Short communication

Facile Preparation of 1D α -MnO₂ as Anode Materials for Li-ion Batteries

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Manganese dioxide (MnO₂) has been studied as an anode material for Li-ion batteries beyond its high theoretical specific capacity and low-cost. In this work, the 1D α -MnO₂ nanomaterials with different morphology were synthesized via a facile and green hydrothermal method. These materials are carefully investigated by XRD, Raman, SEM and BET techniques. The results show that the solution acidity strongly influenced the morphology and the specific surface area of the sample. The electrochemical behaviors of MnO₂ sample were systematically investigated by cyclic voltammetry and galvanostatic charge-discharge. As anode materials for Li-ion batteries, both of 1.2-MnO₂ and 3.6-MnO₂ deliver high initial discharge capacity and relatively excellent cycle performance, indicating that 1D α -MnO₂ is a promising anode material for high-performance lithium ion batteries.

Keywords: α -MnO₂, solution acidity, Li-ion batteries, electrochemical performance

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