Synthesis of Carbon coated Silicon Monoxide with double carbon source and its application as anode for Lithium Ion Battery

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Received: 3 June 2021 / Accepted: 19 July 2021 / Published: 10 September 2021

The low initial coulombic efficiency and poor cycling performance of commercial SiO limits its large-scale business application. The initial coulombic efficiency was increased and the cycling performance was improved significantly of commercial SiO by coated vitamin C and carbon nanotubes heated to 950°C. The prepared SiO/C/CNTs-2 delivered excellent performance, which are an initial charge-discharge efficiency of 74.1%, a high reversible capacity of 1335 mAh/g and a high retention rate of 96.9% after 120 cycles, and an low average cycle capacity loss of 0.36 mAh/g. However, the initial charge-discharge of uncoated commercial SiO is 70.6%, the capacity retention rate is 63.1% after 20 cycles, and the average cycle capacity loss is 29.6 mAh/g. Compared with uncoated commercial SiO, there is significant improvement in application as anode for lithium ion battery.

Keywords: Lithium-ion battery, Anode material, Silicon monoxide, Carbon coating, Carbon nanotubes

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