









## NON-RECHARGEABLE BATTERIES

Battery Type	Description	Mercury, Cadmium, or Lead content?	Major Components	Uses
<b>Carbon –Zinc or Zinc Carbon</b>	The cheapest battery. Have much shorter life span than alkaline batteries. Cylindrical or rectangular cells; labeled as “General Purpose”, “Heavy Duty”, or “Classic”	No, relatively safe for land disposal.	Zinc, carbon, ammonium chloride	Flashlights, toys, remote controls clocks, garage door openers, pagers, and smoke detectors.
<b>Alkaline Manganese (non-button cell)</b>	 The most popular, better performance, higher cost. Cylindrical or rectangular cells; the most commonly recognized battery. Labeled “alkaline”	Not after 1996, relatively safe for land disposal.	Zinc, manganese Dioxide, Potassium hydroxide	Flashlights, radios, toys, calculators, remote controls, electronic games, portable radios and televisions, garage door openers.
<b>Alkaline Manganese button cells</b>	 Common button cell uses. Button-shaped. May or may not be marked.	Yes. About 25 mg of mercury, equal to 0.5 % by weight	Zinc, manganese Dioxide, Potassium hydroxide	Watches, calculators, toys, some cameras.
<b>Lithium</b>	 Expensive, long shelf-life. Varied shape, often small. 9-volt, C, AA, coin, button	No, but Lithium is highly reactive, and used as a medicine for serious mental health problems. These should be recycled.	Lithium, Manganese Dioxide or Polycarbon monofluoride, solvent	Cameras, pagers, keyless locks
<b>Zinc air</b>	Made to replace the mercuric oxide batteries in hearing aids. Usually button shaped. Identify by pinhole on one side.	Yes. About 1% mercury.	Zinc, carbon	Hearing aids, pagers
<b>Mercuric Oxide (or “mercury-zinc”) button batteries</b>	No longer made or sold due to their high mercury content. But you might find some of these for several more years.	Yes, <b>a lot</b> - 35 to 50% mercury -- In consumer applications, zinc air button cells have replaced mercuric oxide batteries, which cannot be sold in the U.S. any longer.	Mercuric oxide, Zinc, Potassium Hydroxide	Hearing aids, watches, and other items requiring a small battery.
<b>Mercuric oxide (“mercury –zinc”) larger batteries</b>	Rarely found in households now. Often looks like 9-volt or fat AA batteries, should be labeled.	These are <b>the worst because they are big and have a high mercury content.</b> Luckily, you will find these only (maybe) at the clinic, but check pre-1996 batteries or foreign batteries.	Mercuric oxide, Zinc, Potassium Hydroxide	They are now used in the U.S. only for specialized industrial, medical, emergency equipment.
<b>Silver Oxide</b>	 Made to replace mercuric oxide buttons for many applications. Button shaped with no distinguishing marks.	Yes. About 1% mercury. Often smaller than Alkaline Manganese button cells.	Silver oxide, zinc, potassium hydroxide	Watches, calculators, toys, greeting cards, musical books.

**RECHARGEABLE BATTERIES** (all rechargeable batteries can be recycled cheaply or for free – go to [www.rbc.org](http://www.rbc.org) or call 1-800-9-BATTERY)

Battery Type	Description	Mercury, Cadmium, or Lead content?	Major Components	Uses
<p><b>Nickel-Cadmium (NiCad)</b></p> 	<p>Popular recharge battery and least expensive of rechargeables. Look for recycle logo or words “battery must be recycled or disposed”</p>	<p>Yes, Cadmium.</p>	<p>Nickel, Cadmium, Potassium Hydroxide</p>	<p>Power tools, cordless phones, professional radios</p>
<p><b>Nickel Metal Hydride</b></p>  <p>(Power tool battery example)</p>	<p>Cadmium-free replacement for Ni-Cad, more expensive but considered to be less toxic. Look like NiCad batteries.</p>	<p>No, just Nickel, with some other metals. These are much less toxic. Relatively safe for land disposal, but easy to find a recycler.</p>	<p>Nickel, some “Rare Earth” metals, Potassium Hydroxide.</p>	<p>Same.</p>
<p><b>Lithium Ion</b></p> 	<p>As compared to non-rechargeable Lithium batteries, a good choice. Expensive. Varied-shapes, depends on use.</p>	<p>No. Lithium – again this is not something you want in your environment.</p>	<p>Lithium, solvent, and cobalt oxide</p>	<p>Computers, cellular phones, digital cameras</p>
<p><b>Rechargeable Alkaline</b></p>	<p>Moderate performance compared with Ni-Cad, but costs less and relatively non-toxic. Looks like regular alkaline batteries</p>	<p>No. Relatively safe, but easy to recycle anyway.</p>	<p>Zinc, Manganese Dioxide, Potassium Hydroxide</p>	<p>Same uses as normal alkaline and carbon-zinc batteries.</p>
<p><b>Small sealed lead-acid</b></p> 	<p>There are still toys and other devices that use lead-acid batteries, especially those from foreign countries. Look like 6-volt or other odd-shaped smaller batteries. Look for recycle logo or words “battery must be recycled or disposed”</p>	<p>Yes. High lead content. You might be able to backhaul these with your vehicle lead-acid batteries – ask your recycler.</p>	<p>Lead, sulfuric acid</p>	<p>Alarm systems, emergency lighting. Some toys and other miscellaneous devices.</p>

Sources: RBRC Battery Lesson Plan, [www.rbc.org](http://www.rbc.org), Guide for Identifying Mercury in Household Applications, [www.burlington.org/health/Mercury.htm](http://www.burlington.org/health/Mercury.htm), various retail websites.

Note: Pictures are examples only. A number of companies manufacture and distribute each type of battery.