



# Waste Education Series

## MANAGEMENT OF USED BATTERIES: A FACT SHEET FOR BUSINESS GENERATORS

### INTRODUCTION

Billions of used batteries are generated annually through a variety of processes in households, businesses and manufacturing facilities. In manufacturing facilities, common sources of used batteries include power tools, cellular phones, electronics, and emergency lighting.

In 1990, 88 percent of all mercury discarded in the U.S. came from batteries, while batteries contributed 50 percent of all cadmium disposed. While legislative and industry changes have reduced the amount of mercury in most batteries, and collection programs are working to reduce cadmium disposal, the fact remains that many batteries still contain toxic heavy metals which require proper handling and disposal. This fact sheet attempts to clarify issues related to managing used batteries. It provides an overview of provisions contained in federal and state government regulations for used battery disposal in Wisconsin and the United States. It also includes criteria for properly managing used batteries, and a list of potential outlets for used batteries

### REGULATORY OVERVIEW

On May 13, 1996, the Mercury-Containing and Rechargeable Battery Management Act was passed by the U.S. Congress. This act limits the sale of batteries with intentionally introduced mercury, which was already the law in Wisconsin through 1993 Wisconsin Act 74. It also sets uniform standards to facilitate recycling of spent rechargeable batteries. The types of rechargeable batteries which are federally regulated are nickel cadmium, nickel metal hydride, lithium ion, and lead-acid.

To encourage collection and promote recycling, Wisconsin simplified applicable collection, storage and transportation requirements for hazardous waste batteries, mercury thermostats, and certain recalled pesticides. These reduced

**Table 1**  
**Major Battery Types**

#### RECHARGEABLES

##### Nickel Cadmium

Sizes: AAA, AA, C, D, 9V, power packs  
Uses: cordless products, power tools

##### Nickel Metal Hydride

Size: power packs  
Uses: computers, cell phones, camcorders

##### Lithium Ion

Size: power packs  
Uses: computers, cell phones, camcorders

##### Lead

Size: power packs  
Uses: emergency lighting, security back-up

#### PRIMARY CELLS

##### Alkaline Manganese

(also called alkalines)  
Sizes: AAA, AA, C, D, 9V, button  
Uses: flashlights, toys, radios

##### Zinc Carbon

Sizes: AAA, AA, C, D, 9V  
Uses: flashlights, toys, remote controls

##### Zinc Air

Size: button  
Uses: hearing aids, pagers

##### Lithium

Sizes: AA, button, coin, other  
Uses: cameras, pagers, keyless locks

##### Mercuric Oxide

Sizes: button cells  
Uses: specialized medical equipment, military and emergency response equipment

##### Silver Oxide

Size: button  
Uses: hearing aids, photography, watches

*Source: Hurd, David, 1992; NEWMOA, 1991; RBRC, 1999*

regulatory requirements are found in s. NR 690, Wisconsin Administrative Code, Standards for Universal Waste Management. Specific requirements for Universal Wastes can be found on the DNR's home page at [www.dnr.state.wi.us](http://www.dnr.state.wi.us).

## BATTERY MANAGEMENT

The first step in attempting to manage used batteries should be to analyze a facility's process streams, including procurement, usage, and disposal habits that involve batteries. This information will enable strategic decisions to be made regarding when the use of certain battery types is essential, and when waste reduction techniques might be put in place to substitute less toxic or rechargeable batteries for those currently used.



If waste reduction techniques cannot eliminate the need for batteries that contain toxins or other hazardous waste, a program will need to be established to properly manage used batteries. The following method for storing accumulated spent batteries is recommended (steps one and two are required for hazardous waste batteries):

1. Store batteries in a safe, leak-proof container in a secure location. Batteries should be recycled or disposed within one year after being generated.
2. Label each spent battery or container of batteries with the date retired from use.
3. Maintain an inventory of batteries in storage.
4. Update inventory upon battery shipment to reflect where and when they were sent.

Facilities accumulating more than 5000 kg of total Universal waste per year are considered large quantity handlers and are required to obtain an EPA identification number and ensure that all employees handling waste batteries are familiar with proper waste handling and emergency procedures. They are also required to keep records of all battery waste shipments including the name and address of the facility where the waste was sent, quantity of each type of waste sent, and the date of shipment. Such information can be recorded in a log, manifest, invoice or other shipping document, and must be retained for at least three years after the shipment.

