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In situ Development of nanosized Poly-o-Toluidine (PoT) for sensing volatile Organic compounds

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Abstract: *Nanosized Poly O toluidine (PoT) were synthesised by in situ oxidative polymerization of monomer o-Toluidine by means of Interfacial Polymerization, leads to the formation of homogenous porous and hollow Fabriliar polymer having approximate diameter 150 nm. Electronic, FT – IR spectra, XRD of resulting nanocomposite shows all characteristic peaks and confirms the presence of conducting emeraldine salt (ES) phase of the polymer. Formed nanosized poly o-toluidine was successfully utilized for sensing volatile organic compounds.*

Keywords: Interfacial polymerization, Nanosized, POT, sensor, Volatile Organic compounds (VOCs)

REFERENCES

[1]. HuaBai and Gaoquan Shi 'Review Gas Sensors Based on Conducting Polymers Sensors' 2007, 267-307
[2]. W. Li, N. D. Hoa, Y. Cho, D. Kim and J. S. Kim, Sens.Actuators, B, 2009, 143, 132–138.2.
[3]. P. C. Iekha, M. Balaji, S. Subramanian and D. P. Padiyan,Curr. Appl. Phys., 2010, 10, 457–467.
[4]. Q. Fan, Z. Qin, T. Villmow, J. Pionteck, P. P¨otschke, Y. Wu,B. Voit and M. Zhu, Sens. Actuators, B, 2011, 156, 63–70.
[5]. O. Y. Posudievsky, N. V. Konoschuk, A. L. Kukla,A. S. Pavluchenko, Y. M. Shirshov and V. D. Pokhodenko, Sens. Actuators, B, 2011, 151, 351–359.
[6]. Y. Wei, W.W. Focke, GE. Wnek, A. Ray and A.G. MacDiarmid, J.Phys. Chem., 93 (1989) 495.
[7]. KiranKumari, Vazid Ali, Gita Rani1, Sushil Kumar, G. B. V. S. Lakshmi, M. Zulfequar 'DC Conductivity and Spectroscopic Characterization of Poly (o-toluidine) Doped with Binary Dopant ZrOCl2/AgI' Materials Sciences and Application, 2011, 2, 1049-1057
[8]. Kareema. M. Ziadan a, Hussein. F. Husseinb, and K.I.Ajeel,'Study of the electrical characteristics of poly(o-toluidine) and application in solar cell Energy Procedia' 18 (2012) 157 – 164
[9]. Meixiang Wan, Jiping Yang 'Studies on the structure and electrical properties of poly (o-toluidine).' Synthetic Metals 73 (1995) 201-204
[10]. Bagheri A, Nateghi M. and Massoumi A.: Synth. Met., 1998, 85
[11]. Üçhöyük,Canan,Karakışla, MeralSaçak, Mehmet' Preparation of poly(o-toluidine)/polyacrylonitrile composite fibres using CrO3' Indian journal of Fibre and Textile research37,(2012) ,120-126
[12]. Y.B. Moon, Y. Cao, P. Smith and A.J. Heeger, Pofym. Commun., 30(1989) 196
[13]. Kareema. M. Ziadan a, Hussein. F. Husseinb, and K.I.Ajeel Study of the electrical characteristics of poly (o-toluidine) and application in solar cell Energy Procedia 18 (2012) 157 – 164
[14]. Salma Bilala, Shehna Farooqa, Anwar-ul-Haq Ali Shahb, Rudolf Holzec,'Improved solubility, conductivity, thermal stability and corrosion protection properties of poly(o-toluidine) synthesized via chemical polymerization' Synthetic Metals 197 (2014) 144–153
[15]. W. Li, N. D. Hoa, Y. Cho, D. Kim and J. S. Kim, Sens.Actuators, B, 2009, 143, 132–138.
[16]. M. M. Ayad, G. El-Hefnawey and N. L. Torad, J. Hazard.Mater., 2009, 168, 85–88.
[17]. E. Segal, R. Tchoudakov, M. Narkis, A. Siegmann and Y. Wei,Sens. Actuators, B, 2005, 104, 140–150.

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[18]. S. Virji, J. Huang, R. B. Kaner and B. H. Weiller, Nano Lett.,2004, 4, 491–496.