

Accepted Manuscript

Electrochemical and spectroelectrochemical properties of new polymers with diimide subunits

Sandra Pluczyk, Katarzyna Laba, Ewa Schab-Balcerzak, Katarzyna Bijak, Sonia Kotowicz, Mieczyslaw Lapkowski



PII: S1572-6657(17)30293-X
DOI: doi: [10.1016/j.jelechem.2017.04.041](https://doi.org/10.1016/j.jelechem.2017.04.041)
Reference: JEAC 3256

To appear in: *Journal of Electroanalytical Chemistry*

Received date: 1 March 2017
Revised date: 13 April 2017
Accepted date: 19 April 2017

Please cite this article as: Sandra Pluczyk, Katarzyna Laba, Ewa Schab-Balcerzak, Katarzyna Bijak, Sonia Kotowicz, Mieczyslaw Lapkowski, Electrochemical and spectroelectrochemical properties of new polymers with diimide subunits. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Jeac*(2017), doi: [10.1016/j.jelechem.2017.04.041](https://doi.org/10.1016/j.jelechem.2017.04.041)

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.

Electrochemical and spectroelectrochemical properties of new polymers with diimide subunits

Sandra Pluczyk^a, Katarzyna Laba^{a,b}, Ewa Schab-Balcerzak^{b,c}, Katarzyna Bijak^c, Sonia Kotowicz^c, Mieczyslaw Lapkowski^{a,b*}

^a*Faculty of Chemistry, Silesian University of Technology,
M. Strzody 9, 44-100 Gliwice, Poland*

^b*Centre of Polymer and Carbon Materials, Polish Academy of Sciences,
34 M. Curie-Sklodowska Str., 41-819 Zabrze, Poland*

^c*Institute of Chemistry, University of Silesia, 9 Szkolna Str., 40-006 Katowice, Poland*

*Corresponding author email: mieczyslaw.lapkowski@polsl.pl

ABSTRACT

New aliphatic-aromatic polymers based on perylene or/and naphthalene diimide units were synthesized and investigated. The effect of diimide core on electrochemical, spectroelectrochemical (UV-Vis, EPR) and emission properties was evaluated. Based on cyclic voltammetry measurements the electron affinity of synthesized polymers was estimated. It ranges from -4.28 to -4.14 eV which suggests that obtained materials have low-lying LUMO level and could be used in air-operating devices. Investigated polymers show also fluorescence in solution as well as in solid state as a blend with PMMA with quantum efficiency reached up to 68 %.

Keywords: diimide, electrochemistry, spectroelectrochemistry, fluorescence

Download English Version:

<https://daneshyari.com/en/article/4907811>

Download Persian Version:

<https://daneshyari.com/article/4907811>

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