Short Communication

Preparation of MOF Derived Zn-Co-C Composite as Anode for Lithium-ion Batteries

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This paper focuses on the preparation of hollow mixed metal oxide materials by means of mixed metal atom doping. In this paper, the hollow core-shell structure Zn-Co-MOFs material was prepared by hydrothermal method, calcined into Zn-Co-C material, and its conductivity and electrochemical performance were improved on the basis of retaining hollow core-shell channel structure. Hollow core-shell structure to avoid direct contact with the electrode materials and electrolyte, reduce the electrolyte decomposition, a loop to form porous channel structure, shorten the lithium ion diffusion path and improve the lithium storage capacity, core-shell structure ACTS as a skeleton structure, effectively relieve internal stress changes, the structure of the electrode material volume change and destruction, reduce capacity attenuation. The Zn-Co-C composite has a discharge specific capacity of 1749mAh g⁻¹ in the first coil and a maximum coulomb efficiency of 99.8%. At 200 mA g⁻¹ current density, the reversible capacity is up to 704mAh g⁻¹ at 200 cycles, and the multiplier and impedance are also excellent.

Keywords: MOFs, Mixed metal oxide, LIBs, electrode materials

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