



Worksite: \_\_\_\_\_ Instructor: \_\_\_\_\_ Date/Time: \_\_\_\_\_

## Topic C532: Battery Charging & Handling

**Introduction:** Batteries are made of two or more cells connected to produce electric energy. Batteries produce hydrogen and sulfur gas mixtures which are highly flammable, or even explosive. Following are safety guidelines for charging and handling batteries:

### Heavy Equipment, Industrial Truck, Truck, and Other Vehicle Batteries:

- Service your battery whenever you change your vehicle's oil. Check the fluid levels if the battery is not sealed, and clean your terminal connections (posts and cable ends). Ensure that all connections to and from the battery are secure.
- Batteries lose the ability to accept or hold a charge over time. Replace your battery every three years or as needed.
- Battery charging installations must be located in specially designated areas. Smoking is prohibited in the charging area.
- Facilities must be equipped for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks.
- The battery charging and storage area must provide adequate ventilation for dispersal of fumes from gassing batteries. Make sure the ventilation system is specifically designed for the storage area.
- An eye wash station must be located near the battery charging station.
- A conveyor, overhead hoist, or equivalent material handling equipment must be provided for handling batteries.
- Reinstalled batteries are required to be properly positioned and secured in the truck.
- A carboy tilter (a large glass or plastic bottle enclosed in basketwork, or a wooden crate, used to contain corrosive liquids), or siphon must be provided for handling electrolyte.
- When charging batteries, acid is required to be poured into water. ***Water must not be poured into acid.***
- Trucks are required to be properly positioned and brakes applied before attempting to change or charge batteries.
- Care must be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) are required to be open to dissipate heat. Make sure the ventilation system is working properly, ensuring a safe atmosphere.
- Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- Tools and other metallic objects must be kept away from the top of uncovered batteries.
- Hydrogen and sulfur gas mixtures, which are highly flammable or even explosive, may accumulate under the hood and must be allowed to dissipate. Using an air monitoring system will ensure safe work conditions.
- Always have a working fire extinguisher nearby. Make sure all employees are trained in how to use the fire extinguisher.

### When a vehicle has a dead battery and needs to be moved immediately, follow these procedures to safely jump start that vehicle:

- Connect the jumper cables to the battery of the disabled vehicle. Cables are colored coded to prevent cross connecting batteries and causing a short. Always connect the red (or other brightly colored) cable to the positive (+) terminal of the battery, and the black cable to the negative (-) terminal.
- The negative (-) or ground cable will typically emit a small spark upon connection that can ignite battery gases and cause a fire or explosion of the battery. To prevent this, connect to a ground away from the battery.
- After the engine starts, carefully disconnect the jumper cables ensuring that the clamps do not touch until both vehicles are disconnected. Use extreme caution around moving engine parts such as the cooling fan, belts, and pulleys.

**Personal Protective Equipment:** Always wear the proper protective equipment. Safety goggles, safety glasses, rubber gloves, particulate masks, respirators, safety clothing (aprons).

If battery acid (electrolyte) gets in your eyes, immediately flush with water for 15 minutes and seek medical attention. If battery acid gets on your skin, flush thoroughly with water. When irritation persists, seek medical attention. Read all MSDS that are applicable.

**Conclusion:** Ensure all employees involved in battery charging and handling operations are properly trained in the charging and handling of batteries. Periodic refresher training on job procedures and safety hazards is recommended. Always utilize these safety guidelines.

**Employee Attendance:** (Names or signatures of personnel who are attending this meeting)

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*These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.*