

COMPARISON

LIB 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 Li-Ion battery types. One of the questions we receive frequently is how the sodium-ion battery stands up against the Li-Ion battery and which specific characteristics distinguishes the sodium-ion from the Li-Ion battery for industrial power applications.

Comparison table:

Subject	PbNa-ion	Li-Ion
Safety		
Electrolyte	Organic electrolyte, paste (non flammable)	Lithium organic solvent (highly flammable)
Battery Fire	Nonflammable by design. When subjected to a fire - No hydrogen fluoride gases emitted.	Toxic gases evaporate during burning electrolyte (hydrogen fluoride) – hard to manage fire, explosion hazards
Thermal Runaway		
	No thermal runaway under any condition	Subject to thermal runaway, requires BMS, waiting period between use, charge/discharge cycles
Temperature		
Range	-20°C to +40°C without cooling	+5°C to +28°C without cooling
Charging	Over Charge tolerant	Restricted charging/discharging window
Service life		
Lifetime	Low self-aging, 5 to 10 years	Self-aging, 2 to 5 years, significantly reduced with frequent cycling
Circularity		
Recyclability	Manufactured from commodity materials, no end-of-life value. Second-life potential with remaining SOC.	Limited recyclability, both when it comes to chemistry and design. Rare earth metals
Design	Pouch cell, high volume manufacturing.	Cylindrical, prismatic, pouch high volume manufacturing
Assembly	Easy to (dis)assemble	Not made to be disassembled
End of life	Low end of life value. Recyclable, repurpose, other material value stream.	Low end of life value
Transport		
Restrictions	None ¹	Restricted by transport regulations

¹ Because of the safety of the technology Natron's sodium-ion batteries can be transported by air, road or sea without extra safety concerns and restrictions.