

# BATTERIES, MISCELLANEOUS

## Lithium, Nickel-Cadmium, Magnesium, and Mercury

### POSSIBLE CONTAMINANTS OF CONCERN

**Lithium Batteries.** Lithium-sulfur dioxide batteries contain pressurized sulfur dioxide gas and lithium-thionyl chloride batteries contain liquid thionyl chloride that, upon exposure to air, vaporizes. Both gases are highly toxic.

**Magnesium Batteries.** Magnesium batteries contain an electrolyte of an aqueous solution of magnesium bromide or magnesium perchlorate. These chemicals can emit highly toxic fumes when heated.

**Mercury Batteries.** These batteries contain mercury and mercuric oxide, and a potassium hydroxide (KOH) or sodium hydroxide electrolyte. Mercury is a listed hazardous metal and highly toxic.

**Nickel-Cadmium (Ni-Cd).** There are two kinds of Ni-Cd batteries: sealed non-serviceable batteries without vent-filler caps (dry) and serviceable vented batteries with vent-filler caps (wet). The cell of a Ni-Cd battery typically contains cadmium, nickel, and a caustic electrolyte solution of potassium hydroxide (KOH). Cadmium is a listed hazardous metal and highly toxic.

**Lead-Acid (Non-Automotive).** These batteries are managed as universal waste only if the one-for-one battery exchange contractor will not accept them.

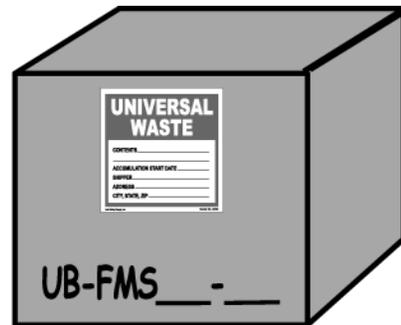
**Alkaline Batteries** manufactured after 1992 do not contain mercury and may be disposed as refuse.

### CHARACTERIZATION

Lithium, nickel-cadmium, magnesium, and mercury batteries are **universal waste**. If any batteries are damaged or drained, the electrolyte solution or any materials coming into contact with the solution, including the battery casing, should be disposed of as **hazardous waste**.

### CONTAINER MARKING/LABELING AND HANDLING PROCEDURES

1. Select an approved container. The suggested container is a sturdy box for accumulation.
2. Mark and label the container. Fill out and attach a Universal Waste label to the side of the container. Mark the container using an indelible marker, on the Contents line, write: **Used Batteries**.
3. Segregate batteries by type in separate plastic sealable bags within the bucket.
4. Make sure container is in a proper accumulation area. Fill in the ASD immediately. Put waste in the container. Wear proper PPE listed on the SDS.



### TURN-IN PROCEDURES

A CESQG has the option of handling UW as an SQHUW or under the CESQG provisions. Because there is no accumulation time limit for CESQGs, NGOH-IMR-ENV may allow OHARNG CESQGs handle its UW as HW. This way, generators may accumulate **UNIVERSAL** wastes beyond the one-year accumulation period for SQHUW.

1. Call NGOH-IMR-ENV to arrange for a pick up.

2. Ensure each container is properly marked. Close and seal container.
3. NGOH-IMR-ENV can pick up the batteries during routine site visits.
4. Complete the Universal Waste Turn-In Form prior to the site visit.