

Nevada Small Business Development Center Business Environmental Program

CS-FY9401005

ANTIFREEZE RECYCLING AT KINGSBURY AUTO Waste Reduction Case Study

PROJECT

Kingsbury Auto, a 5 employee firm located in Stateline, Nevada, received grant funding from the Nevada Division of Environmental Protection (NDEP) to install an antifreeze recycler on-site to recycle spent antifreeze. In addition to generating spent antifreeze from their operations, Kingsbury also accepts antifreeze from "do it yourselfers" in the county to encourage household waste recycling. Prior to installing the recycler, Kingsbury was disposing of the antifreeze through a private waste hauler. The proposed recycling system not only saves money on the amount of raw antifreeze they purchase, it also dramatically reduces the amount of spent antifreeze they generate and have to pay to dispose of.

BACKGROUND

Prior to installing the antifreeze recycler, Kingsbury Auto was generating approximately 100 gallons of used antifreeze per month and spent \$80 per month to manage the waste stream through a private waste hauler.

TECHNOLOGY

Kingsbury Auto purchased a *Solar Recycler*, a filtration based, closed loop system. The antifreeze is pumped directly from the coolant circulation system of the vehicle into the recycling unit through two filters and back into the vehicle. It takes approximately 30 minutes to reclaim the antifreeze. Once reclaimed, the pH is adjusted to the range of 9.5 to 10.5. The filters used in the recycling process need to be changed, the frequency of which depends on the amount and quality of spent antifreeze reclaimed. "The pressure developed in the recycler during operation determines when the filters need to be changed," says Shaun Thomas, the owner of Kingsbury Auto. The manufacturer of the Solar recycler recommends a filter change for a system pressure of 40 psi.

WASTE MANAGEMENT

Prior to installing the antifreeze recycler, Kingsbury Auto was generating approximately 100 gallons of spent antifreeze per month and having it all picked up for off-site recycling. Now all the antifreeze except, approximately 20 gallons deemed unfit for recycling, is recycled on-site. The filters generated during recycling will have to be analyzed by a laboratory for the 7-11 Toxicity Characteristics Leaching Procedure (TCLP) to determine whether they are hazardous waste. If the filter turns out to be a non-hazardous waste under TCLP, Kingsbury can dispose of the filters as normal trash. Before a filter can be disposed as normal trash, the business must have laboratory analysis documenting the waste is not a hazardous waste.

COST SAVINGS

The total cost of the antifreeze recycler amounted to \$2,150. The Nevada Division of Environmental Protection provided \$1,075 and Kingsbury provided the rest. Kingsbury Auto no longer disposes of their spent antifreeze, which is a direct saving of approximately \$950 a year. However, there is a cost associated with disposal of antifreeze which Kingsbury deems unfit for recycling. Approximately 240 gallons of antifreeze is picked up for off-site recycling per year at a cost of \$200 a year. The pH additive costs \$12 a pint and lasts up to 10-12 cars. There will be a cost associated with the testing of the filters generated

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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.



during recycling. Kingsbury saves substantially on virgin antifreeze purchase. "Our fresh antifreeze purchase has gone down by about 50 gallons a month; at the rate of \$4 a gallon, it amounts to \$2,400 a year," says Shaun. Kingsbury Auto is looking at a total saving of \$3,150 per year.

COMMENTS

Recycling antifreeze on-site can save money. It is feasible to install the antifreeze recycler even in a small shop; however, care must be taken to use the appropriate additives to rejuvenate the spent antifreeze. There are various brands of antifreeze recycling equipment available that are based on technologies ranging from simple filtration, distillation to ion exchange and reverse osmosis. Selection of the type of recycler required should be based on the volume of spent antifreeze generated and the separation efficiency desired.

Customer acceptance of recycled antifreeze in their vehicles is still a concern for Kingsbury Auto. Kingsbury feels there is a need for consumer orientation toward benefits of recycling; "generating interest in the community for people to recycle antifreeze and use recycled antifreeze in their cars takes time and effort," says Shaun. Shaun Thomas can be reached at Kingsbury Auto, Stateline, (702)588-2441.

ANTIFREEZE RECYCLING EQUIPMENT SUPPLIERS

BG:CASCO, Temple Hills, Maryland

inish Thompson - Automotive of Nevada
Bob Crovato, (800) 327-8883

901 S Highland #10b, Las Vegas

Bob Seltzer, (702) 791-0177

Re-Neva Auto Supply

Robinair
935 S Rock Blvd., Sparks

Reno: Greenfield Enterprises (702) 849-1488
Don Ellis, (702) 331-2886

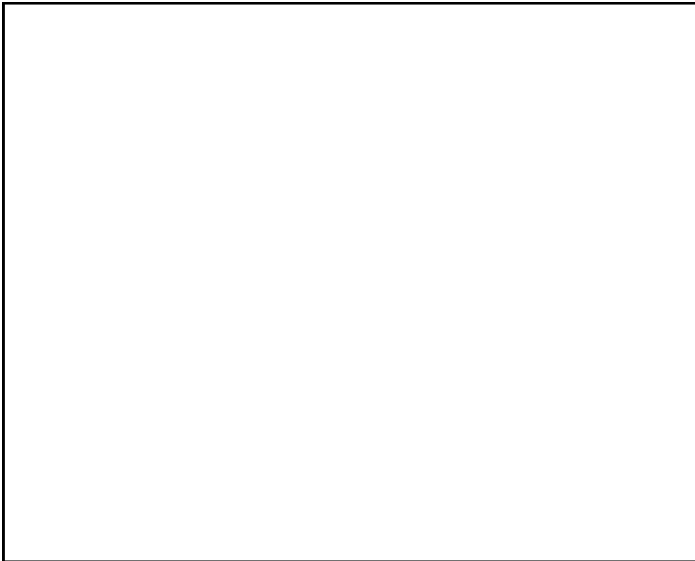
as Vegas: Cap Warehouse (702) 642-0616

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

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Solar Recycler in operation at Kingsbury Auto

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.

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