Int. J. Electrochem. Sci., 13 **(2018)** 2001 – 2009

International Journal of ELECTROCHEMICAL SCIENCE
www.electrochemsci.org

Short Communication

$CuSn(OH)_6$ Nanocubes as High-Performance Anode Materials for Lithium-Ion Batteries

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doi: 10.20964/2018.02.72

Received: 8 October 2017 / *Accepted:* 17 December 2017 / *Published:* 28 December 2017

Nanostructured $CuSn(OH)_6$ cubes with a particle size distribution of 20-1140 nm as anode materials for lithium-ion batteries were prepared by co-precipitation method, and their structure and morphology were characterized by XRD, SEM and TEM techniques. The galvanostatic charge/discharge tests, cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS) methods have also been employed to investigate the electrochemical performance of $CuSn(OH)_6$ nanocubes. The as-obtained $CuSn(OH)_6$ nanocubes deliver an initial discharge capacity of 551.7 mAh g^{-1}, and retains the capacity up to 569.8 mAh g^{-1} after 100 cycles at a current density of 100 mA g^{-1} (0.2 C). A good rate capability of $CuSn(OH)_6$ nanocubes has also demonstrated by galvanostatic charge/discharge tests, indicating that the $CuSn(OH)_6$ nanocubes are potential anode materials for lithium-ion batteries.

Keywords: Lithium-ion batteries, Anode, $CuSn(OH)_6$, Nanocubes, Co-precipitation method

FULL TEXT