Preparation and Properties of Mesoporous Carbon Composite as Negative Electrode Materials

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Using sodium lignosulfonate as carbon source, microspheres were prepared by ultrasound. Molybdenum disulfide was synthesized directly by hydrothermal method and grown on the surface of lignin microspheres. Then, molybdenum disulfide modified porous microsphere carbon material was prepared by pyrolysis at high temperature and used as the cathode material of lithium ion battery to study its electrochemical properties. The size of lignin microspheres was about 500 nm. The spacing of the molybdenum disulfide coating on the surface was 0.52 nm. After sintering, the diameter of microspheres is about 300 nm and the surface aperture of MoS₂@C microspheres is about 300 nm. The initial charge-discharge specific capacity was 1049 mAh/g, and the retention rate of 200 charge-discharge specific capacity was 87.3%. The scanning rate of cyclic voltammetric curves show that the electrical properties of MoS₂@C microspheres are stability.

Keywords: Lignin, MoS₂@C microspheres, Hydrothermal method, Electrochemical properties

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