Short Communication

New Green Soft Chemistry Route to Ag-Cu Bimetallic Nanomaterials

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Ag-Cu bimetallic nanomaterials were synthesized by an environmental-friendly liquid phase reduction method with sodium hypophosphite reducing the mixed aqueous solution of cupric acetate silver nitrate and sodium hexametaphosphate. Nitric acid was used to adjust the pH and sodium hexametaphosphate performed as the surfactant. The Ag-Cu bimetallic nanomaterials were characterized with powder X-ray diffraction (XRD), field emission scanning electron microscope (FESEM) and X-ray spectroscopy (EDS). The result showed that Ag and Cu are not mechanical mixing but the combination at the atom scale and lattice level. The reaction parameters such as the molar ratio of Ag/Cu, reaction time and temperature were investigated. The ultraviolet-visible absorption spectra (UV-vis) and electrochemical properties of the samples were explored and it was found that the sample shown high electrochemical activity and excellent performance of hydrogen evolution.

Keywords: Ag-Cu bimetallic, Soft chemistry, Electrochemical property

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