

PPC performance of different SIB cell types and designs

**Camel
Rachel Du**

PPC performance of different SIB cell types and designs



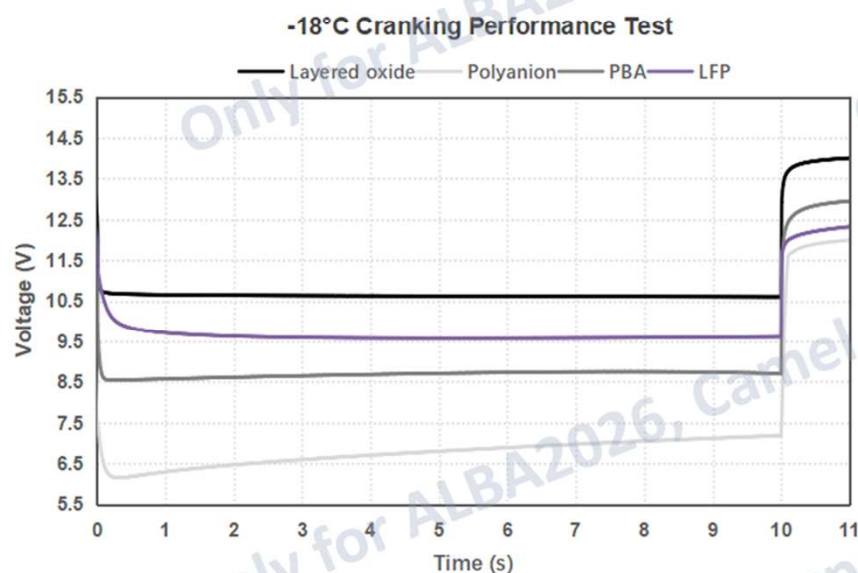
- Current status: Different types of SIB cells have different characteristic and cold performance

Current status	Evaluation on sodium-ion cell (O3&NFPP&PBA)	Summary and Suggestion	Effect
Deep analysis is needed to figure out the performance differences of low-temperature PPC among these three systems, as well as comparisons with existing technologies.	Evaluation 1: -18°C cold cranking performance test and comparison	Summary: • All three systems have good low-temperature power output capability. • During the pulse process, there are obvious differences in the curves, and the minimum voltage is not equal to the terminal voltage.	Promote the application of different sodium battery systems in various application scenarios and the formulation of sodium battery standards
	Evaluation 2: -29°C cold cranking performance test and comparison	Suggestion: • For different applications, the charging upper voltage limit of sodium batteries must be predetermined. • Whether the voltage criteria still maintains the terminal voltage or the minimum voltage needs to be discussed.	

PPC performance of different SIB cell types and designs



Evaluation 1: -18°C cold performance



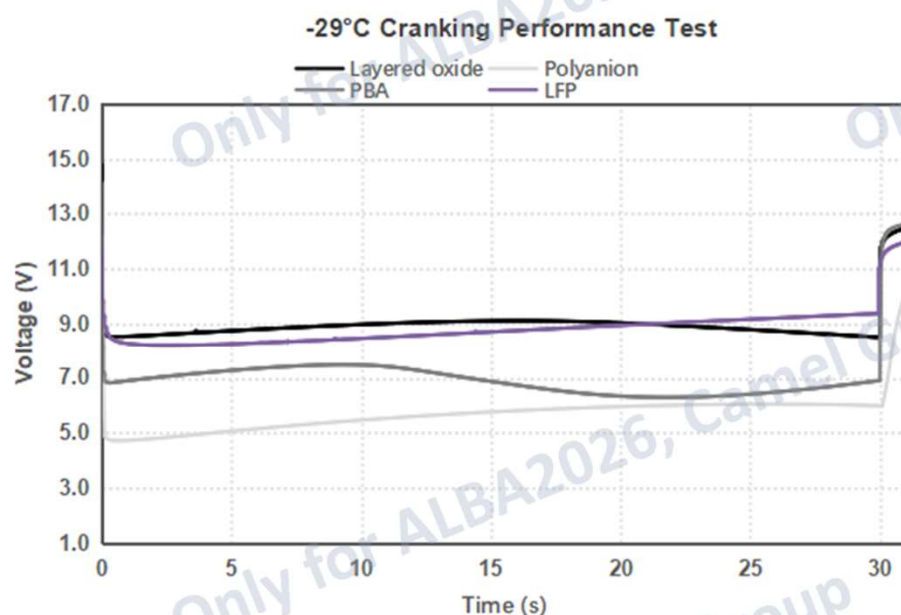
CCA: 660A	Layered oxide	Polyanion	PBA	LFP	Lead- acid
U_{10s} (V)	10.60	7.18	8.70	9.61	7.8
U_{min} (V)	10.60	6.15	8.54	9.57	/

Summary 1:

- The three systems of sodium-ion batteries all have good power output capabilities at low temperatures, superior to lead-acid batteries
- Minimum voltage appears at different time

PPC performance of different SIB cell types and designs

Evaluation 2 : -29°C cold performance



	Layered oxide	Polyanion	PBA	LFP	Lead-acid
U_{10s} (V)	8.97	5.46	7.47	8.42	7.52
U_{min} (V)	8.52	4.72	6.81	8.20	/
U_{30s} (V)	8.50	5.98	6.90	9.37	

Summary 2:

- Among the three sodium battery systems, O3 performs better in power output at extremely low temperatures, while the NFPP system still needs optimization.
- Temperature rise will affect the performance in the later stage of the pulse and will cause voltage to rise.