



Lead-Acid Battery Safety

Lead-acid batteries are a leading choice in power systems because they are robust, reliable, relatively low cost, and can deliver high currents. The major safety concerns associated with the use and handling of lead acid batteries are the production and release of hydrogen and oxygen gas during charging, and potential exposure to lead or sulfuric acid used as electrolyte in this system. Here are a few safety tips when working with lead-acid batteries:

- Only purchase batteries from reputable manufacturers or suppliers.
- Store batteries in well ventilated areas away from ignition sources.
- Cover or otherwise protect terminals when storing or transporting batteries to prevent unwanted discharge or a short circuit.
- Discontinue use of damaged batteries.
- Recycle damaged batteries promptly.
- Store damaged batteries in acid resistant secondary containment with appropriate labeling.
- Keep lead-acid battery vent caps securely in place.
- Never overcharge a lead-acid battery.
- Only use **distilled water** when refilling the electrolyte reservoir.
- Always add concentrated acid to water. Add acid slowly as the heat of dissolution will raise the temperature of the solution.
- Wear appropriate PPE when working with lead-acid batteries. This includes safety glasses, goggles, or face shield; an acid resistant lab coat or apron, and appropriate gloves.
- In the event of an eye exposure, flush eyes with water for a minimum of 15 minutes and then seek immediate medical attention.
- In the event of skin exposure rinse the area with a large amount of cold water and seek medical attention if chemical burn persist or skin begins to blister.
- Contain any electrolyte spill with sand or vermiculite and neutralize with sodium bicarbonate.

UCSC Battery Recycling Program (<https://ehs.ucsc.edu/programs/waste-management/recycling-disposal/batteries-how-to.html>)