

Talks **ZONE**

**Safety Talks
direct to your
Inbox!**
T0111

Batteries have power to harm

Batteries make the world go around. Whether powering a laptop computer or a cell phone; a car, a forklift or construction equipment, they are everywhere.

Even the little batteries used in electronic devices can be hazardous, but it is the larger ones, primarily the lead-acid variety, that present the most serious risks, at home and on the job.

These batteries are so common that many workers do not pay much attention to those risks, which include explosions, burns, electrical shock, strains, sprains and compressed discs — all of which can be avoided with proper handling procedures.

Most vehicle and industrial batteries contain sulfuric acid and lead. The acid (electrolyte) is very corrosive. Exposure can result in damage to the skin, respiratory system and eyes. Chemical-resistant personal protective equipment (PPE) will minimize the danger from splashes. It can include:

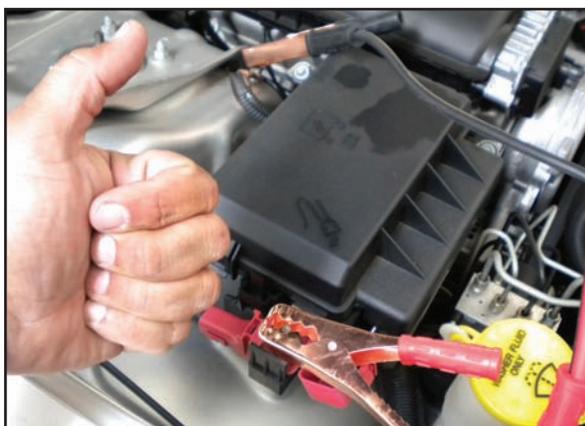
- Safety glasses, goggles and/or face shield.
- Gauntlet-style gloves.
- Apron.
- Safety boots.

Pant legs should not be tucked into boots because spilled acid could form a pool in the boots.

When batteries are being recharged they generate hydrogen gas, which is explosive when it reaches certain concentrations in air. The ventilation system in an enclosed area must be able to exchange an adequate amount of fresh air for the number of batteries being charged.

Cigarettes, open flames and sparks can cause a battery to explode.

Never lean over a battery when testing, boosting or charging it. In marine environments, the battery solution should not be allowed to mix with salt water as this



can produce hazardous chlorine gas.

Protect your back. If you must move a vehicle battery that doesn't have a handle, use a battery strap. Keep your back straight, do not bend at the waist, and tighten your stomach muscles as you lift.

Industrial batteries can weigh up to 900 kilograms (2,000 pounds) or more. Workers should know how to move them safely, using appropriate equipment such as carts, conveyors and overhead hoists.

Here are some battery storage tips:

- Store batteries upright in a cool, dry area.
- Do not stack batteries directly on top of each other unless they are in cartons or on pallets protected by corrugated packaging.
- Do not stack batteries more than two high.
- Keep batteries from freezing.

Batteries should be tested before they are installed, and charged if necessary. If a battery has not begun to accept minimum charging current within 15 minutes, it should be replaced.

If there is gas release or spewing of liquid, or if the battery case feels hot, charging should be reduced temporarily or halted.

A frozen battery should not be recharged; allow it to warm first.

When a motor vehicle battery fails, a jump start or "boost" often is the best short-term way to get the motor going. The following procedure is recommended:

- Position another vehicle with a healthy battery and your car so they do not touch each other. Be sure both batteries are of the same voltage.
- Read the owner manuals for both vehicles for any special directions.
- Turn off the ignitions of

both vehicles and set the parking brakes. Place automatic transmissions in "Park" and standard transmissions in neutral.

■ Unless given different directions in the owner's manual, use the booster cables in this order:

- Connect one end of the positive (+) booster cable to the positive post of the dead battery.
- Connect the other end of the same cable to the same marked post of the booster battery.
- Connect the second, negative (-) booster cable to the other post of the booster battery.

■ Make the final negative booster cable connection on the engine block of the stalled vehicle, away from the battery.

■ Start the booster vehicle and let it run for a few minutes. Then, start the disabled vehicle.

■ Remove the cables in the reverse order of connection, being very careful not to let the booster cable clamps touch each other or come in contact with car parts. Also, avoid the fans of the engine. Be aware that electric fans might run without the engine being on.

