

# Nevada Small Business Development Center Business Environmental Program

CS-FY9401006

## SOLVENT RECYCLING AT MAACO AUTO PAINTING AND BODY WORKS

### Waste Reduction Case Study

#### PROJECT

Maaco Auto Painting and Body Works, a 9 employee autobody firm located in Reno, received grant funding from the Nevada Division of Environmental Protection (NDEP) to install a solvent recycler and a paint gun washer/recycler. With the purchased equipment Maaco recovers spent solvents from painting and wash-up operations, which were previously disposed of off-site.

#### BACKGROUND

##### Solvent Recycler:

Most of the waste lacquer thinners used for degreasing in a painting operation 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, solvents used in degreasing operations containing more than 10% cumulative of some F listed solvents are considered hazardous when they are spent. Many businesses contract with an outside management company to haul waste off-site for recycling. Generally, it is expensive to haul waste that is considered a hazardous waste. One alternative is to recycle these solvents on-site through a distillation unit. This not only reduces the cost of disposal drastically, but also saves the business on the cost of virgin solvent purchases. 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. In the past, Maaco was generating about 40 gallons per month of spent solvent, which was picked up by an outside hazardous waste hauler.

##### Gun Washer:

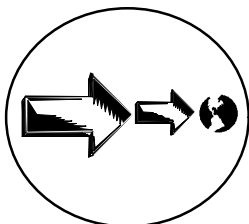
In many paint shops, guns are hand cleaned using paint thinner which is sprayed through the gun and may not be captured. Installing a gun washer reduces the quantity of solvent and costs involved in cleaning painting equipment substantially. The use of a gun washer also eliminates hand and skin exposure of painters to the solvents and reduces air emissions and employee exposure to breathing the solvents. Prior to the purchase of the gun washer, Maaco generated 50 gallons per month of spent thinner from the gun clean up operation, which was picked up by an outside hazardous waste hauler.

#### TECHNOLOGY

Maaco Auto Painting installed a *Sidewinder Model M* solvent recovery system. Waste solvent is added to a 5 gallon capacity metal bucket and placed in an enclosed chamber. The still operates by vaporizing the solvent and leaving paint and other contaminants behind in a sludge called still-bottoms. The vaporized solvent is captured when it condenses on a refrigerated heat exchanger and flows into another bucket for reclaimed solvent. The reclaimer can run from 1 to a total of 5 gallons in a batch and shuts off when the solvent is reclaimed. The still can recover up to 85% of the spent solvent. The still bottoms generated during reclaiming are in the form of dry paint residue and are regulated as hazardous waste.

Maaco also installed a *Herkules* gun washer and recycler eliminating hand cleaning of guns and cups. The gun washer has a reservoir capacity of 5 gallons and the solvent is circulated by air pumped at a maximum of 50 psi. The washer takes about a minute to clean two paint guns and lines. This washer saves employee time over conventional hand cleaning by automating the cleaning process and allowing the workers to perform other tasks. The solvent is captured and reused. The spent thinner is reclaimed using the solvent distillation unit.

"There are obvious savings in recycling the spent solvent on-site," says Gerry Tomac, President of Maaco Auto Painting and Body Works, "I should have installed this equipment much sooner."



*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.*

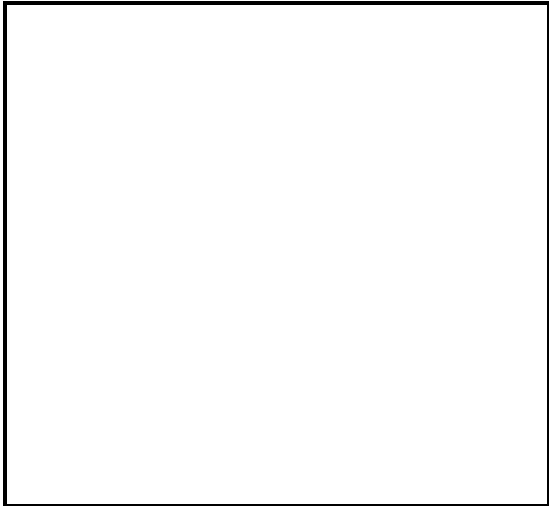


**COST SAVINGS**

Prior to recycling on-site, Maaco spent \$210 per month or \$2,520 per year on hazardous waste disposal costs for solvent and paint wastes. The solvent recycler generates 2 drums of still bottoms per year which are disposed of as hazardous waste at a yearly cost of \$600. Therefore, the recycler saves \$1,920 in hazardous waste disposal costs alone.

