



HAZARD

# Battery Charging

Battery charging can cause an explosion, serious burns and other injuries.

## SAFE WORK GUIDELINES

### ► Explosion Caused by Hydrogen Gas

#### Details

Charging or boosting a battery produces hydrogen and oxygen, which can be ignited by a flame or spark.

#### Threat

Serious burns  
Fire

#### Before You Charge a Battery

- Make sure that you have been trained how to charge the battery
- Make sure that the battery is in a properly ventilated area
- Before you remove the alligator clips, make sure that the power is shut off at the charger
- Before making any connections, such as hooking up cables to the battery, shut off the charger

#### While You Are Charging Batteries

- Wear safety gloves and goggles
- Prohibit smoking in the work area
- Connect the negative cable to the frame or forklift instead of at the battery terminals
- Check that battery ventilation holes are clear and clean to allow the hydrogen gas to escape and prevent the battery from exploding
- If the battery is not maintenance-free, remove the filler caps to vent hydrogen gas
- When you are removing the battery caps, stand at arm's length

### ► Short Circuits

#### Details

Short circuits are caused when the battery comes into contact with metal on clothing or in jewellery.

#### Threat

Electrical shock

- Remove anything you are wearing that is metal, such as rings, watches, chains and bracelets
- Ground the negative cable to the frame or forklift to prevent short circuits
- When handling batteries, make sure that metal objects do not fall across the terminals

## ► Sulphuric Acid

### Details

Contained in the battery. Exposure can occur while you are filling a battery with water.

### Threat

Severe burns

Damage to and permanent scarring of the skin

Blindness

Lung damage through inhalation

- Wear the proper personal protective equipment (PPE) – specifically splash-proof goggles and rubber gloves
- Before charging the battery, rinse it and clean the terminals
- Install plumbed eyewash stations, neutralizer containers and wash basins near where you handle the batteries so that you can give first aid treatment for acid and alkali burns if necessary
- Clean spilled acid safely – first with a solution of sodium carbonate or sodium bicarbonate (baking soda) to neutralize any spilled acid, and then with large volumes of water to rinse the area clean
- Clean your hands with soap and water right away after servicing batteries
- **Do not** attempt to charge a frozen battery

**Note:** If acid splashes on your body, remove all contaminated clothing right away and flush the burned areas thoroughly with water.

If acid gets into your eyes, flood them with water for at least 20 minutes, paying particular attention to the areas under your eyelids. Get to a doctor as soon as possible. Call an ambulance if necessary.

### While You Are Filling and Servicing Batteries

- Wear splash-proof goggles or a face shield, rubber gloves, boots and an apron
- Use a self-leveling filler that automatically fills the battery to a predetermined level
- Fill the battery in a proper filling area (within 25 feet of an eyewash station)
- Keep battery deposits off your body when cleaning terminals by brushing debris away from you
- Use a tapered brush to clean terminals – do not use compressed air

## ► Overcharged Batteries

### Details

When the battery is low on water and is connected to a charger, the charging device may continue to charge, producing extreme heat.

### Threat

Burns from touching the battery's metal exterior

- Ensure that water levels are high enough to receive the charge

**Note:** As a rule, topping up water levels should be done after the battery is charged to prevent boiling over.

## ► Battery Not Secured

### Details

Batteries are extremely heavy and must be handled with proper exchange equipment to avoid injury.

### Threat

Crush injuries

- Make sure that the equipment is properly aligned before making the exchange
- Place the locking plate on or in the operator's controls area to remind him or her to replace the plate before operating the equipment
- When you are transferring the battery, keep your fingers clear of any pinch points
- Keep others at a safe distance