

Loss Prevention

Please route to:

- Owner
- General manager
- Sales manager
- Service manager
- Office manager

Wet cell batteries

Common, ordinary automotive batteries are classified as wet cell batteries because they use liquid electrolytes, a medium of exchanging electrons, instead of a pasty electrolyte used in dry cell batteries. Each year they are responsible for minor mishaps such as peeling paint and electrical shocks, and more serious problems like severe eye injuries, acid burns and catastrophic fires.

Handle with care

Accidents involving wet cell batteries occur frequently because automotive technicians and employees work around them constantly. Wet cell batteries can be found everywhere in your business – in vehicles, forklift trucks, inventory, charging areas, “car pushers” and other equipment or just sitting on the floor on the way to recycling. Employees tend to forget how dangerous they are, and often treat them in a careless manner.

You can’t walk through many automotive businesses without literally tripping over them. In fact, it would be difficult to find a technician who hasn’t seen a battery explode. The fact is, batteries can be very dangerous and demand your respect.

Batteries hooked up to chargers present the greatest hazard for one reason; they produce explosive, hydrogen gas. Extreme caution must be used when charging wet-cell batteries of any size — from small motorcycle batteries up to larger ones used to power forklift trucks. Many

of our customers have found out the hard way that this gas can be easily ignited, potentially resulting in a catastrophic fire.

What you can do to protect your business and employees

- **Provide adequate ventilation in charging areas for disposal of hydrogen gas fumes from gassing batteries.** Appropriate mechanical ventilation includes an explosion-proof electrical fan vented to the outside.

At the very least, the charging room should be well-ventilated (passive outside vents) so that gas cannot build up inside the room. Never charge batteries in a small, tightly sealed room.
- **Eliminate all ignition sources from the charging area.** The hydrogen gas can’t explode without an ignition source, so remove or eliminate as many as possible. Post “No Smoking” signs in and outside the room. Any electrical wiring, light fixtures and switches inside the room must be explosion-proof. If they are not, remove the equipment from the room. Perform cutting, welding and other hot work far away from the battery charging area. Keep the charging area clear of all combustible materials such as cardboard, wood, paper, etc.
- **Follow the manufacturer’s recommended procedures for using battery chargers.** Employees working in the battery-charging area should be aware of the hazards involved and properly trained in the correct procedures

for charging batteries. Ensure that all cells are filled to the recommended level (if not maintenance free) with water and that all battery caps are in place prior to charging. Attach clips securely to batteries before turning the charger on to reduce the chance of a spark. Do not overcharge batteries, and avoid overnight or extended charging times.

- **Employ good electrical practices.** Plug battery chargers directly into grounded electrical outlets, and avoid using extension cords that can overheat. Don't alter or modify the charger itself, the power cord or clips.
- **Protect against acid burns.** Wet cell batteries also contain very dangerous sulfuric acid that can burn, maim and blind employees and customers. Remind technicians and employees of the dangers of handling wet cell batteries and follow these common-sense precautions:
 - **Wear proper PPE (Personal Protective Equipment) when handling, and most importantly, whenever working around charging batteries.** Proper eye protection is most important. Eye protection means more than ordinary safety glasses; employees should wear PPE that protects the eyes from all angles. Goggles worn in conjunction with full-face shields provide the best protection. Acid-resistant gloves and aprons should also be provided and worn.
 - **Provide an emergency eyewash.** The eyewash must meet Occupational Safety and Health Administration (OSHA) standards by being readily accessible to employees and provide a 15-minute "flushing" supply of water. The once-popular hand-held squeeze bottles of eyewash are not adequate (by themselves) due to the requirement of a 15-minute water supply.
 - **Use extreme caution when jumpstarting or charging vehicle batteries.** A battery being charged while it is still in a vehicle is more dangerous than one charged elsewhere. Technicians should stand clear of the battery and never allow customers in the area during charging operations. Technicians should also remove all

jewelry before working around batteries. Remember to keep tools and other metallic objects away from the top of uncovered batteries, and remove all ignition sources from the area. Attach the charger to the battery prior to turning it on. Ensure that the clips are secured to the posts and have a strong electrical connection. For proper linkage, connect the positive charger clip/jumper cable to the positive (+) terminal on the battery and the negative (-) charger clip/ jumper cable to the engine block, frame or other grounded part of the vehicle. These procedures vary if the car has a positive ground – most cars do not.

- **Neutralizing agents should be provided for electrolyte spills.** Bicarbonate soda, lime or other commercially available neutralizing chemicals should be kept on hand to treat acid or electrolyte spills. Store all batteries on wood pallets, preferably inside in a segregated area. Leaking or damaged batteries must be placed in an acid-resistant leak-proof container. Avoid storing used batteries outside because they may pollute the ground water. Keep the number of used batteries on hand to a minimum; have them removed from your business (by an approved recycler) in a timely manner.

Using common sense when charging or handling batteries will help protect your business from unnecessary loss. Train supervisors and employees on safe procedures and then make sure they are followed. Your customers, employees and your business depends on it.

Loss prevention information

For questions about this loss prevention topic, contact the Zurich Risk Engineering Department at 800-821-7803.

Product and service information

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