

# Lead Acid Batteries - Introduction

## Safety, Applications, and Management

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# Introduction to Lead Acid Batteries

- Most common large-capacity rechargeable batteries.
- Cost-effective for automobiles, forklifts, marine, and UPS.
- Consist of lead alloy plates in sulphuric acid electrolyte.
- Two main classes: vented (flooded, wet cell) and valve regulated lead acid (VRLA) batteries.

# Hazards Associated with Lead Acid Batteries

- Chemical hazards from the corrosive electrolyte.
- Fire or explosion risk due to hydrogen gas production.
- Electrical shock hazards from exposed terminals.
- Ergonomic hazards due to heavy weight.
- Transportation hazards related to dangerous goods regulations.

# Chemical Hazards and Precautions

- Sulphuric acid can cause severe burns and is toxic if ingested.
- Precautions include wearing PPE, using non-metallic containers, and having neutralizers ready.
- Importance of knowing the location of emergency showers and eyewash stations.

# Electrolyte Spill and First-Aid Measures

- Procedures for minor and major spills, including containment and cleanup.
- First-aid for skin and eye contact includes flushing with water and seeking medical treatment.
- Importance of reporting incidents to supervisors.

# Fire and Explosion Hazards

- Production of hydrogen gas during charging creates explosive mixtures.
- Venting systems and hydrogen detectors are crucial in charging areas.
- Storage recommendations to minimize risk.

# Electrical Hazards and Safety Precautions

- Risk of electrical shock from exposed terminals and accidental shorting.
- Safe practices include using insulated tools, not wearing jewelry, and proper cable management.
- Charging precautions to avoid overcharging and gas accumulation.

# Ergonomic Hazards and Handling

- Heavy weight of batteries poses lifting and handling risks.
- Correct lifting techniques and the use of lifting devices or assistance.
- Use of battery carry straps for safe transportation.



# Types of Lead Acid Batteries

- Vented lead acid batteries for applications requiring liquid electrolyte.
- VRLA batteries for maintenance-free applications.
- Distinctions between AGM and gel batteries.

# Transportation of Lead Acid Batteries

- Compliance with Transportation of Dangerous Goods (TDG) regulations.
- Requirements for documentation, safety marks, and packaging.
- Special considerations for waste and damaged batteries.

# Waste Management of Lead Acid Batteries

- Recycling and disposal protocols for vented and VRLA batteries.
- Environmental impacts and regulatory compliance.
- Procedures for safe disposal and recycling contacts.

Thank You!

Questions?