

Indian Journal of Chemistry

Sect. A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical

www.niscair.res.in; http://nopr.niscair.res.in
CODEN: ICACEC; ISSN: 0376-4710 (Print), 0975-0975 (Online)

VOLUME 52A

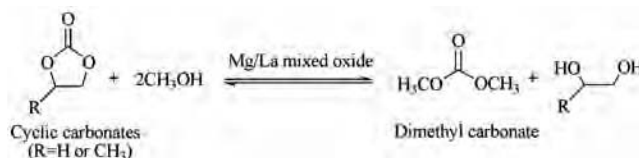
NUMBER 4

APRIL 2013

CONTENTS

- 459 **Mg/La mixed oxide as catalyst for the synthesis of dimethyl carbonate from cyclic carbonates and methanol**

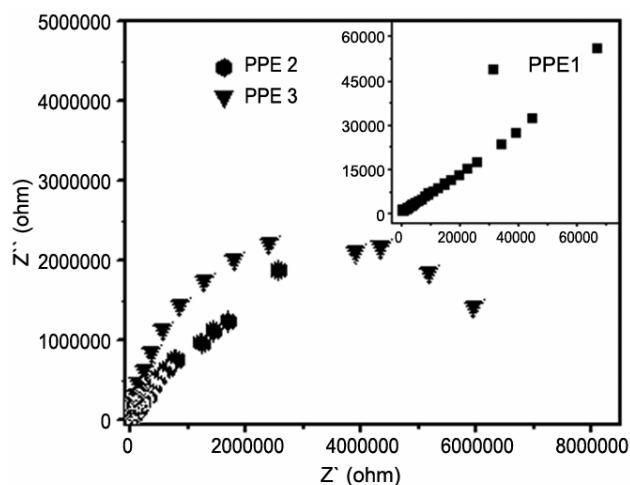
Highly basic Mg/La mixed oxide is used as catalyst in the synthesis of dimethyl carbonate from cyclic carbonates and methanol. The catalyst exhibits very high TON (~ 719 mmol DMC/g_{cat}) under optimized conditions. The effect of water content in the reaction mixture is also investigated. Active sites of the reused catalysts can be regenerated by simple calcination process.



C Murugan & H C Bajaj*

- 467 **Conductivity, structural and electrochemical behavior of plasticized polymer electrolytes for dye-sensitised solar cell**

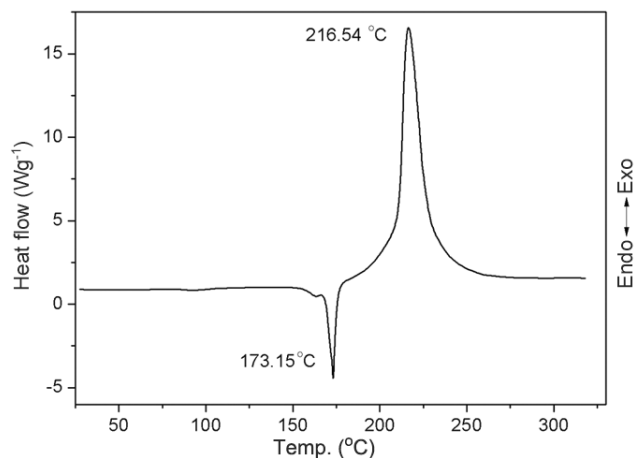
Plasticized polymer electrolyte film with molar ratio of PMMA:KI:I₂::25:2.5:0.25 (PPE1) shows the highest ionic conductivity of $\sim 8.177 \times 10^{-4}$ S cm⁻¹ at room temperature.



C Menaka, K Sakthi Velu, P Manisankar & T Stalin*

473 Characterization and thermal properties of 2-(dinitro-methylene)-1,3-diazacyclopentane guanidine salt

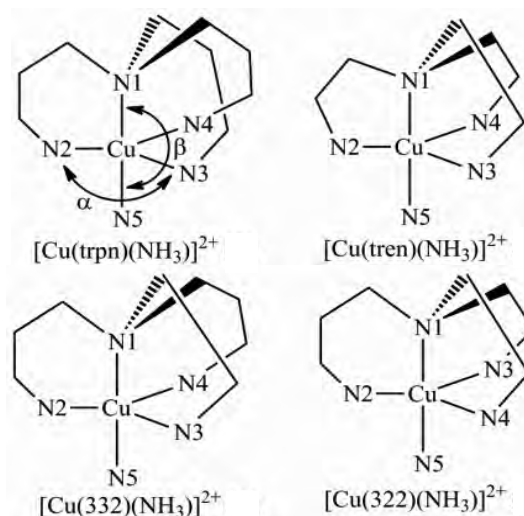
The thermal behavior of G(DNDZ) presents a melting decomposition process and an intense exothermic decomposition process. The self-accelerating decomposition temperature and critical temperature of thermal explosion are 181.2 and 201.3 °C respectively. G(DNDZ) has lower thermal stability than DNDZ.



