

### **What are dry cell batteries?**

Typical household “dry cell” batteries can be rechargeable or single-use and are used for power tools, cameras, flashlights and other items. More than 3 billion household dry cell batteries are sold and discarded in the United States each year, producing more than 125,000 tons of waste.

“Dry cell” refers to the type of electrolyte used in the battery. In “wet cell” batteries, such as those used in automobiles, the electrolyte is in the form of a liquid bath. In dry cell batteries, the electrolyte is absorbed in solid material or is a gel rather than a separate body of liquid.

### **Why are dry cell batteries regulated?**

Several types of batteries still use heavy metals as electrodes or to increase their lifespan. These metals include mercury and cadmium, toxic materials regulated under the federal Resource Conservation and Recovery Act (RCRA).

Even at low levels, mercury can impair the central nervous system, kidneys, lungs and liver. Mercury bioaccumulates in the food chain, exposing species at the top to the highest concentrations. Elevated levels of cadmium can damage the kidneys, liver, respiratory tract and lungs.

In 1989, spent household batteries accounted for 88 percent of mercury entering the municipal solid waste stream. With any battery disposal method, the potential exists to release heavy metals into the environment. Thus, landfill disposal is regulated to prevent leachate of mercury, and incinerator disposal is regulated to guard against toxic stack gases.

Businesses and industry must manage spent dry cell batteries as hazardous waste if the batteries meet the hazardous waste characteristics defined by RCRA, subpart C.

### **Are today’s batteries better for the environment?**

In response to environmental concerns, battery manufacturers have substantially reduced or phased out mercury levels in many kinds of batteries. Mercury oxide batteries are being replaced by nontoxic zinc oxide and zinc air batteries. Rechargeable nickel-cadmium (Ni-cad) batteries are used in many appliances. In the past, these batteries were sealed in appliances, making recycling difficult. Now, most products containing batteries are designed to allow removal for recycling. Also relatively new on the market are nickel metal hydride (NiMH) and lithium ion batteries. Used in personal computers, cell phones and video cameras, these batteries do not contain the cadmium used in Ni-cad batteries.

### How can I reduce battery waste?

- Reduce usage by choosing electrical tools and appliances when possible.
- Buy batteries with less hazardous components, such as zinc air batteries instead of mercury button cells. Contact your battery supplier for less hazardous options.
- Buy reusable batteries. After the initial investment in batteries and charger, rechargeable batteries will be much less expensive than repeatedly purchasing single-use batteries.
- Recycle spent batteries. Ask suppliers of battery-containing products and batteries whether they will take back spent batteries for recycling. Many private companies now offer battery recycling services for hazardous waste generators. It also may be possible for a facility's hazardous waste handler to manage spent batteries for recycling or proper disposal.

### How do I dispose of used batteries?

Most dry cell batteries are not hazardous waste. However, those that are hazardous waste (such as Ni-cad) are regulated under the Universal Waste Rule found in Arkansas Regulation 23. The rule encourages recycling and proper disposal of certain widely generated hazardous wastes such as batteries, pesticides and mercury-containing thermostats.

The rule greatly reduces the regulatory burden on hazardous waste generators who send their spent batteries to a **recycler**. Universal wastes are less stringently regulated and are not included in monthly quantities of hazardous waste generated.

### What are my storage and handling obligations?

Under the Universal Waste Rule, waste battery generators are subject to an overriding requirement that they prevent release of batteries or their components into the environment.

- Batteries (wet or dry types) should be discharged to avoid electrical shorting.
- Liquid electrolyte can be removed from wet cell batteries, though the electrolyte should be handled as a hazardous waste.
- Batteries may be disassembled, as long as individual cells are not breached.
- Waste batteries may be stored together in a common container, as long as the container is structurally sound, prevents leaking and is compatible with the batteries.
- Stored batteries should be labeled: "Universal Waste-Batteries."
- Waste batteries may be accumulated for up to one year before shipping off-site for recycling or disposal.

### How is shipping regulated?

The U.S. Department of Transportation regulates transportation of batteries as a hazardous material. After use, batteries being shipped for recycling or disposal may be regulated under **both** the DOT's Hazardous Materials Regulations (HMR) found at 49 CFR 171-180 and Arkansas Regulation 23.

Unused batteries may be regulated for shipment under the HMR.

Please remember that a battery, fully regulated as a hazardous waste or a universal waste, remains subject to DOT requirements for shipment on public roads if it meets the definition of a hazardous material.

### How do I label batteries for shipment?

Examples of hazardous material shipping labels include:

- Batteries, wet, filled with acid, UN 2794
- Batteries, wet, filled with alkali, UN 2795
- Batteries, wet, nonspillable, UN 2800
- Batteries, containing sodium, UN 3292
- Lithium batteries, UN 3090
- Lithium batteries, contained in equipment, UN 3091
- Batteries dry, containing potassium hydroxide solid, UN 3028

Dry cell batteries that do not meet these or other hazardous material requirements still must be packaged to prevent generation of excessive heat. Improperly packaged batteries can short circuit and catch fire during transportation.

### Other battery tips

- Remove batteries from items that will be stored for long periods of time. Batteries left in place unused for long periods may corrode battery terminals, leak and ruin the equipment.
- Look for hidden button cell batteries before disposing of items.
- Remove batteries from disposable items or those with a short lifetime before discarding, and recycle.

### How can I get more information?

Contact: Universal Waste Coordinator  
ADEQ Hazardous Waste Division  
5301 Northshore Drive  
North Little Rock, AR 72118-5317  
(501) 682-0833

E-mail: [Help-HazWaste@adeq.state.ar.us](mailto:Help-HazWaste@adeq.state.ar.us)

Visit the ADEQ website: [www.adeq.state.ar.us](http://www.adeq.state.ar.us)