

Paper No: PU-SOE- Chemistry - 10

Facile One-pot Solvothermal Synthesis of NiCoP and Its Electrochemical Performance as Anode for Lithium Ion Battery

Ranganatha S¹, Brij Kishore², & N Munichandraiah²

1. Department of Chemistry, Presidency University, Bengaluru, 560064, India

2. Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bengaluru, 560012, India

Abstract

Herein, NiCoP is synthesized by simple solvothermal route and characterized for physicochemical properties and electrochemical characteristics. X-ray diffraction (XRD) confirms that the sample is formed in a pure phase. Cyclic voltammograms and charge–discharge profiles of electrodes exhibit peaks/plateaus corresponding to lithium intercalation/de-intercalation, which is characteristic of battery behaviour. The electrochemical evaluation as an anode for lithium ion batteries are studied in the 0.05–3.00 V range. With a high discharge capacity of 468 mAh g⁻¹ at C/10 rate in the very beginning, excellent cycling stability and superior rate performance, NiCoP proves to be a potential candidate for anode material of lithium ion battery.

Keywords:

NiCoP, Li ion battery, anode materials, phosphides

Publication Details:

Journal Name	Vol.	Month & Year	Page No.	Publisher	Scimago Ranking
Bulletin of Materials Science	NA	Jan, 2021	NA	Springer	Q2