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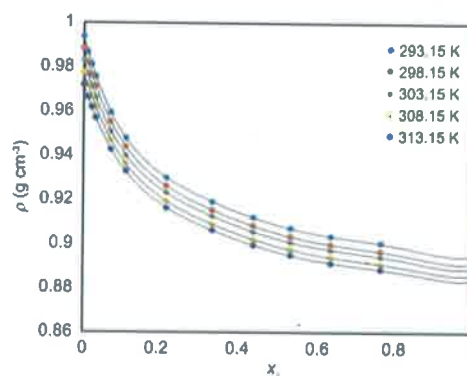
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**CONTENTS**

**753 Intermolecular interactions in binary mixtures of phosphonium based ionic liquid and propanoic acid**

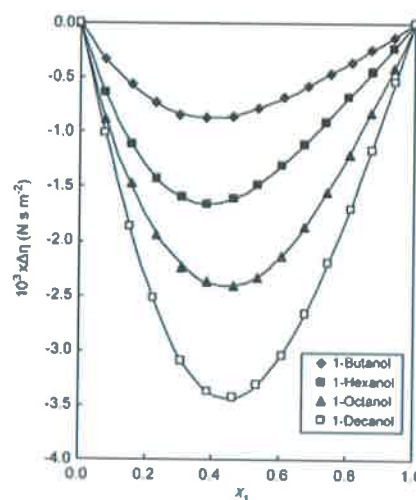
Trihexyltetradecylphosphonium chloride  $[P^{+}_{14,6,6,6}][Cl^{-}]$  ionic liquid+propanoic acid binary mixtures show negative deviations from the ideal mixing behaviour. The negative excess volumes indicate strong interactions between IL and PA, showing easy accommodation of PA in the voids of IL molecules. The positive and high apparent molar volume values indicate strong ion solvent interactions, which become stronger as the temperature rises.



Bakusele Kabane, Rajasekhar Chokkareddy,  
 Natesh Kumar Bhajanthri & Gan G Redhi\*

**761 Deviations in viscosity and thermodynamics of viscous flow for binary mixtures of methyl acrylate with 1-alkanols at different temperatures**

The negative values of deviations in viscosities of methyl acrylate+1-alkanol ( $C_4-C_{10}$ ) binary mixtures indicate weak interactions, with the magnitudes following the order: 1-butanol > 1-hexanol > 1-octanol > 1-decanol. The applicability of various empirical and semi-empirical models for estimation of viscosity of these mixtures is discussed.

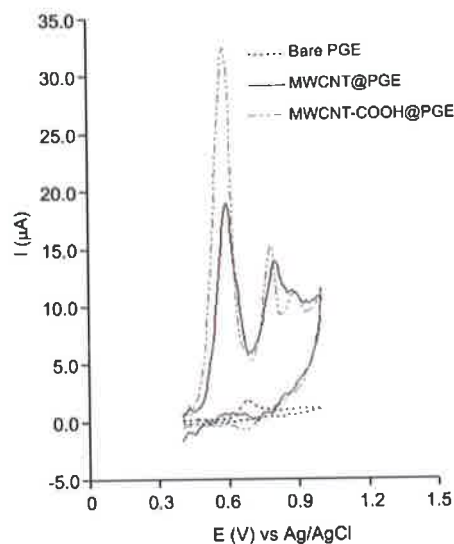


A K Nain\*, P Drolia & J Gupta

770 Sensitive measurement of trace amounts of promethazine hydrochloride at MWCNT-COOH nanostructures modified pencil graphite electrode based on charge transfer complex formation

Ali Mohammad Amani\*, Mohammad Hassan Motaghedifard\*, Ebrahim Honarmand, Mahnaz Motmaen, Younes Ghasemi, Amir Savardashtaki & Ali Arabi Monfared

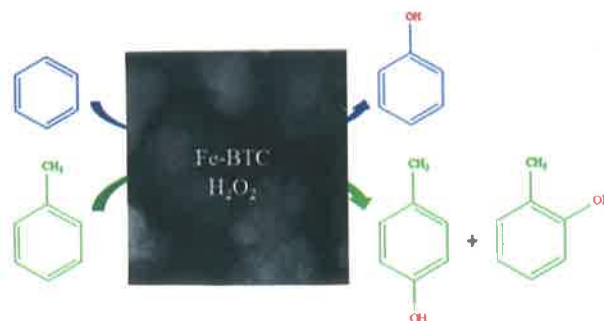
Functionalized multiwalled carbon nanotubes (MWCNT-COOH) pencil graphite electrode has been fabricated to detect trace amounts of promethazine hydrochloride (PMZ). The MWCNT-COOH@PGE shows good electrocatalytic activity for oxidation of PMZ over two wide linear ranges, i.e., 0.05–62.5  $\mu\text{M}$  and 62.5–275.0  $\mu\text{M}$  and a good detection limit (5.61 nM) for PMZ.



