

Household Batteries

According to the U.S. Environmental Protection Agency (U.S. EPA), nearly three billion dry-cell batteries are purchased in the United States each year. This amounts to about 10 dry-cell batteries for each person each year. Another 99 million lead-acid batteries are manufactured each year for transportation and other needs. And if we are not careful, all of these batteries could end up in landfills or be incinerated with the trash to release mercury, lead, cadmium, nickel and other metals to the environment. Disposal would not only create environmental and health problems, but be a waste of metals and plastics that can be recycled over and over again to make new batteries.



The U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry states that the metals in batteries can have serious health effects if not managed correctly. Mercury at high levels can damage the brain, kidneys and a developing fetus. Lead can harm the nervous system, kidneys and reproductive system. Cadmium can damage the lungs and kidneys, and irritate the digestive tract. Exposure to large amounts of zinc can cause stomach cramps, anemia and changes in cholesterol levels. And each metal can have a direct, harmful effect on the environment.

On May 13, 1996, the Mercury-Containing Rechargeable Battery Management Act (the "Battery Act") was signed into law by the president of the United States. This Act phased out mercury in rechargeable batteries, encouraged efficient and cost-effective recycling or proper disposal of used nickel-cadmium batteries, small sealed lead-acid batteries, rechargeable alkaline batteries (with mercury), zinc-carbon batteries (with mercury), button cell mercuric oxide batteries and other mercuric oxide batteries. The law also requires that consumer products using rechargeable batteries must be designed so that the batteries can be easily removed.

Reduce Battery Usage

One of the best ways to prevent batteries from having an impact on health and the environment is to reduce the number of batteries you use. Here are some tips to help you:



- Buy only what you need.
- Rechargeable (secondary) batteries are best for applications where they will get a lot of use: cordless tools, cameras and video recorders, etc. Single-use (primary) batteries should be used for emergency applications and occasional use: flashlights, emergency radios, smoke detectors, etc.
- If you buy extra primary batteries for future or emergency use, be sure they have a use-by date as far in the future as possible.
- Store them in a cool place, but don't let them freeze. Many dry-cell primary batteries can be stored for up to seven years in the package before they expire.
- Always buy batteries with no mercury added labels.
- Don't store secondary batteries - they don't store well and are designed for frequent use.
- Consider using toys, radios and flashlights that do not need additional batteries. Mechanical toys and even solar-powered toys are now readily available. Some small radios use a hand crank or solar cells to generate power. You can also buy flashlights that convert mechanical motion or solar energy into light energy. In each case, the toy, radio or flashlight may come with rechargeable internal batteries that store a charge.

Reuse Batteries

Rechargeable batteries are now available in a variety of types, sizes and voltages. According to U.S. EPA, more than 350 million rechargeable batteries are purchased

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annually in the United States. Even though rechargeable batteries can contain lead, cadmium, nickel, mercury and zinc, they can be used over and over again. If used properly, they can replace many single-use batteries. They can also be recycled after they have reached the end of their useful life to save the metals and plastics.

Remember, when buying and using rechargeable batteries:

- Always be sure the item that you plan to use them in will accept rechargeable batteries by checking the label on the item.
- Rechargeable batteries are best when they are used often and recharged frequently. Rechargeable batteries lose their charge faster than primary batteries (up to 3 percent each **day** for rechargeable batteries, compared to 2 to 25 percent each year for primary batteries).
- Recharge and use the batteries as recommended by the manufacturer. Improperly charging batteries can shorten battery life and can cause leaks or damage to the battery or device in which it is used.
- Don't try to recharge a primary battery.
- If several batteries are used in the device, be sure they are the same type, voltage, age and charge. Mixing batteries can reduce the useful life of the good batteries. Don't mix rechargeable and primary batteries. Don't mix old and new batteries.
- Keep rechargeable batteries cool, but don't allow them to freeze. Keep them out of the sun and don't store them in a hot car on a summer day.
- Remove batteries from the device if it will no longer be used.



Recycle Batteries

Lead/acid batteries, nickel-cadmium (NiCd) batteries, nickel-metal hydride (Ni-MH) batteries, lithium-ion (Li-ion) batteries and other types of rechargeable batteries can be recycled.

The Rechargeable Battery Recycling Corporation has made arrangements to accept batteries and cell phones collected by stores and outlets from consumers at www.call2recycle.org/. Enter your zip code to find a store or outlet near you that will take your rechargeable batteries.

You can also go to the Earth 911 website at www.earth911.com and enter your zip code to find a recycler in your area.

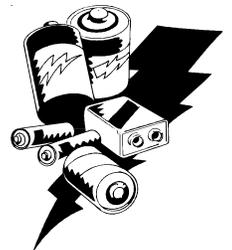
Manage Batteries

The mechanism for recycling single-use (primary) batteries is not as well developed in the United States as it is for rechargeable (secondary) batteries. Only a few companies will accept zinc-carbon, alkaline, lithium metal or other primary batteries.

Toxco will accept lead, silver, nickel based, lithium, mercury, alkaline, and other types of batteries for a fee. Learn more at www.toxco.com or by calling (877) 468-6926.

Another firm which accepts batteries for recycling is Battery Solutions in Howell, Michigan. Their phone is (800) 852-8127 and their website is at www.batteryrecycling.com/. Some solid waste districts in Ohio will accept batteries at their household hazardous waste collection events. Review what is acceptable at their website or call them for further information about approved methods of handling household batteries. A list of solid waste districts and contact information can be found at www.epa.ohio.gov/dsiwm/pages/recycpro.aspx.

If it is not possible to recycle your primary batteries, they can be disposed of with the household trash. Never try and break open any batteries to remove their contents. Do not place batteries of any type in fire. They can burst and release their contents to the environment.



Lead-Acid Battery Law

Ohio law prohibits the disposal of some lead-acid batteries in solid or hazardous waste landfills. The law requires that these used lead-acid batteries are recycled in Ohio.

Batteries covered by the law include those batteries used in cars, motorcycles, boats and other forms of motive power. The law exempts batteries used in products such as computers, electronic games, telephones, radios and similar household electronics.

For questions and information about this law, please contact Ohio EPA's Division of Hazardous Waste Management at (614) 644-2917 or view their fact sheet at www.epa.ohio.gov/portals/32/pdf/LeadAcidBatteryGuidance.pdf.