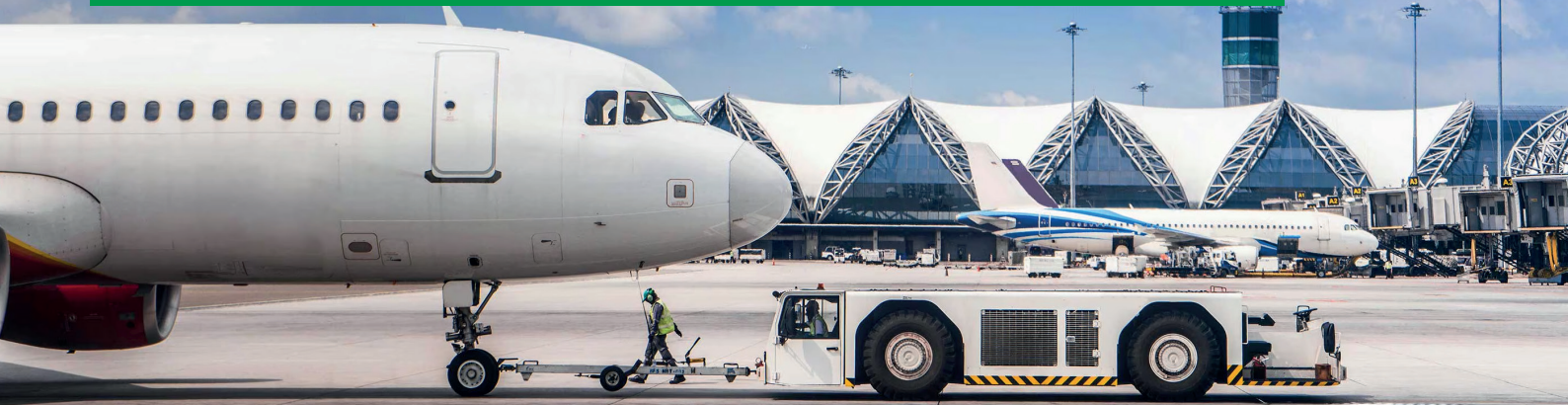




CASE STUDY: AVIATION GROUND SUPPORT EQUIPMENT (GSE)



ADVANTAGES OF SODIUM-ION BATTERIES OVER LITHIUM-ION AND LEAD-ACID

Airports are electrifying ground support equipment (GSE) such as tugs, baggage carts, and ground power units to cut emissions and improve efficiency. Sodium-ion batteries (SIBs) offer greater safety, cost savings, and reliability than lithium-ion (LIBs) and lead acid (Pb-acid), making them an ideal choice for airport operations.

1. ENHANCED SAFETY & REDUCED RISK

Challenge: Airports require fire-safe energy storage in busy, high-traffic environments where battery failures could be disruptive.

- **Minimal Fire & Explosion Risk:** No risk of thermal runaway, unlike lithium-ion.
- **Non-Flammable Electrolytes:** Some variants use water-based solutions, removing combustion hazards.
- **Improved Security & Reliability:** Reduced risk of unexpected battery failures, enhancing overall airport safety.

2. RELIABLE PERFORMANCE IN AIRPORT CONDITIONS

Challenge: GSE must operate in extreme temperatures and handle frequent charging cycles without performance loss.

- **Better Cold & Heat Tolerance:** Works from -30°C to $+60^{\circ}\text{C}$, outperforming lithium in extreme weather.
- **Longer Cycle Life:** Lasts 3,000+ charge cycles, ideal for high-use fleets.
- **Fast Charging:** Over 90% energy efficiency, reducing downtime between flights.

3. SUSTAINABLE & SECURE SUPPLY CHAIN

Challenge: The aviation industry must cut emissions and avoid supply chain disruptions from scarce materials like lithium and cobalt.

- **No Lithium, Cobalt, or Nickel:** Ethically sourced and more sustainable.
- **Lower Carbon Footprint:** Requires less energy to manufacture and recycle.
- **Supports Green Airports:** Ideal for energy storage systems at airports, reducing reliance on fossil fuel-powered backup systems.

CONCLUSION

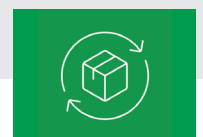
With better durability, lower fire risk, and improved supply chain resilience, sodium-ion batteries provide a future-proof energy solution for aviation electrification.



Durability



Lower fire risk



Supply chain resilience

Batri design, develop, and manufacture battery materials and cells targeted at the sodium-ion battery industry. The materials utilise locally sourced supply chains and reduce the reliance on imported materials.



Batri's Composite Carbon anode material engineered for sodium-ion batteries

Offering higher power performance while remaining cost effective. Our anode material delivers outstanding:

- initial capacity
- superior initial coulombic efficiency (ICE)
- extended cycle life
- impressive capacity retention and exceptional stability across a wide range of currents



BATRI MATERIALS



We are pioneering a new era of energy storage with our sodium-ion battery cells

Using locally sourced, abundant, and sustainable resources like sodium, carbon, aluminium, our cells deliver exceptional performance while reducing reliance on imports and scarce materials.

Our cells are safer than lithium due to non-toxic and non-flammable electrolyte systems. Due to differing cell chemistries sodium batteries can be fully discharged to 0 V allowing for safer transportation.



BATRI CELLS

Supported by:

