

Synthesis and Electrochemical properties of $\text{Li}[\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}]\text{O}_2$ using co-precipitation

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Recently, attempts have been made to add other components to nickel hydroxide used as the starting material for production of lithium nickel oxide, for the pupose of including additional components with lithium nickel oxide for use as the positive electrode active material of lithium ion secondary batteries in order to improve their charge/discharge cycle properties and high temperature stability. However, with the convertional method such as solid-state method etc, it has been difficult to spherical particle containing cobalt, manganese as the additional components. the above-mentioned conventional production process give particles that are inadequate for use in the positive electrode of a lithium ion secondary battery.

The influence of various conditions in spherical $\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}(\text{OH})_2$ is pH, temperature, feeding rate, concentration of metal salt, additive NH_4OH , reactor-type. Experimental result shows that several factor such the concentration of NH_4OH , pH, stirring speed.

$\text{Li}[\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}]\text{O}_2$ cells prepared by coprecipitation give a excellent cyclability and high capacity at high current density and temperature.