Safety Note #26

LEAD-ACID BATTERY SAFETY

According to the Consumer Product Safety Commission, a total of about 2,300 people were treated in hospitals for lead-acid battery injuries during 2003. Of this total, approximately 50 percent of the injuries involved acid burns to the eyes. The remaining injuries were mostly due to lifting (i.e., back and shoulder strains) or dropping (i.e., broken foot bones and contusions) lead-acid batteries. California Code of Regulations (CCR) Title 22, Section 66266.81 addresses the storage and disposal of spent lead-acid batteries, whereas CCR Title 8, Section 5185 addresses changing and charging storage batteries.

Lead-Acid Battery Basics

- A solution of sulfuric acid (35%) and water (65%) serves as the electrolyte solution in a lead-acid battery. This electrolyte solution can cause chemical burns to the skin and especially to the eyes.
- During normal operation, water is lost from a non-sealed (or flooded) lead-acid battery due to evaporation.
- During charging, lead-acid batteries produce hydrogen and oxygen gases (highly flammable/explosive) as electrolysis occurs.
- Many lead-acid battery explosions are believed to occur when electrolyte levels are below the plates in the battery and thus, allowing space for hydrogen/oxygen to accumulate. When the lead-acid battery is engaged it may create a spark that ignites accumulated gases and causes the battery to explode.

Lead-Acid Battery Safety Precautions

- Always store or recharge lead-acid batteries in a well ventilated area away from sparks or open flames [CCR Title 8, Sections 5185 (b) and (h)].
- Lead-acid batteries that are damaged shall be kept in properly labeled acid-resistant secondary containment structures [CCR Title 22, Section 66266.81 (b)].
- When recharging or handling lead-acid batteries, wear acid-resistant goggles/face shield, gloves, and if available, an apron.
- Always keep lead-acid battery vent caps securely in place.
- If acid gets into your eye(s), flush immediately with water for 15 minutes and then promptly seek medical attention.
- If acid gets on your skin, rinse the affected area immediately with large amounts of water. Seek medical attention if the chemical burn appears to be second degree or greater.
- Never overcharge a lead-acid battery and only replenish fluid with distilled water.
- Emergency eyewash stations shall be located nearby lead-acid battery storage and charging areas [CCR Title 8, Section 5185 (l)].
- Lead-acid storage and charging areas should be posted with “Flammable – No Smoking” signs.