Used batteries are a fire-hazard due to their remaining electrical current. To guard against fire, one of the following steps to prevent short-circuiting is recommended:

1. Discharge cells (consult manufacturer for details)
2. Place used batteries in separate plastic bags
3. Package batteries so terminals will not come into contact
4. Place electrical tape over the terminals

Batteries should be stored away from flammable materials in a dry, cool place. Some battery handlers require generators to separate batteries by type prior to pickup. In these cases it is best to have separate containers to collect each type. If a handler does not require separation prior to pickup, then all types of batteries can be stored together. Drums, boxes, or 5 gallon pails are recommended for storage and shipping. Each battery or container full of batteries must be labeled with the words "Universal Waste Batteries" or "Used Batteries" or "Waste Batteries."

In all cases, it is recommended that generators of used batteries take steps to verify that the selected destination for their used batteries is credible and environmentally sound to avoid future potential liability issues. This can be accomplished by conducting an audit of the battery destination, verifying the existence of proper permits and certification, and/or checking references or other customers of the used battery outlet.

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## POTENTIAL OUTLETS FOR USED BATTERIES

The following list of outlets for used batteries is included to provide options. In most cases, these companies charge a fee to process used batteries.

- ‡ **Batteries Plus**, various locations in WI – Accept batteries containing hazardous materials from customers only; may provide referrals to other outlets for non-customers. Website: [www.batteriesplus.com](http://www.batteriesplus.com)
- ‡ **Battery Solutions Inc.**, Wayne, MI – Accept all battery types. Separation not required. Phone: (734) 467-9110 Website: [www.batteryrecycling.com](http://www.batteryrecycling.com)
- ‡ **Bethlehem Apparatus Co.**, Hellertown, PA – Accept mercury battery types. Phone: (610) 838-7034 Website: <http://www.bethapp.thomasregister.com/>
- ‡ **Brown County Port and Solid Waste Department**, Permanent Household Hazardous Waste Collection Program, Green Bay – Accept all battery types from VSQG's. Separation not required. Phone: (920) 492-4950
- ‡ **Courtney Company, Inc.**, Milwaukee, WI – Accept all battery types. Separation not required. Phone: (414) 358-1300
- ‡ **INMETCO**, Ellwood City, PA – Accept all battery types. Separation required. Fee required. Phone: (724) 758-2800 Website: [www.inmetco.com](http://www.inmetco.com)
- ‡ **Lamp Recyclers**, Green Bay, WI – Statewide collection and transport of all battery types. Battery separation not required. Collection fee required. Phone: (920) 592-1166 Website: [www.lamprecyclers.com](http://www.lamprecyclers.com)
- ‡ **Marathon County Health Department**, Hazardous Waste Program, Wausau, WI – County contractor accepts all battery types from VSQG's in Marathon and Lincoln Counties, after completion of application. Collection fee required. Phone: (715) 848-9060 or (715) 446-3339 E-mail: [solidwas@co.marathon.wi.us](mailto:solidwas@co.marathon.wi.us)
- ‡ **Oneida County Solid Waste Department**, Rhinelander, WI – Accept all battery types. Charge \$.70/lb. Phone: (715) 282-4945
- ‡ **Rechargeable Battery Recycling Corporation**, Gainesville, FL – Accept Ni-Cd batteries only. Shipping fee required (to consolidation center in Pennsylvania). Phone: (352) 376-5135 Website: [www.rbrc.org](http://www.rbrc.org)
- ‡ **Samuels Recycling Company**, Green Bay, WI – Accept all battery types. Must be unbroken and delivered. Phone: (920) 494-3451
- ‡ **Superior Lamp Recycling**, Port Washington, WI – Statewide collection and transport of all battery types. Separation required. Collection fee required. Phone: 1-800-556-5267
- ‡ **Superior Services, Inc.**, Hartland, WI – Accept batteries from regular customers in Waukesha and Milwaukee Counties. Phone: (414) 367-6040

**Please note: Exclusion from this list is not intentional, and inclusion does not imply endorsement by UW-Extension.**

Source: SHWEC, 1999; DNR Markets Directory, 1999

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- Rechargeable Battery Recycling Corporation web site, [www.rbrc.org](http://www.rbrc.org), 1999.
- Wisconsin Dept. of Natural Resources, staff conversations and web site review of NR 690, [www.dnr.state.wi.us](http://www.dnr.state.wi.us), 1999
- Wisconsin Dept. of Natural Resources Recycling Markets Directory, 1999

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ö For more information, contact your County Extension Agent or SHWEC ö

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