富锂尖晶石 $Li_4Mn_5O_{12}$ 的合成

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摘要：采用溶胶-凝胶法合成了富锂尖晶石 $Li_4Mn_5O_{12}$，研究了工艺条件对产物物理性能及晶体结构的影响。利用 TGA-DTA 对其进行热分析，XRD，SEM，ICP 等多种分析手段对产物进行了结构特征的表征。结果表明：用柠檬酸做配合剂，最佳 pH 值为 6.5，300 ℃焙烧 8 h 可合成纯相尖晶石 $Li_4Mn_5O_{12}$，形貌较好，粒度为亚微米级。

关键词：尖晶石 $Li_4Mn_5O_{12}$；锂离子电池；溶胶-凝胶法；正极材料

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Synthesis of lithium-rich spinel-$Li_4Mn_5O_{12}$

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Abstract: Li-rich spinel-$Li_4Mn_5O_{12}$ was prepared by sol-gel method. The influence of preparation condition to product physical performance, crystal structure was studied. Heat analysis was taken by TGA-DTA. XRD, ICP and SEM was used to study the characteristics. The results showed that pure spinel-$Li_4Mn_5O_{12}$ could be prepared at 300 ℃, for 8 h at the optimum pH value of 6.5.

Key words: spinel- $Li_4Mn_5O_{12}$; Li-ion battery; sol-gel method; cathode materials