ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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All About Batteries

Batteries are found in every electronic device imaginable. All of these batteries must eventually be disposed of, and some batteries should be managed as a hazardous waste because of their toxic contents or reactive properties.

Batteries currently contain one or more of the following eight metals: cadmium, lead, zinc, manganese, nickel, silver, mercury and lithium. When disposed of in an unlined landfill, a battery can leach its toxic constituents and contaminate groundwater, resulting in possible exposure to humans. Mercury and cadmium pose a special threat in incinerators because they are volatilized by the incinerator process. Once volatilized, they can be released into the environment as breathable emissions or as leachable elements in ash.

To promote their recycling and proper management, waste batteries have been included in the New Hampshire Universal Waste Rule, which went into effect October 13, 2001. This rule states that low risk wastes, such as household batteries, will not be subject to the rigorous standards that apply to "high risk" hazardous wastes. The Federal Mercury-Containing and Rechargeable Battery Act was passed in May, 1996. This act was a major step in the effort to facilitate the recycling of nickel-cadmium and certain small sealed lead-acid rechargeable batteries and to phase out the use of mercury in batteries. For more information on Universal Waste Batteries: Management Requirements for Handlers and Transporters see DES fact sheet WMD-HW-18. Lead-acid motor vehicle batteries are included in the Universal Waste Rule; they are also included in and may be managed under Env-Hw 809 of the Hazardous Waste Rules. Refer to DES fact sheet WMD-SW-4 "Management of Used Motor Vehicle Batteries."

Battery Types

Primary batteries are non-rechargeable batteries. They include zinc carbon batteries, alkaline batteries, button cell batteries and lithium batteries.

- The *zinc carbon battery* is labeled as "all purpose" or "general purpose" and discharges quickly if used continuously. The *zinc chloride* cells are longer lasting and are labeled "heavy duty" or "super heavy duty."

- *Alkaline* batteries can last up to ten times longer than zinc batteries, but may cost three to five times more.

- *Button cell* batteries are small, disc-shaped batteries commonly used in hearing aids, medical devices, watches, calculators and cameras.

- *Lithium* batteries can last about twice as long as alkaline batteries but are more expensive. Lithium batteries are labeled as such to distinguish them from other battery types.

Secondary batteries are rechargeable batteries. They are available as freestanding units or as built-in components of rechargeable devices. The free standing units are expensive, but save money in the long run since they can be recharged many times. They are the best for devices that get regular use. The most common types include nickel cadmium (Ni-Cd), sealed lead-acid (Pb), nickel metal hydride (Ni- MH), and lithium ion (Li- Ion).

- *Nickel Cadmium* is the most common type of rechargeable battery. They may be built into rechargeable appliances or sold as freestanding units. A single nickel cadmium battery can replace about 150 alkaline batteries.

- *Sealed lead-acids are* used in some camcorders and cellular phones. They are less expensive, but much heavier than other types of rechargeable batteries.

- *Nickel Metal Hydride* are used in computers, cellular phones, and camcorders. They have a low drain and high-energy capacity.

- *Lithium Ion* batteries are very expensive, but extremely light and high in energy density. They are used in some cellular phones and notebook computers.

Disposal / Recycling Options

Alkaline batteries sold after May 13, 1996, have no mercury added and may be placed in the regular trash. These may be identified by seeing a green stripe, green tree, "Hg free" label, or an expiration date later than 1998. Older batteries may contain mercury, and you should take them to a collection location, recycling facility or save them for a municipal household hazardous waste collection.

Zinc carbon and zinc chloride batteries are non-hazardous and can be placed in the trash.

Lithium batteries are considered a hazardous waste and are potentially reactive if not completely discharged. You can bring these batteries to a collection center or save them for a household hazardous waste collection.

Button cell batteries may contain mercury or other hazardous substances, such as silver. They can be brought to a collection location or be sent to a recycling facility. Households can save them for their local household hazardous waste collection.

Common types of *recyclable* batteries are nickel- cadmium (Ni-Cd), nickel metal hydride (Ni-MH), lithium ion (Li- Ion), and small sealed lead-acid (Pb) that are less than two pounds in weight. Reclaimed materials are used to make new products. For example, cadmium is used in the production of new batteries while nickel and iron are used to make stainless steel products.

"Charge up to Recycle"

The *Rechargeable Battery Recycling Corporation* (RBRC) is a non-profit, industry -sponsored organization that provides workable plans to collect, transport and recycle used rechargeable batteries. The RBRC provides a low cost program to retailers for in-store collection of used

rechargeable batteries. For participating locations near you, go to www.rbrc.org or call toll-free1-800-8-Battery. RBRC helps communities and municipalities add used rechargeable batteries to their existing household hazardous waste collections. The batteries are collected at a single consolidation point and RBRC pays the cost of transporting and recycling the batteries. RBRC also assists businesses, institutions and government agencies in structuring and managing the collection of non-household rechargeable batteries in the workplace. To register or for more information, call their toll free number or visit their website.

Storage and Handling

a) Batteries should be placed in a cool, dry area, away from flammable materials. They may carry a residual charge and could short circuit, creating a potential fire hazard. Therefore, they should be placed in individual plastic bags, or tape should be placed over the electrodes before being stored with other batteries.
b) For safety reasons, batteries should be collected in a location that is monitored, e.g., transfer stations, municipal public works offices, or town halls. Some programs opt to have one collection container available to the public, and the operator transfers only eligible batteries to the container for shipping.
c) Battery collection containers must be clearly labeled with the facility name and address, the receiver's name, and any of the following phrases; "Universal Waste – Batteries" or "Waste Batteries" or "Used Batteries" as soon as they arrive.
d) Leaking batteries should be stored in structurally sound, closed containers. Refer to the Universal Waste Rule or call the DES at 271-2942 for more information on business, transfer station, and collection center requirements.

Households should store batteries in a secure, dry place and out of reach of children. Any batteries that appear to be leaking should be placed in a plastic bag for recycling or disposal.

Additional Information

For more information regarding the regulations, battery disposal options or to obtain a list of recycling facilities and collection centers, call the New Hampshire Hazardous Waste Assistance Hotline at (603) 271-2942 or toll free within New Hampshire at 866-HAZWAST.

For households and municipalities seeking information on battery disposal and collection, please contact the DES Household Hazardous Coordinator at (603) 271-2047 or Fax (603) 271-2456.