

Accepted Manuscript

Nickel-cobalt hydroxide nanosheets: synthesis, morphology and electrochemical properties

Barbora Schneiderová, Jan Demel, Alexander Zhigunov, Jan Bohuslav, Hana Tarábková, Pavel Janda, Kamil Lang

PII: S0021-9797(17)30361-2
DOI: <http://dx.doi.org/10.1016/j.jcis.2017.03.096>
Reference: YJCIS 22193

To appear in: *Journal of Colloid and Interface Science*

Received Date: 2 January 2017
Revised Date: 16 March 2017
Accepted Date: 22 March 2017

Please cite this article as: B. Schneiderová, J. Demel, A. Zhigunov, J. Bohuslav, H. Tarábková, P. Janda, K. Lang, Nickel-cobalt hydroxide nanosheets: synthesis, morphology and electrochemical properties, *Journal of Colloid and Interface Science* (2017), doi: <http://dx.doi.org/10.1016/j.jcis.2017.03.096>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Nickel-cobalt hydroxide nanosheets: synthesis, morphology and electrochemical properties

Barbora Schneiderová,^{a,b} Jan Demel,^a Alexander Zhigunov,^c Jan Bohuslav,^{d,e} Hana Tarábková,^d Pavel Janda,^d Kamil Lang*^a

^a Institute of Inorganic Chemistry of the Czech Academy of Sciences, v.v.i, Husinec-Řež 1001, 250 68 Řež, Czech Republic. E-mail: lang@iic.cas.cz; Fax: +420 22094 1502; Tel.: +420 26617 2193

^b Department of Inorganic Chemistry, Faculty of Science, Charles University in Prague, Hlavova 2030, 128 43 Praha 2, Czech Republic

^c Institute of Macromolecular Chemistry of the Czech Academy of Sciences, v. v. i., Heyrovského nám. 2, 162 06 Praha 6, Czech Republic

^d J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences, v.v.i., Dolejškova 3, 182 23 Praha 8, Czech Republic

^e University of Chemistry and Technology, Prague, Technická 5, 166 28 Praha 6, Czech Republic

Abstract

This paper reports the synthesis, characterization, and electrochemical performance of nickel-cobalt hydroxide nanosheets. The hydroxide nanosheets of approximately 0.7 nm thickness were prepared by delamination of layered nickel-cobalt hydroxide lactate in water and formed transparent colloids that were stable for months. The nanosheets were deposited on highly oriented pyrolytic graphite by spin coating, and their electrochemical behavior was investigated by cyclic voltammetry in potassium hydroxide electrolyte. Our method of electrode preparation allows for studying the electrochemistry of nanosheets where the majority of the active centers can participate in the charge transfer reaction. The observed electrochemical response was ascribed to mutual compensation of the cobalt and nickel response *via* electron sharing between these metals in the hydroxide nanosheets, a process that

Download English Version:

<https://daneshyari.com/en/article/4984853>

Download Persian Version:

<https://daneshyari.com/article/4984853>

[Daneshyari.com](https://daneshyari.com)