

Roles of cathode additives for sodium-nickel chloride (Zebra) battery

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Na-NiCl₂ battery (Zebra) has been developed for potential applications in large scale electric energy storage, which is a critical path to improve the sustainability of renewable energy resources such as wind power and solar energy, as well as better grid control. A typical Na-NiCl₂ battery consists of a molten sodium anode, a solid state electrolyte (β " alumina) and a secondary electrolyte (NaAlCl₄) in the cathode side with NiCl₂ as the active cathode materials. The performances of Na-NiCl₂ battery have a close relationship with the additives added into the battery. In here, we will present detailed studies to reveal the roles of additives for the battery cycling processes. The correlation between the additives and battery performances will be crucial for developing more reliable Na-NiCl₂ batteries.