Accepted Manuscript

Effect of growth time on solvothermal synthesis of vanadium dioxide for electrochemical supercapacitor application

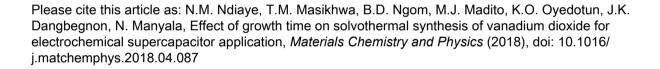
N.M. Ndiaye, T.M. Masikhwa, B.D. Ngom, M.J. Madito, K.O. Oyedotun, J.K. Dangbegnon, N. Manyala

PII: S0254-0584(18)30356-0

DOI: 10.1016/j.matchemphys.2018.04.087

Reference: MAC 20582

To appear in: Materials Chemistry and Physics



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.



ACCEPTED MANUSCRIPT

Effect of growth time on solvothermal synthesis of vanadium dioxide for electrochemical supercapacitor

application

N. M. Ndiaye ^a, T. M. Masikhwa ^a, B. D. Ngom ^b, M. J. Madito ^a, K. O. Oyedotun ^a J. K. Dangbegnon ^a and N. Manyala ^a*

^a Department of Physics, Institute of Applied Materials, SARChI Chair in Carbon Technology and Materials, University of Pretoria, Pretoria 0028, South Africa.

^b Laboratoire de Photonique et de Nano-Fabrication, Faculté des Sciences et Techniques Kabi (UCAD) B.P. 25114 Dakar-Fann Dakar, Senegal

*Corresponding author's email: ncholu.manyala@up.ac.za, Tel.: + (27)12 420 3549;

Fax: + (27)12 420 2516

ABSTRACT

In this work, we report the time-dependent morphological evolution of the as-prepared vanadium dioxide (VO₂) and its electrochemical performance for supercapacitor applications. VO₂ with different morphologies (microspheres and nanosheets) were successfully synthesised by solvothermal method for time growth ranging from 2 h 30min to 12 h at a temperature of 200 °C. X-ray diffraction (XRD), Raman spectroscopy, scanning electron microscope (SEM), high resolution transmission electron microscopy (HRTEM), energy dispersive spectroscopy (EDS), gas adsorption/desorption analysis and X-ray photoelectron spectroscopy (XPS) were used to

Download English Version:

https://daneshyari.com/en/article/7921472

Download Persian Version:

https://daneshyari.com/article/7921472

<u>Daneshyari.com</u>