Hang Zhang, Kang-zhen Xu*, Shuai Gao, Xiao-Lei Ren, Ji-rong Song, Bo-zhou Wang & Feng-qi Zhao

480 DFT and TD-DFT studies on copper(II) complexes with tripodal tetramine ligands

Copper(II) complexes, containing aliphatic tripodal tetramine ligand, $[\text{Cu}(\text{trpn})(\text{NH}_3)]^{2+}$, $[\text{Cu}(\text{tren})(\text{NH}_3)]^{2+}$, $[\text{Cu}(\text{332})(\text{NH}_3)]^{2+}$ and $[\text{Cu}(\text{322})(\text{NH}_3)]^{2+}$ are optimized at B3LYP/ LANL2DZ and B3LYP/GEN levels of theory in gas phase. The optimization results show that the copper(II) center is trigonal bipyramidal for the studied complexes. Charge distribution indicates that on complexation the ligands transfer their negative charges to copper(II) ions.

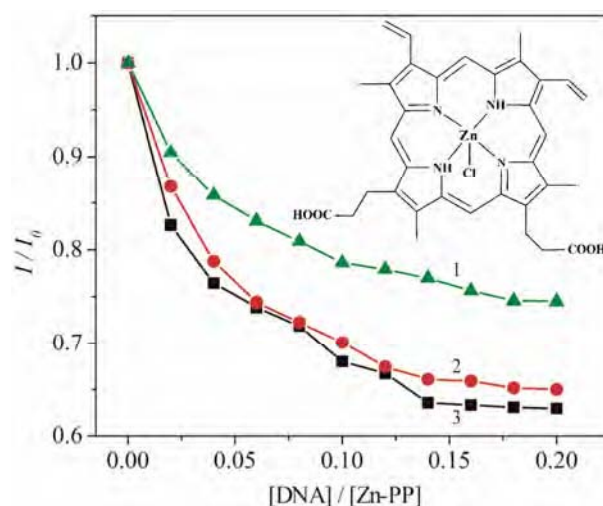


Duran Karakaş* & Koray Sayin

Notes

486 Spectroscopic studies on the binding properties of Zn-PP with various human telomeric G-quadruplex DNA and ct-DNA

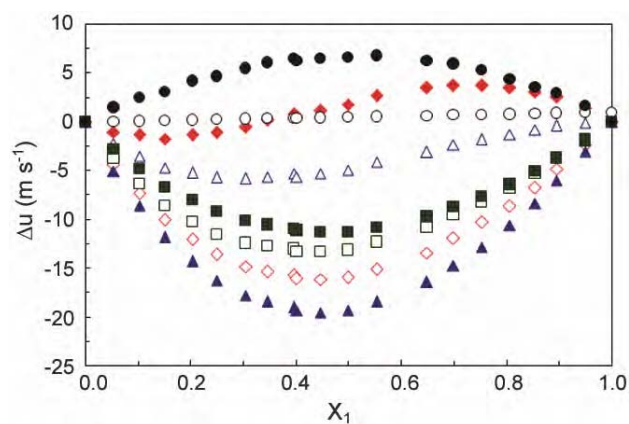
The binding property of the cationic zinc(II) porphyrin (Zn-PP) with three types of human telomeric G-quadruplex DNA and ct-DNA is studied. Zn-PP exhibits higher binding affinity for human telomeric G-quadruplex DNA than for ct-DNA, since the expanded planar aromatic structure of the former facilitates π - π stacking with Zn-PP.



Yu-Lan Li, Xu-Jian Luo, Qi-Pin Qin, Yan-Cheng Liu* & Zhen-Feng Chen

492 Estimation of speed of sound in binary mixtures of cyclohexane with benzene, benzaldehyde or cyclohexylamine, and, cyclohexylamine with benzene in the temperature range (293.15–323.15) K employing empirical and theoretical models

Speed of sound in the binary mixtures of cyclohexane with benzene, benzaldehyde or cyclohexylamine, and, that of cyclohexylamine with benzene has been estimated from several models. The estimating ability of the Impedance model is the highest followed by the Nomoto model, Ernst model, Prigogine-Flory-Patterson theory, Collision factor theory, Van Dael model, Junjie model and Intermolecular free length theory.



Shantilal B Oswal*, Naved I Malek & Sushma P Ijardar

Book Review

498 Inorganic Chemistry (A Modern Treatise)
by D Banerjee

V K Jain

Authors for correspondence are indicated by (*)