

## Forklift Battery Explosion

**Incident Description:** Associate had just removed a forklift battery charging cord from a charging unit and was plugging it back into the lift, when the battery exploded.

### **Hazard of Charging Lead Acid Batteries:**

When batteries are charging, they emit hydrogen, which can become explosive. When an appropriate amount of hydrogen is present, even a small spark will cause an explosion.

**Root Cause:** A small arc occurred when the forklift battery cover was closed over the battery charging electrical cord, causing damage. The arc caused the hydrogen emitted during the charging process to ignite, resulting in an explosion.

### **How to prevent forklift battery explosions during charging:**

- 1) Keep charging areas properly ventilated; it is recommended all locations fan their battery charging areas to create an appropriate amount of air flow to effectively displace built up hydrogen. Follow this link for an example of a large, effective ventilation fan: [Ventilation Fan](#)
- 2) Battery covers should remain in the open position while batteries are charging
- 3) All electrical cords must be free of any cuts, frays, or shorts. If damage is identified, place the equipment out of service until it is repaired
- 4) Battery vent caps should be inspected to ensure they are working properly
- 5) All open flames must be prohibited in the charging area, including hot work
- 6) When charging, forklift must be properly positioned, emergency brake set, and turned off