The Quiz

These questions are meant to help you remember what was discussed today — not to test your patience or challenge your intelligence. The answers are at the bottom of the page. Cover them up, and complete the quiz as quickly as you can.

1. Lead-acid batteries are the ones most frequently used in motor vehicles.
TRUE ____ FALSE ____
2. Are back injuries a common risk when batteries are not handled properly?
YES ____ NO ____
3. Which of these are items of personal protective equipment that should be used when working with batteries:
 - A. Gauntlet-style gloves
 - B. Safety glasses
 - C. Chemical-resistant boots
 - D. All of the above
4. It is safe to lean over a battery when testing or charging it.
TRUE ____ FALSE ____
5. Which of these is NOT a proper way to store batteries:
 - A. In an upright position.
 - B. Stacked three or more high.
 - C. In a cool, dry area.
 - D. All of the above.
6. A frozen battery should be warmed before it is recharged.
TRUE ____ FALSE ____
7. When boosting a battery, the final (negative) cable connection should be made to:
 - A. The negative post on the boosting vehicle's battery.
 - B. The negative post on the battery of the vehicle being boosted.
 - C. The engine block of the vehicle being boosted, away from its battery.
 - D. The radiator of the boosting vehicle.
8. Are the correct tools and personal protective equipment available for those who work with or handle the batteries used in your workplace?
YES ____ NO ____ DON'T KNOW ____

ANSWERS: 1. True, 2. Yes, 3. D., 4. False, 5. B., 6. True, 7. C., 8. Your answer

Hold These Thoughts

The Canadian Centre for Occupational Health and Safety advises the following if you or a co-worker has some battery acid splashed in the eyes or on the skin:

- Use an emergency eyewash/shower station if solution is splashed into the eyes.

- Immediately flush the contaminated eye(s) with clean, lukewarm, gently flowing water for at least 30 minutes, by the clock, while holding the eyelid(s) open.

- If irritation persists, repeat flushing. Neutral saline solution may be used as soon as it is available.

- Do not interrupt flushing. If necessary, keep the emergency vehicle waiting.

- Take care not to rinse contaminated water into the unaffected eye or onto the face.

- First aiders should avoid direct contact. Wear chemical protective gloves, if necessary.

- Quickly transport the victim to an emergency care facility. Flush any area of your body contacted by battery acid immediately and thoroughly.

If the skin is splashed with acid:

- As quickly as possible, flush the contaminated area with lukewarm, gently flowing water for at least 30 minutes, by the clock.

- If irritation persists, repeat flushing. Do not interrupt flushing. If necessary, keep emergency vehicle waiting.

- Under running water, remove contaminated clothing, shoes and leather goods (e.g., watchbands, belts).

- Transport the victim to an emergency care facility immediately.

- Discard contaminated clothing, shoes and leather goods.



For the Record

Date of Meeting: _____

Topic: _____

Location: _____

Department: _____

Start Time: _____ Finish Time: _____

Meeting Leader: _____

In Attendance:

It really happened...

A warehouse worker suffered temporary hearing loss and acid burns to his face and eyes when a forklift battery exploded as he was leaning over it to check the acid levels.

The battery was being charged and was still connected to the battery charger. As the worker was checking the acid level, a co-worker turned on the forklift ignition and it is believed that this triggered the explosion. The negative charger cable clip was attached incorrectly to the negative post of the battery instead of to the chassis or engine, away from the battery.

This particular battery charger was not equipped with a feature that allows the engine to be started while the battery is still attached to the charger.

Safe work practices:

- Employers, ensure the adequate instruction of workers in the safe performance of their duties.
- Follow all manufacturer's instructions for batteries and chargers when charging batteries, or checking acid levels.
- Make the final booster cable connection to the engine block or chassis of the stalled vehicle – never to the battery.
- Use proper eye and face protection when checking the battery fluid levels.
- Provide facilities to immediately cleanse contaminated body areas where workers may be exposed to corrosive or other chemicals harmful to the eyes or skin.

Note: *TalksZone* weekly safety meetings are not intended to take the place of your own safety procedures. Always consult and/or review your procedures before attempting any work.