In addition, Maaco saves on solvent purchase costs. The gun washer uses solvent more efficiently, so Maaco saves \$190/month on solvent purchased for gun cleaning. The solvent recovered by the recycler saves an additional \$150/month in solvent purchase costs. This results in solvent purchase savings of \$340 per month or \$4,080 a year. Maaco also estimates 30 hours per month of labor savings using the gun washer, which provides a monthly labor savings of \$300 or \$3600 per year.

Yearly savings:	Labor	\$3,600
	Solvent purchase	\$4,080
	Waste disposal	\$1,920
Total :		\$9,600



*Gun Washer at Maaco*

The cost associated with installation of the solvent reclaimer system was \$2,670. The cost to set up the gun washer was \$980. The total initial waste reduction project cost at Maaco adds up to \$3,650. NDEP provided half the amount in grant money. With a total savings of \$9,600, it took Maaco about 4.5 months to pay back the costs associated with the new system. Each subsequent year Maaco will save an additional \$9,600 in avoided waste management and material purchase costs.

**COMMENTS**

"There are obvious savings in recycling the spent solvent on-site," says Gerry Tomac, President of Maaco Auto Painting and Body Works, "I should have installed this equipment much sooner." 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 distillation unit. 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. When purchasing and installing a solvent distillation unit be sure to use UL approved equipment and check with your local fire department for installation requirements. Congratulations, Maaco Auto Painting and Body Works. Gerry Tomac can be reached at (702) 322-2144.

**SOLVENT RECYCLING EQUIPMENT VENDORS**

- |  |  |
|--|--|
| Re-Neva Auto Paint & Supply (702) 331-2866   | Automotive of Nevada (702) 791-0177                  |
| Purastill (419) 536-7384                     | Lenan Corporation (608) 752-1601                     |
| Solvent Recovery Systems Inc. (904) 264-3651 | Waste Recovery Designed Products, Inc (412) 257-3256 |
| Clean Streams, Inc. (413) 732-4186           | Max Daetwyler Corporation (704) 875-1200             |
| Pope Scientific, Inc. (414) 251-9300         | Prisco (212) 962-6565                                |
| Pure-Flo International (713) 675-3801        | Vaco-Salv Chicago, Inc. (708) 381-4079               |

**SOLVENT RECYCLING EQUIPMENT VENDORS..... Continued**

- |   |   |
|---|---|
| Solvent Kleene, Inc. (508) 531-2279             | Recycling Systems of America, Inc. (603) 430-9343   |
| Distil Kleen (201) 217-0505                     | Chemical Management Technology, Inc. (904) 247-3247 |
| Brighton Custom Fabricating Div. (513) 771-2400 | Ecology Equipment, Inc. (412) 341-7190              |
| Progressive Recovery Inc. (618) 281-7196        | Branson Ultrasonics Corporation (203) 796-0400      |
| B/R Instrument Corp. 9410) 820-8800             | Enders Process Equipment Corp. (708) 469-3796       |
| Binks Manufacturing Company (708) 671-3000      | SIVA (904) 237-1200                                 |
| Gardner Machinery Corporation (704) 372-3890    | PBR Industries (516) 422-0057                       |
| Hydro-Tek (815) 469-3585                        | Giant Industries (419) 531-4600                     |
| Westport Environmental Systems (508) 636-8811   | Chinook Rings (503) 641-2411                        |
| Finish Thompson Inc. (814) 455-4478             | Solvent Recovery Systems Inc. (713) 449-8871        |

**GUN WASHER VENDORS**

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|---|--|
| Graco Inc. (612) 623-6000               | Lighthall Systems, Inc. (408) 379-1060 |
| Herkules Equipment Corp. (313) 363-8882 |  |





**SUPPLIERS OF ALTERNATIVE PAINTS AND PAINT RELATED ACCESSORIES**

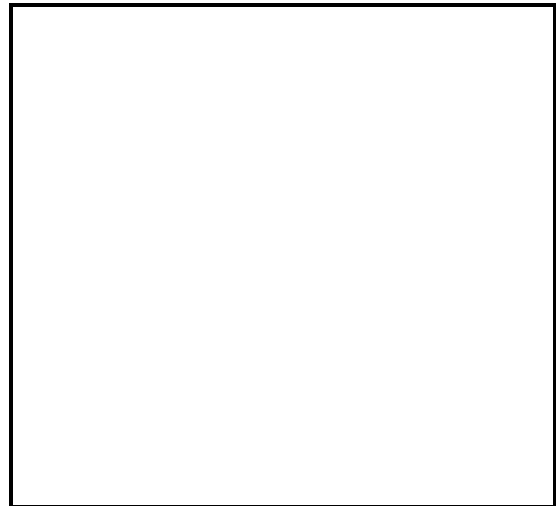
**Reno Area**

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

*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 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.*



*Solvent Reclaimer at Maaco*

