Abstract

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PERFORMANCES OF NICKEL-COBALT PHOSPHATE NANOPARTICLES FOR ELECTROCHEMICAL ENERGY STORAGE APPLICATIONS

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Abstract

As society has developed, nanoparticles have had a profound impact. Recently, the energy sector has benefited from the synthesis of transition metal nanoparticles and their phosphates. In this manuscript, the performances of nickel-cobalt phosphate nanoparticles produced via co-precipitation were examined. The morphology, structural, optical, and electrochemical features of the produced nanoparticles were determined using scanning electron microscopy (SEM), X-ray diffractometry (XRD), UV-vis spectrophotometer, and a 3-electrode potentiostat, respectively. The SEM and XRD data revealed nanospikes and crystalline structures. The optical data revealed that when the molar concentrations increased, the particles' absorbance increased and their band gap energy (3 eV) decreased. The nanoparticles' charge-storage capacity was discovered through electrochemical experiments. In the future, the particles produced may be used in supercapacitors.

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