

Minimizing Aerosol Can Waste

by Helen Miller, Inspections Support Unit

Does your business use cleaners, paints, lubricants or other products that are packaged in aerosol cans?

If your company uses aerosol cans, there are several waste minimization options you can implement to save your company money. Because these cans may contain products or propellants such as butane and propane, they may need to be managed and disposed of as a hazardous waste.

Why would the contents cause these cans to be managed as hazardous waste?

The remaining contents could be hazardous waste. Please refer to an article on pages six and seven of our *Winter 2002 Notifier* called "[Regulatory Status of Aerosol Cans: a little can, a lot to think about](#)". It describes five scenarios for managing aerosol cans and explains how the contents could be hazardous.

Do you completely empty your aerosol cans?

A good waste minimization practice is to use the contents of the entire can before opening another, thus minimizing the number of partially empty cans generated. If a nozzle malfunctions or breaks off, try to return the can to the supplier or manufacturer for a replacement. Another good waste minimization practice is to apply the aerosol product directly to a rag, rather than spray it on a piece of equipment. Studies have shown that employees use less aerosol cleaner when employing this method.

Do you generate a significant number of cans per month?

If you generate a significant number of similar waste aerosol cans, you may want to consider purchasing a puncturing unit. This will enable you to separate the liquid contents from the metal can for recycling or disposal. This equipment ranges from approximately \$495 to \$775 for a manually operated unit, to thousands of dollars for an automated unit. Processing capacity for these units ranges from 120 to 2,000 cans per hour. This investment can be recovered over time by reducing start time spent on puncturing.

How do puncturing units work?

Some units attach to a 55-gallon drum and are designed to puncture the aerosol can, filter the propellant and drain the liquid into the drum. More complex units have closed systems that crush the can into half-inch wafers. If your facility uses different products in aerosol cans, you must segregate your waste when puncturing and crushing. For example, you must puncture and crush paint cans in one batch and do the same with lubricants in the next batch. Types of cans also must be segregated, i.e., separating aluminum from steel for recycling.

What are the cost savings and payback of a puncturing unit?

Several U.S. Navy installations have successfully implemented use of these units. In a cost analysis completed by the Navy, assuming an equipment cost of \$775, a payback of less than two years was calcu-



Aerosol Can Puncturer

continued on page 3...

Minimizing Aerosol Can Waste continued from page 2

lated. A fact sheet from the Navy includes a link to a spreadsheet that will allow you to view an active spreadsheet and enter your own data to calculate your payback. You can find it at: http://p2library.nfesc.navy.mil/P2_Opportunity_Handbook/7_III_3.html

Have you considered switching to refillable bottles?

Spray-on products sold in aerosol cans generally cost twice as much as bulk products. Several types of bottles are available, including metal bottles that use compressed air or plastic bottles that use a hand spray pump. Refillable metal bottles are similar to aerosol cans in their design and performance. For example, brake cleaner from a bulk container placed in these bottles is pressurized with 80 to 200 psi using a compressed air hose. Plastic bottles are operated by pumping a trigger to create a mist or stream of product.

What are the cost savings and payback of refillable bottles?

Air pressurized, refillable bottles cost from \$25 to \$60 each, depending on the type of material used to make the bottle. These bottles are available in 8-, 16- or 32-ounce capacities and are available in aluminum, stainless steel, brass and steel. Chemically resistant plastic bottles cost anywhere from \$1 to \$6 each. Various nozzle types are available, along with nozzle extensions of up to 12 inches for areas that are difficult to reach. Many common spray-on products are available in containers ranging from one to 55 gallons. Check with your vendor to see whether they offer free refillable bottles with their product.

You might wonder how much money your business could save by switching to refillable bottles. A U.S. EPA Region 9 *Refillable Spray Bottles* fact sheet contains a worksheet that you can use to help calculate your cost savings by switching to refillable bottles. This fact sheet is available at www.epa.gov/region09/cross_pr/p2/autofleet/spray.pdf.

According to the fact sheet, if you use more than 20 cans of brake cleaner or carburetor cleaner per month, you can purchase five refillable bottles at \$50 each with a payback of less than one year.

