

Accepted Manuscript

Research paper

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PII: S0009-2614(16)30978-2

DOI: <http://dx.doi.org/10.1016/j.cplett.2016.12.029>

Reference: CPLETT 34396

To appear in: *Chemical Physics Letters*

Received Date: 2 November 2016

Revised Date: 8 December 2016

Accepted Date: 11 December 2016

Please cite this article as: N. Theophile, H. Kyung Jeong, Electrochemical Properties of Poly(vinyl alcohol) and Graphene Oxide Composite for Supercapacitor Applications, *Chemical Physics Letters* (2016), doi: <http://dx.doi.org/10.1016/j.cplett.2016.12.029>

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Electrochemical Properties of Poly(vinyl alcohol) and Graphene Oxide Composite for Supercapacitor Applications

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ABSTRACT

Poly (vinyl alcohol), PVA, polymer was successfully combined with graphene oxide (GO) and thermally reduced graphene oxide (RGO), respectively, to make composites and characterized for supercapacitor applications. PVA-RGO composite shows excellent electrochemical properties compared to PVA-GO composite. The capacitance of 190 Fg^{-1} is obtained from PVA-RGO composite which is larger than that (13 Fg^{-1}) of PVA-GO composite. Electrochemical impedance of PVA-RGO is more than ten times smaller than that of PVA-GO at 20 kHz, demonstrating that PVA-RGO composite has a great advantage for supercapacitor applications compared to PVA, GO, RGO, and PVA-GO composite.

PACS numbers: 81.05.U-, 88.30.rh, 87.85.fk

Keywords: polymer composites, Poly (vinyl alcohol), graphene oxide

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