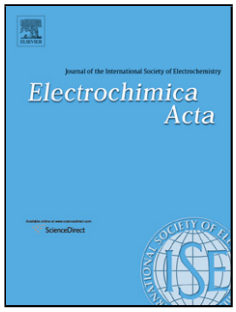

Title: Electrochemistry, Electrochromic and Color Memory Properties of Polymer/Copolymer Based on Novel Dithienylpyrrole Structure

Authors: Yuyu Dai, Weijun Li, Xingxing Qu, Jin Liu, Shuanma Yan, Mi Ouyang, Xiaojing Lv, Cheng Zhang

PII: S0013-4686(17)30196-2
DOI: http://dx.doi.org/doi:10.1016/j.electacta.2017.01.156
Reference: EA 28823

To appear in: *Electrochimica Acta*

Received date: 30-11-2016
Revised date: 23-1-2017
Accepted date: 23-1-2017

Please cite this article as: Yuyu Dai, Weijun Li, Xingxing Qu, Jin Liu, Shuanma Yan, Mi Ouyang, Xiaojing Lv, Cheng Zhang, Electrochemistry, Electrochromic and Color Memory Properties of Polymer/Copolymer Based on Novel Dithienylpyrrole Structure, Electrochimica Acta http://dx.doi.org/10.1016/j.electacta.2017.01.156

Electrochemistry, Electrochromic and Color Memory Properties of Polymer/Copolymer Based on Novel Dithienylpyrrole Structure

Yuyu Dai, Weijun Li*, Xingxing Qu, Jin Liu, Shuanma Yan, Mi Ouyang, Xiaojing Lv, Cheng Zhang*

State Key Laboratory Breeding Base of Green Chemistry-Synthesis Technology, College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, P. R. China;

E-mail: czhang@zjut.edu.cn, liwj@zjut.edu.cn

Highlights

- A novel dithienylpyrrole derivative was designed and synthesized.
- The pTPhSNS and pTPhSNS-EDOT polymers by eletrochemical polymerization possess similar cross-linked structure.
- The introduction of EDOT into TPhSNS by copolymerization maybe help to form the expected cross-linked polymer structure with excellent electrochromic properties.
- Both pTPhSNS homopolymer and pTPhSNS-EDOT copolymers exhibit the electrochromic color memory behavior with excellent color stability at the oxidative state.

Abstract.

A new dithienylpyrrole derivative, namely terphenyl bridged-di[2,5-di (2-thienyl)-1H-pyrrole] (TPhSNS), was designed and synthesized, then it was further prepared into cross-linked polymer (pTPhSNS) or copolymer (pTPhSNS-EDOT) with 3, 4-ethylenedioxythiophene (EDOT) via electrochemical polymerization. The cyclic voltammetry curves show that both the obtained pTPhSNS polymer and