Dangers of Lead Acid Batteries

On construction sites, batteries are a critical part of every vehicle. They are designed to store a large amount of energy to start a vehicle. Typically, the only time contractors think about the batteries in their vehicles is when these power supplies die. Because batteries store a large amount of energy ready for immediate release when the key is turned, all those working around them need to exercise caution and protect themselves from possible dangers.

Lead acid battery sales account for around 40% of batteries sold worldwide. There is strong acid inside these batteries that is highly corrosive. When jumpstarting or charging a battery of this type, it can produce an acid mist that can burn skin and soft tissue. It can also discharge a hydrogen gas that is highly explosive. This is why anyone working with or nearby to these power sources needs to be aware of the dangers batteries present.

In terms of electrical dangers associated with lead acid batteries, they are typically low voltage power sources so human skin has enough resistance to keep electricity from penetrating. For example, a 9V does not produce enough power to provide an electrical shock when touched. However, a shock can be felt when the two terminals of the battery are touched with fingers. A high amperage or current is the real danger, as larger batteries have a tremendous amount of energy. A short circuit can release sufficient energy to weld metals together. If a battery’s negative terminal is grounded to a vehicle’s frame, a metal object that shorts between the positive terminal and any metal part on a vehicle will result in a dangerous condition.

Contractors in the concrete cutting, breaking, polishing and imaging industry are encouraged to follow the guidance provided below to maintain a safe working environment.

- Keep lead acid batteries fully charged in cold weather, as a low charged battery can freeze and crack.
- Wear the proper PPE when installing or transporting batteries including rubber or PVC gloves, goggles, acid-resistant clothing or apron and work boots.
- Starting batteries should be charged at least once every two weeks to prevent sulfation—the crystallization of lead sulfate within the battery.
- To treat a chemical burn from acid, flush with plenty of water.
- Do not smoke or have a source of open flames or sparks around a battery.
- Use a carbon dioxide (CO₂) or dry powder fire extinguishers around batteries so that terminals are not shorted together and release a large amount of energy in the form of high current across the short.
Dangers of Lead Acid Batteries Quiz

The following statements should be answered with “True” or “False.” Answers below.

1. Safety concerns with vehicle batteries include exposure to acid, the release of hydrogen gas, and the large amount of stored energy.

2. To treat a chemical burn from acid, flush with plenty of water.

3. During charging or when jump starting a battery, the battery can discharge helium gas which is highly explosive.

4. The vehicle battery is typically a high voltage power source.

5. A short circuit of the vehicle battery can result in severe injury or damage.

Employee Name: ________________________________

Signature: ___________________________ Date: ___________________________