

# Battery Recycling and Disposal Guide for Households

Portsmouth residents can recycle rechargeable batteries through an organization called Rechargeable Battery Recycling Corporation (RBRC). There are two drop-off boxes from the company located at the Recycling Center another at the Department of Public Works.

Place each individual rechargeable battery, or cell phone with battery, into a separate plastic bag (provided at the drop –off box). Drop the battery into the box. (*Pretty simple!*)

Read on to learn about the many different types of batteries, their composition and laws the US Congress passed regarding batteries.

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## Environmental Hazards of Batteries

People are using more and more household batteries. The average person owns about two button batteries, ten normal (A, AA, AAA, C, D, 9V, etc.) batteries, and throws out about eight household batteries per year. About three billion batteries are sold annually in the U.S. averaging about 32 per family or ten per person.

A battery is an electrochemical device with the ability to convert chemical energy to electrical energy to provide power to electronic devices. Batteries contain heavy metals such as mercury, lead, cadmium, and nickel, which can contaminate the environment when batteries are improperly disposed of.

In landfills, heavy metals have the potential to leach slowly into soil, groundwater or surface water. Dry cell batteries contribute about 88% of the total mercury and 50% of the cadmium in the municipal solid waste stream.

## Hazards of Household Batteries

Controversy exists about reclaiming household batteries. There are no known recycling facilities in the U.S. that can practically and cost-effectively reclaim all types of household batteries, although facilities exist that reclaim some button batteries. Battery collection programs typically target button and nickel-cadmium batteries, but may collect all household batteries because of the consumers' difficulty in identifying battery types.

## Regulations

The U.S. Congress passed the Mercury-Containing and Rechargeable Battery Management Act in 1996 to make it easier for rechargeable battery and product

manufacturers to collect and recycle Ni-CD batteries and certain small sealed lead-acid batteries. For these regulated batteries, the act requires the following:

- √ Batteries must be easily removable from consumer products, to make it easier to recover them for recycling.
- √ Battery labels must include the battery chemistry, the "three chasing arrows" symbol, and a phrase indicating that the user must recycle or dispose of the battery properly.
- √ National uniformity in collection, storage, and transport of certain batteries.
- √ Phase out the use of certain mercury-containing batteries.

## **Types and Uses of Household Batteries**

### **Lead-Acid Automobile Batteries**

Nearly 90% of all lead-acid batteries are recycled. Almost any retailer that sells lead-acid batteries collects used batteries for recycling. Reclaimers crush batteries into nickel-sized pieces and separate the plastic components. They send the plastic to a reprocessor for manufacture into new plastic products and deliver purified lead to battery manufacturers and other industries. A typical lead-acid battery contains 60% to 80% recycled lead and plastic.

### **Non-Automotive Lead-Based Batteries**

Gel cells and sealed lead-acid batteries are commonly used to power industrial equipment, emergency lighting, and alarm systems. The same recycling process applies as with automotive batteries. An automotive store or a local waste agency may accept the batteries for recycling.

### **Household batteries - Dry-Cell Batteries**

Dry-cell batteries include alkaline and carbon zinc (9-volt, D, C, AA, AAA), mercuric-oxide (button, some cylindrical and rectangular), silver-oxide and zinc-air (button), and lithium (9-volt, C, AA, coin, button, rechargeable). On average, each person in the United States discards eight dry-cell batteries per year.

There are two types of batteries:

- (1) Primary — those that can not be reused. (Primary batteries include alkaline/manganese, carbon-zinc, mercuric-oxide, zinc-air, silver-oxide, and other types of button batteries.)
- (2) Secondary also called "rechargeable" — those that can be reused. (Secondary batteries or rechargeable batteries include lead-acid, nickel-cadmium, and potentially nickel-hydrogen.)