



# Lead-Acid Battery Safety

West Virginia University  
Environmental Health and Safety



## Lead-Acid Battery Basics

- A solution of sulfuric acid (35%) and water (65%) serves as the electrolyte solution in a lead-acid battery. This electrolyte solution can cause chemical burns to the skin and especially to the eyes.
- During normal operation, water is lost from a non-sealed (or flooded) lead-acid battery due to evaporation.
- During charging, lead-acid batteries produce hydrogen and oxygen gases (highly flammable/explosive) as electrolysis occurs.
- Many lead-acid battery explosions are believed to occur when electrolyte levels are below the plates in the battery and thus, allowing space for hydrogen/oxygen to accumulate. When the lead-acid battery is engaged it may create a spark that ignites accumulated gases and causes the battery to explode.



## Lead-Acid Battery Safety Precautions

- Store or recharge lead-acid batteries in a well ventilated area away from sparks or open flames.
- Keep lead-acid batteries that are damaged in properly labeled, acid-resistant secondary containment structures.
- Wear acid-resistant goggles/face shield, gloves, and if available, an apron, when recharging or handling lead-acid batteries,
- Keep lead-acid battery vent caps securely in place.
- Flush eyes immediately with water for 15 minutes and then promptly seek medical attention if acid gets into your eye(s)
- Rinse the affected area immediately with large amounts of water if acid gets on your skin. Seek medical attention if the chemical burn appears to be second degree or greater.
- Never overcharge a lead-acid battery and only replenish fluid with distilled water.
- Locate emergency eyewash stations close to lead-acid battery storage and charging areas.
- Post “Flammable – No Smoking” signs in lead-acid storage and charging areas.