

Accepted Manuscript

Electrochromic behavior of NiO films prepared by e-beam evaporation

D.R. Sahu, Tzu-Jung Wu, Sheng-Chang Wang, Jow-Lay Huang

PII: S2468-2179(16)30204-0

DOI: [10.1016/j.jsamd.2017.05.001](https://doi.org/10.1016/j.jsamd.2017.05.001)

Reference: JSAMD 94

To appear in: *Journal of Science: Advanced Materials and Devices*

Received Date: 1 December 2016

Revised Date: 4 May 2017

Accepted Date: 5 May 2017

Please cite this article as: D.R. Sahu, T.-J. Wu, S.-C. Wang, J.-L. Huang, Electrochromic behavior of NiO films prepared by e-beam evaporation, *Journal of Science: Advanced Materials and Devices* (2017), doi: 10.1016/j.jsamd.2017.05.001.

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.



Electrochromic behavior of NiO film prepared by e-beam evaporationD. R. Sahu^{1,2}, Tzu- Jung Wu², Sheng-Chang Wang³, Jow-Lay Huang^{2,4*}¹ Department of Natural and Applied Sciences, Namibia University of Science and Technology, Private Bag 13388, Windhoek, Namibia² Department of Materials Science and Engineering, National Cheng-Kung University, Tainan 701, Taiwan.³ Department of Mechanical Engineering, Southern Taiwan University of Science and Technology, Tainan 710, Taiwan⁴ Center for Micro/Nano Science and Technology, National Cheng Kung University, Tainan 701, Taiwan**Abstract**

The NiO thin films were prepared by the electron beam evaporation method using synthesized sintered targets. As-prepared films were characterized using X-ray diffraction, scanning electron microscopy, UV-VIS spectroscopy and cyclic voltammetry. The thicker films have been found to exhibit well defined structure and well-developed crystallite size with greater transmittance modulation and durability. The as-deposited thinner films of 170 nm show fast response time during electrochromic cycles with coloration efficiency of 53.1 C/cm² revealing better electrochromic properties than the thicker ones. However, thicker films have been found showing no enhancement of electrochromic properties having a larger intercalated charge than the thinner ones. The electrochromic properties of thinner films were found deteriorated after 800 cycling tests.

Keywords: E-beam evaporation, Nickel oxide, Electrochromic properties......
*Corresponding author

Tel. +264-2072783, +886-6-234 8188; Fax. +886-6-276 3586.

E-mail: ¹dsahu@nust.na³scwang@mail.stust.edu.tw⁴jlh888@mail.ncku.edu.tw

Download English Version:

<https://daneshyari.com/en/article/5441628>

Download Persian Version:

<https://daneshyari.com/article/5441628>

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