

研究通讯

具有良好高温循环性能的 $\text{Li}(\text{Li}_{0.15}\text{Ni}_{0.21}\text{Fe}_{0.21}\text{Mn}_{0.45})\text{O}_2$ 阴极材料的合成与性能表征

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**摘要** 利用高温固相法制备了具有层状结构的 $\text{Li}(\text{Li}_{0.15}\text{Ni}_{0.21}\text{Fe}_{0.21}\text{Mn}_{0.45})\text{O}_2$ 阴极材料, 通过ICP-AES测定了各金属含量, XRD研究表明该材料在充放电过程中发生了结构变化.

进一步的电化学表征说明材料在结构转变后具有突出的高温循环性能(55 °C), 以300 mA/g (2C)的电流密度循环428周后, 仍然能够保持80%的初始放电容量.

**关键词** [高温](#) [阴极材料](#) [锂离子电池](#) [层状结构](#) [循环性能](#)

分类号

## Synthesis and Performance Characterization of $\text{Li}(\text{Li}_{0.15}\text{Ni}_{0.21}\text{Fe}_{0.21}\text{Mn}_{0.45})\text{O}_2$ Cathode Material with Good High Temperature Cyclibility

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**Abstract** Layered cathode material  $\text{Li}(\text{Li}_{0.15}\text{Ni}_{0.21}\text{Fe}_{0.21}\text{Mn}_{0.45})\text{O}_2$  was synthesized by a solid-state reaction with high temperature. ICP-AES was used to determine the exact content of every metal. The structure change was found during the charge-discharge processes via XRD. The good cyclibility at 55 °C was confirmed by electrochemical characteristics. It is particular that 80% of the initial capacity was kept after 428 cycle charge and discharge under a current density of 300 mA/g (2C).

**Key words** [high temperature](#) [cathode material](#) [lithium-ion battery](#) [layered structure](#) [cycle performance](#)

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