LiV_3O_8 的合成及电化学性能

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摘要：用 LiOH、Li_2CO_3 和 V_2O_5 作原材料分别通过凝胶法和高温反应，合成了锂离子电池正极材料 LiV_3O_8。利用 XRD、SEM 对合成材料进行表征，通过恒流充放电和交流阻抗技术进行电化学性能研究。结果表明：采用凝胶法合成的 LiV_3O_8 具有较高的嵌锂容量和良好的循环可逆性，在 0.1 *C* 倍率和 1.8～3.6 V 的电压范围内具有 260 mAh/g 的首次放电容量。

关键词：凝胶法；LiV_3O_8；锂离子电池；正极材料

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Synthesis and electrochemical characterization of LiV_3O_8

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Abstract：Li-ion battery cathode material LiV_3O_8 was synthesized by gel method and high temperature reaction with LiOH, Li_2CO_3 and V_2O_5 as raw materials. The synthesized samples were characterized by XRD, SEM. Its electrochemical behavior was studied by galvanostatic charge-discharge and AC impedance technique. The results showed LiV_3O_8 prepared by gel method had higher capacity than that of high temperature method for lithium insertion and better cyclic reversibility, its initial discharge capacity was 260 mAh/g at 0.1 *C* rate and the voltage range of 1.8～3.6 V.

Key words：gel method；LiV_3O_8；Li-ion batteries；cathode material