Battery Handling Safety

Batteries are used to power our automobiles, trucks, tractors, and construction or power equipment. There are different types of batteries such as lead-acid batteries, gel cells, and lead-calcium batteries. Most batteries contain sulfuric acid and lead. Because batteries contain chemicals, chemical reaction by-products, and an electrical current they can pose a hazard to workers if not handled properly. Workers that operate, maintain, and recharge batteries should use caution.
Before working with a battery, you should have training in proper handling procedures.

- Consult the vehicle and battery owners' manuals for specific instructions on battery handling and hazard identification.
- To avoid splashing acid in your face, wear personal protective equipment (PPE) such as chemical splash goggles and a face shield.
- Wear acid-resistant equipment such as gauntlet style gloves, an apron, and boots. Do not tuck your pant legs into your boots because spilled acid can form a pool in your boots.
- Be aware of the chemical hazards posed by batteries. The sulfuric acid (electrolyte) in batteries is highly corrosive. Acid exposure can lead to skin irritation, eye damage, respiratory irritation, and tooth enamel erosion.
- Never lean over a battery while boosting, testing or charging it.
- In marine environments, do not allow the battery solution to mix with salt water; it can produce hazardous chlorine gas.
- If acid splashes on your skin or eyes, immediately flood the area with cool running water for at least 15 minutes and seek medical attention immediately.

Always practice good hygiene and wash your hands after handling a battery and before eating. If you handle the lead plates in a battery and don't wash your hands properly, you could be exposed to lead. Signs of lead exposure include loss of appetite, diarrhea, constipation with cramping, difficulty sleeping, and fatigue.

CHEMICAL REACTIONS AND HAZARDS

The chemical reaction by-products from a battery include oxygen and hydrogen gas. These can be explosive at high levels. Overcharging batteries can also create flammable gases. For this reason, it is very important to store and maintain batteries in a well-ventilated work area away from all ignition sources and incompatible materials. Cigarettes, flames or sparks could cause a battery to explode.

Before working on a battery, disconnect the battery cables. To avoid sparking, always disconnect the negative battery cable first and reconnect it last. Be careful with flammable fluids when working on a battery-powered engine. The electrical voltage created by batteries can ignite flammable materials and cause severe burns. Workers have been injured and killed when loose or sparking battery connections ignited gasoline and solvent fumes during vehicle maintenance.

Battery maintenance tools should be covered with several layers of electrical tape to avoid sparking. Place protective rubber boots on battery cable connections to prevent sparking on impact if a tool does accidentally hit a terminal. Clean the battery terminals with a plastic brush because wire brushes could create static and sparks. Always remove your

personal jewelry before working on a battery. A short-circuit current can weld a ring or bracelet to metal and cause severe burns.

Batteries can be very dense and heavy, so use proper lifting techniques to avoid back injuries. Battery casings can be brittle and break easily; they should be handled carefully to avoid an acid spill. Make sure that a battery is properly secured and upright in the vehicle or equipment. If a battery shows signs of damage to the terminals, case or cover, replace it with a new one. Finally, remember to dispose of old batteries properly.

For more Information on this topic, please contact Alliant Risk Control Consulting at (949) 260-5042 or riskcontrol@alliant.com

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