

## Electrochemical performance of BaSnO<sub>3</sub> anode material for lithium-ion battery prepared by molten salt method

Nithyadharseni P, Reddy MV, Ozoemena KI, Ezema FI, Balakrishna RG, Chowdaria BVR

### ABSTRACT:

Perovskite-like structure BaSnO<sub>3</sub> ceramic oxide has been prepared by low temperature molten salt method using KOH as a flux and Ba(OH)<sub>2</sub> and BaCl<sub>2</sub> as precursors. The as-prepared compounds were characterized by various techniques such as X-Ray Diffraction (XRD), Scanning Electron Microscope (SEM), Brunauer-Emmett-Teller (BET) and X-ray photoelectron spectroscopy (XPS). The electrochemical performance of the compounds has been evaluated by galvanostatic cycling (GC) and cyclic voltammetry (CV). GC results exhibit stable and good reversible capacity retention of 80% after 50 cycles, in the voltage range of 0.005–1.0 V vs. Li, at a constant current density of 60 mA g<sup>-1</sup>. In contrast, at higher voltage (0.005–3.0 V), we observed higher reversible capacity during the initial cycles, albeit the more capacity fading after few cycles. Interestingly, the compounds showed excellent coulombic efficiencies of 99% when cycled at 0.005–1.0 V.