

Electronics

These items MUST be recycled by law: anything directly connected to a computer system):

- TVs- whole, intact, complete units
all types: CRT, flat screen, rear projection, console, etc.
- Computer monitors- whole, intact, complete units, all types: CRT, flat screen, LED/LCD
CPUs/Towers
- Laptops, iPads, tablets
- Printers and All-in-One Printers
- Peripherals (mice, keyboard, speakers)

These items are not required by law to be recycled but can be:

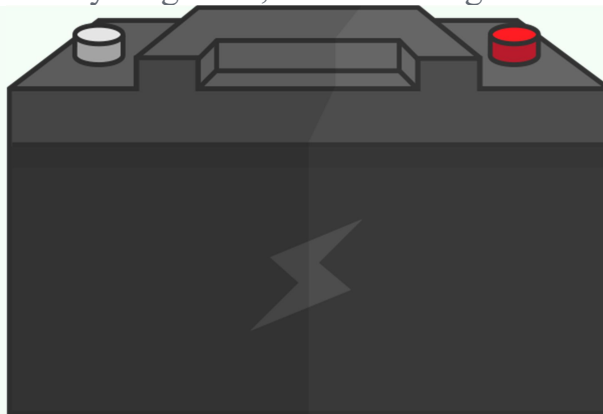
- Microwaves Answering Machines
- Telephone systems Cell phones
- Camcorders Electrical Cords
- Cameras Docking Stations
- Electric typewriters Medical equipment
- Radios Remote Controls
- Stereos/tape/CD players Pagers
- VCR/DVD players
- Testing equipment
- Fax/copy machines/duplicators
- Video games/cartridges
- Christmas lights
- Gaming consoles/controllers

OTHER RECYCLING:

- Refrigerant Appliance (frig, A/C, dehumidifier, etc.) \$20.00/ unit
- Scrap Metal (non-refrig. appliances, propane tanks, misc.) NO CHARGE
- Lead Acid Batteries NO CHARGE
- Uninterruptible Power Supplies (UPS) NO CHARGE

How are Batteries Recycled?

First you may be asking can you recycle batteries, all of them? Yes, you can! The following is a brief description of how each major chemistry of battery is recycled at a recycling facility. This section you will learn how to dispose of batteries properly, by recycling them, not landfilling them.



Lead Acid

The battery is broken apart in a hammer mill, a machine that hammers the battery into pieces. The broken battery pieces are then placed into a vat, where the lead and heavy materials fall to the bottom and the plastic floats. At this point, the polypropylene pieces are scooped away and the liquids are drawn off, leaving the lead and heavy metals. Each of the materials goes into a different recycling “stream”.

Plastic

Polypropylene pieces are washed, blown dry and sent to a plastic recycler where the pieces are melted together into an almost liquid state. The molten plastic is

put through an extruder that produces small plastic pellets of a uniform size. The pellets are put back into manufacturing battery cases and the process begins again.

Lead

Lead grids, lead oxide and other lead parts are cleaned and heated within smelting furnaces. The molten melted lead is then poured into ingot molds. After a few minutes, the impurities float to the top of the still molten lead in the ingot molds. These impurities are scraped away and the ingots are left to cool. When the ingots are cool, they're removed from the molds and sent to battery manufacturers, where they're re-melted and used in the production of new batteries.

Sulfuric Acid

Old battery acid can be handled in two ways: 1. The acid is neutralized with an industrial compound similar to household baking soda. Neutralization turns the acid into water. The water is then treated, cleaned, tested in a waste water treatment plant to be sure it meets clean water standards. 2. The acid is processed and converted to sodium sulfate, an odorless white powder that's used in laundry detergent, glass and textile manufacturing.

