob Crovato, (800) 327-8883

Re-Neva Auto Supply
935 S Rock Blvd., Sparks
Don Ellis, (702) 331-2886

Solar Division of Century Mfg.
Northern Nevada (209)474-7764
Southern Nevada (714) 879-6062

Finish Thompson - Automotive of Nevada
2901 S Highland #10B, Las Vegas
Bob Seltzer, (702) 791-0177

Robinair
Reno: Greenfield Enterprises (702) 849-1488
Las Vegas: Cap Warehouse (702) 642-0616

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.

Resolv-R2 solvent reclaimer at Vintage Class Motor Cars