Structural and electrochemical properties of nanolayer-stacking structured copper-doped nickel hydroxide

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Copper-doped nickel hydroxide (Cu:Ni(OH)₂) was synthesized via a facile wet-chemical method and its structural and electrochemical properties were compared to those of pure nickel hydroxide (Ni(OH)₂). After Cu incorporation, the morphology of the Ni(OH)₂ nanostructures could be easily tuned from a curved nanolayered structure to a nanolayer-stacking structure. Both samples were hydrophilic. Furthermore, even though no additional conductive and binder materials were employed, the Cu:Ni(OH)₂ sample exhibited better pseudocapacitance performance than the Ni(OH)₂ sample. These results confirmed that the Cu:Ni(OH)₂ sample, which can be prepared by an easy low-cost method, shows great potential for application in electrochemical devices.

Keywords: Nickel hydroxide, Copper, Nanolayer-stacking structure, Nanosheets

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