Short Communication

Size Effect on Electrochemical Performance of Sodium Terephthalate as Anode Material for Sodium-Ion Batteries

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Sodium-ion batteries (SIBs) have been recently regarded as one of the most powerful alternatives for lithium ion batteries. Owing to their multi-electron reaction mechanism and low cost, organic anode materials with suitable redox potential and high specific capacity are gradually applied in SIBs. In this article, sodium terephthalate ($\text{Na}_2\text{C}_8\text{H}_4\text{O}_4$, Na_2TP) was synthesized through acid-base neutralization method. Then, Na_2TP with different sizes was obtained by anti-solvent method and applied as anode material for SIBs. The electrochemical performance of Na_2TP improves with its size reducing. When the average size of Na_2TP is 8 μm , the reversible specific capacity reaches 225 mAh/g in the first cycle and remains 166.1 mAh/g after 50 cycles.

Keywords: Sodium-ion batteries; sodium terephthalate; anti-solvent; size adjustment

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