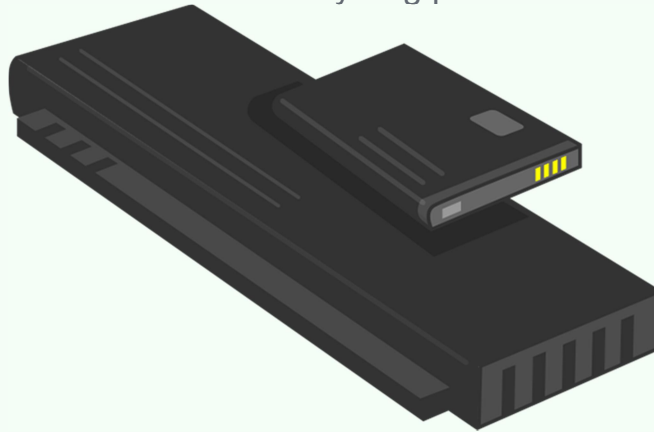
Lead acid batteries are closed-loop recycled, meaning each part the the old batteries is recycled into a new battery. It is estimated that 98% of all lead acid batteries are recycled.



Alkaline

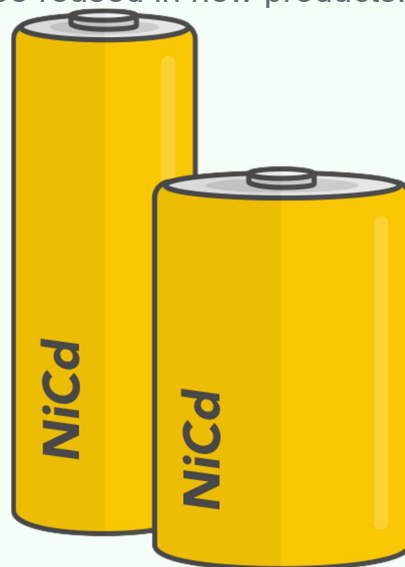
Alkaline batteries (AAA, AA, C, D, 9V, etc.) are recycled! We use a specialized “room temperature,” mechanical separation process to recycle alkaline batteries. The alkaline battery components are separated into three end products. These items are a zinc and manganese concentrate, steel, and paper, plastic and brass

fractions. All of these products are put back into the market place for reuse in new products to offset the cost of the recycling process.



Lithium Ion

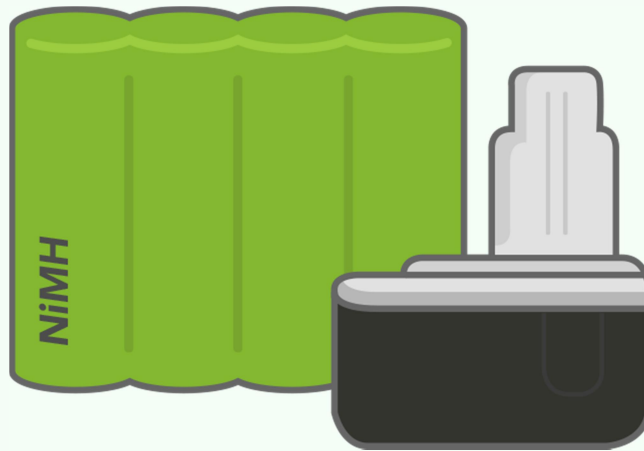
These batteries are recycled in a specialized "room temperature, oxygen-free," mechanical process during which the battery components are separated into three end products. These items are; a) cobalt & lithium salt concentrate, b) stainless steel, c) copper, aluminum and plastic. All of these products are then put back on the market to be reused in new products.



Nickel-Cadmium (NiCd)

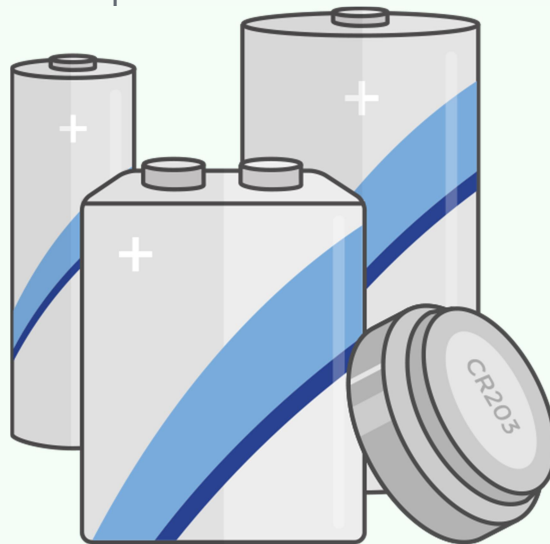
Prior to the recycling process, plastics are separated from the metal components. The metals are then recycled via a high temperature metal reclamation (HTMR) process during which all of the high temperature metals contained within the battery feedstock (i.e. nickel, iron, manganese, and chromium) report to the molten-metal bath within the furnace, amalgamate, then solidify during the

casting operation. The low-melt metals (i.e. zinc and cadmium) separate during the melting. The metals and plastic are then returned to be reused in new products.