### Notes

778 Hydroxylation of benzene and toluene by heterogeneous iron metal-organic framework (Fe-BTC)

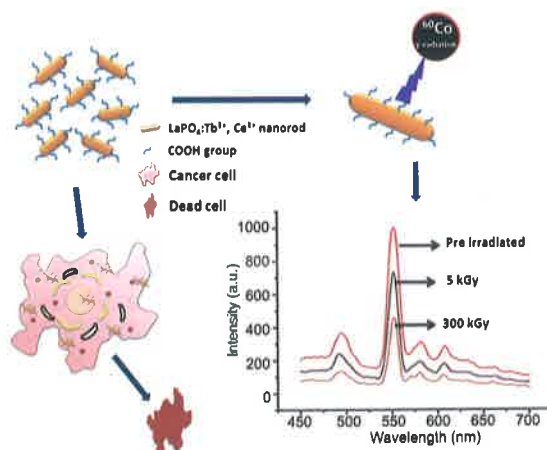
Liquid phase catalytic hydroxylation of benzene by a Fe-containing MOF (Fe-BTC; BTC= 1,3,5-benzenetricarboxylate) using 30% hydrogen peroxide as an oxidant exhibits good activity and high product selectivity (phenol, >90%) in acetonitrile at 65 °C. It is also efficient for the hydroxylation of toluene to *o*-cresol and *p*-cresol under similar conditions. The catalyst can be reused four times without significant loss of catalytic performance. Hot filtration experiments suggest that the hydroxylation reaction occurs on the Fe sites in the MOF matrix.



Samiran Bhattacharjee

- 784 Effect of  $\gamma$ -radiation on structure, photoluminescence properties and *in vitro* cytotoxicity of  $\text{LaPO}_4:\text{Tb}^{3+},\text{Ce}^{3+}$  phosphor

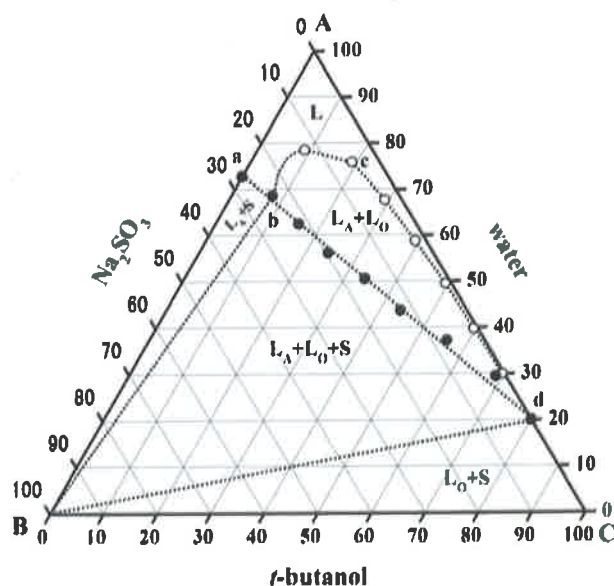
Lauric acid capped  $\text{Ce}^{3+}$  sensitized  $\text{LaPO}_4:\text{Tb}^{3+}$  nanorods, synthesized by hydrothermal route at  $150^\circ\text{C}$ , exhibit four emission peaks at 485, 551, 583 and 619 nm corresponding to  $^5\text{D}_4 \rightarrow ^7\text{F}_6$ ,  $^5\text{D}_4 \rightarrow ^7\text{F}_5$ ,  $^5\text{D}_4 \rightarrow ^7\text{F}_4$  and  $^5\text{D}_4 \rightarrow ^7\text{F}_3$  transitions, respectively.  $\text{LaPO}_4$  and  $\text{LaPO}_4:\text{Tb}^{3+},\text{Ce}^{3+}$  phosphors exhibit 80–82% cytotoxic effect against the breast cancer cell lines, MDA-MB 231 and MCF-7. The  $\text{IC}_{50}$  values for  $\text{LaPO}_4$  and  $\text{LaPO}_4:\text{Tb}^{3+},\text{Ce}^{3+}$  phosphors are 17.2 and  $13.5 \mu\text{g}/\text{mL}$  against MCF-7, and, 21.5 and  $15.0 \mu\text{g}/\text{mL}$  against MDA-MB 231 cell line, respectively.



Vema Reddy Bheeram, Sudheer Gurugubelli,  
Anima S Dadhich, Anil Kumar Badana, Rama Rao Malla,  
Abhijit Saha & Saratchandra Babu Mukkamala\*

- 791 Effect of third component on separation behavior of water+*t*-butanol+ $\text{Na}_2\text{SO}_3/\text{Na}_2\text{SO}_4$  system at  $298 \pm 2 \text{ K}$

The phase diagrams for the *t*-butanol+water+ $\text{Na}_2\text{SO}_3/\text{Na}_2\text{SO}_4$  system are constructed from the solubility data and salting-out effect of salt anions has been described. The salting-out ability of  $\text{Na}_2\text{SO}_3$  is higher than that of  $\text{Na}_2\text{SO}_4$ .



Vidhya V Jadhav, Sanjay S Kolekar, Rajendra R Kumbhar,  
Bhaskar V Tamhankar & Sandip R Sabale\*

- 795 Guide to Authors

Authors for correspondence are indicated by (\*)

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