

## Proper Management of Household Batteries

### Introduction

Batteries are used in many tools, appliances, and toys that cannot be plugged into an electrical outlet. Batteries make these items portable and give them a greater range of use. The batteries used in all these devices have similar structures and components that they use to produce electricity. Many of these components are hazardous to human health and the environment. These batteries may include heavy metals such as cadmium, mercury and lead. These metals may adversely affect kidney, liver, lung or brain functions.

### Battery Types

There are several types of batteries. Each type uses different metals in the anode and cathode. There are single use batteries including alkaline, carbon-zinc dry cell, and button cell batteries. There are also rechargeable batteries that can use an electric charge to restore the electric current back into the battery (these batteries have the word rechargeable on them). These include nickel cadmium, lithium ion, small sealed lead acid and nickel metal hydride rechargeable batteries.

### SINGLE USE BATTERIES

#### Alkaline and Carbon Zinc Dry Cell batteries

Alkaline batteries and carbon-zinc dry cells are the most commonly found batteries in toys, remote controls, and portable radios. Alkaline and carbon-zinc dry cells batteries come in many different shapes and sizes, ranging from AAA through D. Alkaline and Carbon Zinc Dry cell batteries are now required to be dated. These dates affect how these batteries can be discarded.

All alkaline and carbon-zinc dry cells batteries manufactured after 1996 are considered solid waste and can be discarded with regular household trash. Batteries made before 1996 are considered Household hazardous waste (HHW), due to their mercury content, and should be disposed of properly (such as through a HHW event or facility).

#### Button cell batteries

Button cell batteries are used in watches, calculators, hearing aids and cameras. Most button cell batteries contain mercury, silver, cadmium, lithium or other heavy metals as their main component. Button cell batteries can contain up to 25 ppm of mercury. Mercuric-oxide batteries may contain up to 50% mercury by weight. A stacked button cell battery is a battery that contains a bunch of button cell batteries stacked into a cylinder. Some of these stacked cell batteries look a lot like alkaline batteries and may contain up to 100 mg of mercury. Mercury can cause nerve damage and can bioaccumulate in fish and other aquatic species. Cadmium can damage the lungs and kidneys.

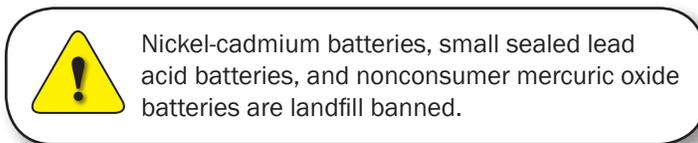
### RECHARGEABLE BATTERIES

The Rechargeable Battery Recycling Corporation (RBRC), a non-profit public service organization made up of battery manufacturers has established an infrastructure for the collection and recycling of all rechargeable

batteries. Ni-MH, Lithium, Small sealed lead acid and Ni-Cd rechargeable batteries can be recycled through the Rechargeable Battery Recycling Corporation (RBRC). For the nearest participating RBRC outlet call, 1-800-8-BATTERY or go to [www.rbrc.org](http://www.rbrc.org).

### Nickel-Cadmium (Ni-Cd)

Nickel-Cadmium battery packs are commonly found in cordless power tools, cellular and cordless phones, laptop computers, camcorders, digital cameras, and remote control toys. Nickel-Cadmium rechargeable batteries contain nickel and cadmium. Cadmium is known to cause kidney and lung damage.



### Lithium ion and Nickel Metal Hydride (Ni-MH)

Lithium and nickel metal hydride (Ni-MH) rechargeable batteries are commonly used in portable electronic devices (such as telephones, power tools and laptop computers). Lithium and nickel metal hydride (NI-MH) last up to 40% longer than other rechargeables.

### Small Sealed Lead Acid

Small sealed lead-acid batteries are rechargeable and are used in camcorders, cordless phones, and power tools. They contain a lead dioxide or lead sulfate cathode, a lead anode and a sulfuric acid electrolyte.

### What should I do with my used batteries?

- Alkaline and Carbon zinc batteries can be discarded with regular household trash if dated after 1996. Pre-1996 batteries must be disposed of properly (through a HHW event or facility).
- Button cells should be brought to your local Household Hazardous Waste event or facility.
- All rechargeable batteries should be brought to the nearest participating retailer in the RBRC program (by calling 1-800- 8-BATTERY) or to a local HHW event or facility.

The following table shows the various battery types, their common uses, hazardous material they contain, markings that identify the type of battery, and recycling and/or disposal options.

	Type of Battery	Common Uses	Hazardous Component(s)	Identification	Recycling/ Disposal Options
<b>SINGLE USE BATTERIES</b>	Alkaline	Toys, remote controls, portable radios. Various sizes ranging from AAA through D.	None	Look for the word "alkaline" on the battery.	Discard with household trash.
	Carbon-Zinc	Toys, remote controls, portable radios, lanterns. Various sizes ranging from AAA through D and 9 volt.	None		Discard with household trash.
	Button Cells	Watches, calculators, hearing aids, cameras.	Mercury, Silver, Cadmium		Bring to a household hazardous waste collection event or to your local drop-off center.

RECHARGEABLE BATTERIES	Nickel-Cadmium	Cordless power tools, cellular and cordless phones, laptop computers, camcorders, digital cameras.	Cadmium	Look for “Ni-Cd” or this RBRC recycling symbol on the battery: 	Bring them to an RBRC participating retailer. To find a retailer near you visit: <b>www.rbrc.org</b> or call: <b>1-800-8-battery</b>
	Lithium Ion	Portable electronic devices, laptop computers, camcorders, cordless phones, power tools.	None	Look for “Li-ion” or this RBRC recycling symbol on the battery: 	Bring them to an RBRC participating retailer. To find a retailer near you visit: <b>www.rbrc.org</b> or call: <b>1-800-8-battery</b>  Lithium Ion batteries can also be discarded with household trash.
	Nickel Metal Hydride	Portable electronic devices, laptop computers, camcorders, cordless phones, power tools.	None	Look for “Ni-MH” or this RBRC recycling symbol on the battery: 	Bring them to an RBRC participating retailer. To find a retailer near you visit: <b>www.rbrc.org</b> or call: <b>1-800-8-battery</b>
	Small Sealed Lead-Acid	Camcorders, cordless phones, power tools.	Lead	Look for “Pb” or this RBRC recycling symbol on the battery: 	Bring them to an RBRC participating retailer. To find a retailer near you visit: <b>www.rbrc.org</b> or call: <b>1-800-8-battery</b>

For more information, contact:

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