Short Communication

Effect of Carbon Nanotubes on the Electrochemical Performance of LiFePO_4 Particles in Lithium Ion Batteries

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doi: 1020964/2017.06.07

Received: 28 February 2017 / Accepted: 2 April 2017 / Published: 12 May 2017

The pure LiFePO_4 (LFP) materials were successfully obtained via an effective and controllable hydrothermal method with the assistance of ethylene glycol (EG). Then, the LFP/carbon nanotubes (CNTs) composite was synthesized in the process of final heat treatment. X-ray diffraction (XRD) and transmission electron microscopy (TEM) were used to research the composition, morphology and structure of LFP/CNTs composite. Electrochemical performance tests demonstrated that the 4wt% carbon nanotubes composite exhibited the best discharge specific capacity. The special capacity was 154.6mAh/g at 0.1C, and it had any damping after 5 cycles. The particle size of initial LFP prepared by hydrothermal method with the assistance of EG is shorter than others. The LFP/CNTs composite formed a three-dimensional network structure that enhanced the electrochemical performance.

Keywords: LiFePO_4 , carbon nanotubes, electrochemical performance, lithium ion battery

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