

Synthesis and characterization of
 $\text{LiNi}_{1-x}\text{Mn}_x\text{O}_2$ for lithium ion batteries

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Cobalt containing cathode materials have been widely used in lithium ion batteries because of their high energy density, easy synthesis and electrochemical stability. However, the high cost of cobalt makes it difficult to lower the battery cost. That's why it is essential to develop Co-free cathode materials for lowering the battery cost.

In this work, a co-precipitation method was applied to prepare Co-free Ni-Mn cathode materials ($\text{LiNi}_{1-x}\text{Mn}_x\text{O}_2$). Solution pH, stirring rate and reaction temperature were controlled to find the optimal condition. Precursors were calcined at high temperature with Li_2CO_3 to obtain active cathode materials. As prepared cathode materials were characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and charge-discharge tests.