Short Communication

Electrochemical Performance of Lead-Carbon Battery with Chitosan Composite Carbon / Lead Negative Plate

Hao Wang¹, Zheng Liu^{1*}, Haiying Li¹, Guo-Cheng Han^{2*}, Liang Yun¹, Hanyang Zhong¹

¹ College of Chemical And Biological Engineering , Guilin University of Technology , Guilin 541004, P.R. China

² School of Life and Environmental Sciences, Guilin University of Electronic Technology, Guilin, 541004, P.R. China

*E-mail: lisa4.6@163.com, hancg1981@163.com

doi: 10.20964/2018.01.29

Received: 10 September 2017 / Accepted: 30 October 2017 / Online Published: 1 December 2017

In this paper, chitosan carbon material with high specific capacity for the negative electrodes of lead-carbon battery was prepared by in-situ synthesis method. The chitosan carbon material was characterized by SEM (Scanning Electron microscope), EDS (Electron spectrum), BET and Raman spectrum. Electrochemical measurements were tested by electrochemical impedance spectroscopy (EIS) and cyclic voltammetry (CV). Moreover, the cycle life test and charge/discharge specific capacity curve were performed on battery performance testing system. It was turned out that the electrochemical performance of the negative plates made by chitosan was better with a larger specific capacitance, a smaller resistance plates and a longer discharge plateau compared with carbon black. The ultimate capacity of the cell was 108.72 mAh/g, the specific capacitance was 98% of the theoretical specific capacity after 10000 cycles. The cell performances test results showed that longer charge platform and higher ultimate capacity of chitosan composite carbon material modified lead-carbon battery.

Keywords: lead-carbon battery; negative material; in-situ synthesis; composite carbon material

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