

Development of Sb/MWCNT Free Standing Anode for Li-Ion Batteries

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Abstract : Antimony/Multi Walled Carbon nano tube nanocomposite (Sb/MWCNT) is synthesized using ethylene glycol mediated reduction process. Binder free, self-supporting and flexible Sb/MWCNT nanocomposite paper has been prepared by employing the vacuum filtration technique. The samples are characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), Raman spectroscopy (RS), and thermal gravimetric analysis (TGA) to evaluate the structure of anode and tested for its performance in a Lithium rechargeable cell. Electrochemical measurements demonstrate that the Sb/MWCNT composite paper anode delivers a specific discharge capacity of ~400 mAh g⁻¹ up to a current density of 100 mA g⁻¹.

Keywords : antimony, lithium ion battery, multiwalled carbon nanotube, specific capacity

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