



云南大学学报(自然科学版) » 2011, Vol. 33 » Issue (4): 439-444, DOI:

材料科学

最新目录 | 下期目录 | 过刊浏览 | 高级检索

◀ Previous Articles | Next Articles ▶▶

Y³⁺掺杂LiV₃O₈正极材料电化学性能研究

刘永梅, 刘守庆, 梁坤

西南林业大学 西南山地森林资源保育与利用重点实验室, 云南 昆明 650224

Study on the electrochemical and storable properties of LiV₃O₈ cathode material doped with Y³⁺

LIU Yong-mei, LIU Shou-qing, LIANG Kun

The Key Laboratory of Forest Resources Conservation and Use in the Southwest Mountains of China, Southwest Forestry University, Kunming 650224, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (783 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 利用固相合成干冷空气淬火法,合成了一系列Y³⁺掺杂的LiV_{3-y}Y_yO₈ (y=0,0.01,0.03,0.05,0.1,0.2)正极材料.XRD结果表明,Y³⁺掺杂量不同对LiV₃O₈结构的影响不同,适量Y³⁺掺杂能保持LiV₃O₈的原有结构,增大其d₁₀₀值,同时降低材料的结晶度.当Y³⁺掺杂过多时,样品中会产生YVO₄杂相.充放电循环、循环伏安(CV)及交流阻抗(EIS)测试结果表明,Y³⁺掺杂虽然降低了材料的初始容量,但适量的Y³⁺掺杂能稳定材料的循环性能.电池存放实验表明Y³⁺掺杂还能提高电池的存放性能.在高电压下存放15d后,掺杂样的放电容量保持率为94.2%,高于未掺杂样的88.2%.

关键词: LiV₃O₈ Y³⁺掺杂 存放性能 正极材料

Abstract: A series of yttrium-doped lithium trivanadates LiV_{3-y}Y_yO₈(y=0, 0.01, 0.03, 0.05, 0.1 and 0.2) were synthesized by a new solid-state reaction.X-ray diffraction (XRD) tests show the different amount of yttrium doping has the different effects on the structure of LiV₃O₈,a proper amount of yttrium doping can retain its original structure,increase its d₁₀₀ value and decrease its crystallinity.The charge-discharge,cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS) tests show that a proper amount of yttrium doping can stabilize the cycling ability of the sample and reduce its initial capacity.The storage tests show that Y³⁺ doping can improve the storable properties of the cell and its discharge capacity retention (92.4%) is higher than that of the sample without Y³⁺ doping (88.2%) for 15 days storage at high voltage.

Key words:

收稿日期: 2011-01-11;

引用本文:

刘永梅,刘守庆,梁坤. Y³⁺掺杂LiV₃O₈正极材料电化学性能研究[J]. 云南大学学报(自然科学版), 2011, 33(4): 439-444, .

\$author.xingMing_EN,\$author.xingMing_EN,\$author.xingMing_EN. Study on the electrochemical and storable properties of LiV₃O₈ cathode material doped with Y³⁺[J]. , 2011, 33(4): 439-444, .

没有本文参考文献

没有找到本文相关文章

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章

- ▶ 刘永梅
- ▶ 刘守庆
- ▶ 梁坤

版权所有 © 《云南大学学报(自然科学版)》编辑部

编辑出版: 云南大学学报编辑部 (昆明市翠湖北路2号, 650091)

电话: 0871-5033829(传真) 5031498 5031662 E-mail: yndxxb@ynu.edu.cn yndxxb@163.com