Nickel Metal Hydride (NiMH)

Prior to the recycling process, the plastics are removed from the cell portion. The cells go through a drying process to remove moisture (potassium hydroxide (KOH) electrolyte and H_2O) from the cells. The drying process heats the cells in a time and temperature controlled manner via a proprietary and proven formula. Once these cells are dried they become a valuable feedstock for the stainless steel and or alloy manufacturing industries. The metals and plastic are then returned to be reused in new products.



Lithium Batteries

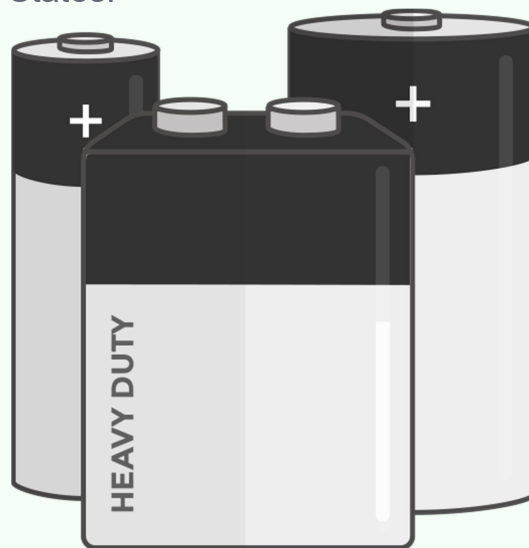
The contents of the batteries are exposed using a shredder or a high-speed hammer depending on battery size. The contents are then submerged in caustic

(basic not acidic) water. This caustic solution neutralizes the electrolytes, and ferrous and non-ferrous metals are recovered. The clean scrap metal is then sold to metal recyclers to offset the cost of recycling these batteries. The solution is then filtered. The carbon is recovered and pressed into moist sheets of carbon cake. Some of the carbon is recycled with cobalt. The lithium in the solution (lithium hydroxide) is converted to lithium carbonate, a fine white powder. What results is technical grade lithium carbonate, which is used to make lithium ingot metal and foil for batteries. It also provides lithium metal for resale and for the manufacture of sulfur dioxide batteries.



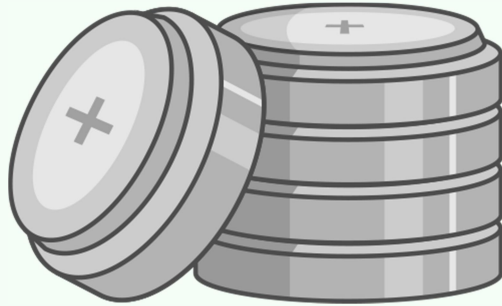
Mercury Batteries

The batteries and heavy metals are recovered through a controlled-temperature process. It's important to note: the percentage of mercuric oxide batteries is decreasing since the passage of the Mercury-Containing Rechargeable Battery Management Act (The Battery Act) of 1996. This act prohibits, or otherwise conditions, the sale of certain types of mercury-containing batteries (i.e., alkaline manganese, zinc carbon, button cell mercuric-oxide and other mercuric-oxide batteries) in the United States.



Zinc-Carbon

Zinc-carbon (AAA, AA, C, D, 9V, etc.) and zinc-air batteries are recycled in the same way as alkaline batteries or by using high temperature metal reclamation (HTMR) method to melt the metals. These metals are then reused in new products.



Zinc-Air

Zinc-carbon (AAA, AA, C, D, 9V, etc.) and zinc-air batteries are recycled in the same way as alkaline batteries or by using high temperature metal reclamation (HTMR) method to melt the metals. These metals are then reused in new products.

<https://www.batterysolutions.com/recycling-information/how-are-batteries-recycled/>