As shown on page four, the fact sheet also highlights three auto repair shops in California that switched to refillable bottles and noted the following advantages:

- **Cost Savings:** Reduced aerosol product costs by 84 percent for the same brake cleaner.
- **Preferred by Technicians:** They said refillable bottles worked as well or better than aerosol cans.
- **Ease of Use:** Technicians found them easier to use because the bottles provided a more predictable shot of product.

If you decide to switch to refillable bottles, here are some tips:

- use funnels and pumps to minimize spills during refilling;
- stock replacement parts such as nozzle seals, filler caps, valves and nozzles;
- provide every employee a refillable bottle; they will use them if they are as convenient as an aerosol can; and
- if you use the steel refillable bottles, make sure your shop has a water removal device in the air line to prevent corrosion in the bottles.

continued on page 4...

**Minimizing Aerosol Can Waste
continued from page 3**

	Nielsen Automotive	Glenmoor Auto Repair	Salem Boys Auto	City of Sunnyvale
Technicians	9	2	10 to 12	10
Service bays	6	8	20	12
Before Aerosol cans per year	780 (brake cleaner)	192 (brake cleaner) 288 (carb cleaner) 36 (lubricant)	1,560 (brake cleaner) 540 (carb cleaner)	260 (brake cleaner)
Aerosol can product cost per gallon	\$15.95	\$38.90 (brake cleaner) \$24.32 (carb cleaner) \$38.89 (lubricant)	\$16.54 (brake cleaner) \$15.45 (carb cleaner)	\$32.96 (brake cleaner)
Pressurized, refillable spray bottles	4 (1-quart)	6 (1-quart) 3 (10-ounce)	30 (1-quart)	10 (1-quart)
After Total cost for refillable bottles	\$200	\$450	\$0 (free for purchasing bulk product)	\$400
Refilling time	2 minutes	3 minutes	1 minute	1 minute
Bulk product cost per gallon	\$9.89	\$15.60 (brake cleaner) \$18.20 (carb cleaner) \$23.80 (lubricant)	\$6.36 (brake cleaner) \$7.54 (carb cleaner)	\$14
Annual savings	\$484	\$926 (brake cleaner) \$490 (carb cleaner) \$45 (lubricant)	\$1,570 (brake cleaner) \$465 (carb cleaner)	\$1,654
Payback period	5 months	4 months (overall)	immediate for both	3 months

Reprinted from U.S. EPA Region 9 fact sheet: Refillable Spray Bottles

To locate vendors of puncturing/crushing units and refillable bottles, see the U.S. EPA Region 9 fact sheet and the U.S. Navy Fact Sheet listed in the reference section on page 9. Also, the Iowa Waste Reduction Center (IWRC) has an online vendor database at: www.iwrc.org/newvendor/Sub_class_list.cfm

continued on page 9...

Minimizing Aerosol Can Waste continued from page 4

If you have additional questions regarding aerosol cans, please contact your district office hazardous waste inspector. Our inspectors offer technical assistance to businesses by helping them identify ways to generate less waste. If you would like to learn more about pollution prevention (P2), go to www.epa.state.oh.us/ocapp/ocapp.html

References:

Do You Dispose of Aerosol Cans as Solid or Hazardous Waste? June 1998, Navy Environmental Quality Fact Sheet, 2pp. Retrieved from enviro.nfesc.navy.mil/ps/eqifs/Section7/CANPUC.PDF

Aerosol Can Puncturing, Crushing and Recycling, September 2003, Joint Service P2 Technical Library (Defense Logistics and Coast Guard), 6 pp. Retrieved from p2library.nfesc.navy.mil/P2_Opportunity_Handbook/7_III_3.html

Refillable Spray Bottles, Best Environmental Practices for Auto Repair and Fleet Maintenance, fact sheet from U.S. EPA Region 9, November 1999, 4 pp. Retrieved from www.epa.gov/region09/cross_pr/p2/autofleet/spray.pdf



Ohio Hazardous Waste
Notifier

Bob Taft, Governor
Joseph Koncelik, Director

Editor:
Rose McLean

Contributors:
Jeremy Carroll,
Andy Kubalak,
Jeff Mayhugh,
Rose McLean, Helen Miller
and **Dan Sowry**

Editorial Assistance:
Carol Hester and
Darla Peelle

Graphics and Layout:
Pattie Rhodes-Mehrle

Ohio EPA is an
Equal Opportunity Employer
Printed on Recycled Paper