

Lead-Acid Batteries - Applications

Enhancing Efficiency and Reliability

Vincenzo Ceccarelli Grimaldi

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Introduction to Energy Storage in Transit Systems

- Importance of energy conservation in the context of rising fuel prices and environmental concerns.
- Transit systems as large consumers and their potential for efficiency improvement.
- Role of stationary energy storage technologies in enhancing transit system efficiency.

Lead-Acid Batteries for Uninterruptible Power Supplies (UPS)

- Critical transit systems require uninterrupted power; UPS systems provide a safeguard.
- Lead-acid batteries, a popular choice for UPS due to cost-effectiveness and familiarity.
- Benefits include wide deployment, competitive pricing, and established recycling processes.

Operational Principle and Advantages

- Basic chemical reaction that drives lead-acid batteries.
- Round-trip efficiency, cost advantages, and handling familiarity.
- Established disposal and recycling channels highlight environmental responsibility.

Challenges and Limitations

- Hydrogen gas production requires attention to ventilation and safety codes.
- Accumulation of lead sulphate, limited discharge cycles, and susceptibility to temperature variations.
- Weight considerations due to the high volume of water.

Comparative Analysis and New Technologies

- Positioning lead-acid batteries as a benchmark for comparing new energy storage technologies.
- Exploration of new technologies aiming at commercialization for transit systems.
- The balance between established practices and the potential of emerging solutions.

Conclusion and Future Directions

- While lead-acid batteries offer reliability for UPS, emerging technologies present new opportunities.
- Evaluating the cost, efficiency, and environmental impact remains crucial for transit system advancements.
- The continuous evolution of energy storage technologies promises enhanced sustainability for urban transit.

Thank You!

Questions?