

COMPARISON

NiMH and Sodium-ion

Introduction:

Natron has introduced the industry's first UL Listed sodium-ion battery. A battery designed for industrial power applications including data center, telecommunications, EV fast charging, industrial mobility, and energy storage / grid services applications. This sodium-ion battery based upon innovative, patented Prussian blue electrodes forms a reliable, and powerful alternative for the commonly used NiMH (nickel metal hydride) battery types. One of the questions we receive frequently is how the sodium-ion battery stands up against the NiMH battery and which specific characteristics distinguishes the sodium-ion from the Li-Ion battery for industrial power applications.

Comparison table:

Subject	PbNa-ion	NiMH
Safety		
Electrolyte	Organic electrolyte, paste nonflammable	Water-based electrolyte (non flammable) Potential evaporation and hydrogen outgas with charging
Battery Fire	Nonflammable, non-explosive by design. When subjected to a fire - no hydrogen fluoride gases emitted.	No hydrogen fluoride gases emitted. Easy to manage fire, no explosions.
Temperature		
Range	-20°C to +40°C without cooling	-20°C to +30°C
Charging	Over Charge tolerant	Over Charge tolerant
Service life		
Lifetime	low self-aging, 5 to 10 years	low self-aging, 10+ years ¹
Circularity		
Recyclability	Manufactured from commodity materials, no end-of-life value. Second-life potential with remaining SOC	Recyclable Nickel based chemistry, Recyclable battery construction (Bi-polar)
Design	Pouch cell, high volume manufacturing	Bi-polar design
Assembly	Easy to (dis)assemble	Easy to (dis)assemble
End of life	Low end of life value. Recyclable, repurpose, other material value stream	Nickel material of value
Transport		
Restrictions	None ²	None

¹ Depending upon design, manufacturing processes, material quality

² Because of the safety of the technology both PbNa-ion and NiMH batteries can be transported by air, road or sea without extra safety concerns and restrictions.