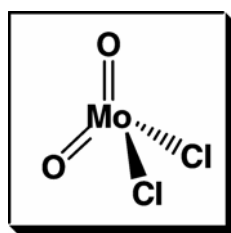


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Perspective Article



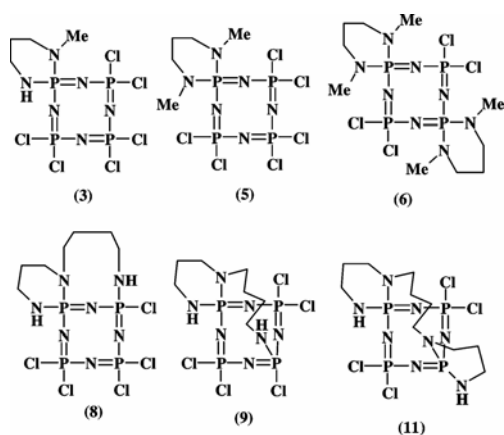
Catalyst

Application of molybdenum(VI) dichloride dioxide (MoO_2Cl_2) in organic transformations

Kandasamy Jeyakumar and Dillip K Chand 111–123

The role of MoO_2Cl_2 and some complexes containing MoO_2Cl_2 as catalysts for various Lewis acid catalysed organic transformations, oxidation and reduction reactions is reviewed. This catalyst is found to be mild and hence a variety of sensitive functional groups are tolerated during some transformation reactions.

Full Papers



Formation of novel spiro, spiroansa and dispiroansa derivatives of cyclotetraphosphazene from the reactions of polyfunctional amines with octachlorocyclotetraphosphazetraene

Hanife Ibişoğlu, Gönül Yenilmez Çiftçi, Adem Kiliç, Esra Tanriverdi, Ilker Ün, Hakan Dal and Tuncer Hökelek

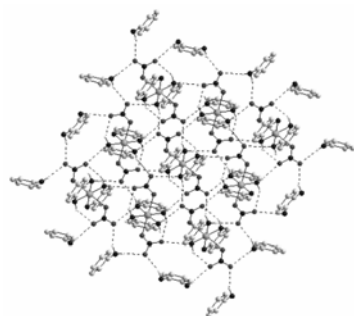
..... 125–135

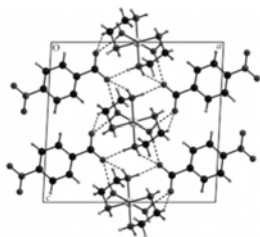
Six novel products (3, 5, 6, 8, 9, 11) have been synthesized from the $\text{N}_4\text{P}_4\text{Cl}_8$, with N-methyl-1,3-propanediamine, N,N'-methyl-1,3-propanediamine, spermidine and spermine. The structures of these compounds have been characterized by elemental analysis, mass spectrometry, ^1H - and ^{31}P -NMR spectroscopy. The structure of (11) was investigated by X-ray crystallography.

Simple inorganic complexes but intricate hydrogen bonding networks: Synthesis and crystal structures of $[\text{M}^{\text{II}}(\text{opda})_2(\text{NO}_3)_2]$ ($\text{M} = \text{Zn}$ and Cd ; opda = orthophenylenediamine)

Sabbani Supriya 137–143

The compounds $[\text{Zn}^{\text{II}}\{\text{C}_6\text{H}_4(\text{NH}_2)_2\}_2(\text{NO}_3)_2]$ (1) and $[\text{Cd}^{\text{II}}\{\text{C}_6\text{H}_4(\text{NH}_2)_2\}_2(\text{NO}_3)_2]$ (2) have been synthesized ($\text{C}_6\text{H}_4(\text{NH}_2)_2$ = orthophenylenediamine = opda) and characterized by routine spectroscopic methods and single crystal X-ray diffraction analysis. Intricate hydrogen bonding networks are observed in their crystal structures.

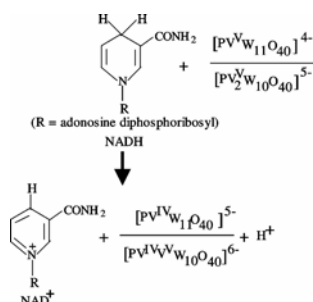




Synthesis, properties and supramolecular structure of di(aqua)bis(ethylenediamine)nickel(II) bis(4-nitrobenzoate)

Bikshandarkoil R Srinivasan and Gayatri K Rane 145–153

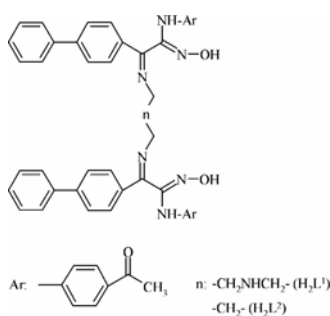
The octahedral di(aqua)bis(ethylenediamine)nickel(II) cation and the 4-nitrobenzoate (4-nba) anion are linked by three varieties of hydrogen bonding interactions in the title compound.



Studies on electron transfer reactions of Keggin-type mixed addenda heteropolytungstovanadophosphates with NADH

Ponnusamy Sami and Kasi Rajasekaran 155–161

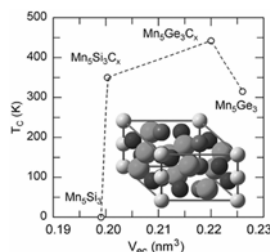
In phosphate buffer of pH 6, nicotinamide adenine dinucleotide (NADH) undergoes facile electron transfer reaction with vanadium substituted Keggin-type heteropolyanions $[PV^V W_{11} O_{40}]^{4-}$ and $[PV^V_2 W_{10} O_{40}]^{5-}$ through multi-step electron–proton–electron transfer mechanism, with rate-limiting initial one electron transfer from NADH by outer sphere mechanism.



Synthesis, characterization and extraction studies of N,N''-bis[1-biphenyl-2-hydroxyimino-2-(4-acetylanilino)-1-ethylidene]-di-aminos and their homo- and heteronuclear copper(II) complexes

Bülent Dede, Fatma Karipcin and Mustafa Cengiz 163–171

A new series of homo- and heteropolyuclear copper(II) complexes of new diimine-dioxime ligands have been prepared and characterized by different physical techniques. The extraction abilities of the novel ligands were also evaluated by using several transition metal picrates. It has been observed that both ligands show a high affinity to Cu^{2+} ions.



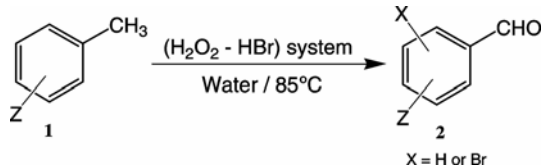
Magnetism of carbon doped Mn_5Si_3 and Mn_5Ge_3 films

C Sürgers, K Potzger and G Fischer 173–176

$Mn_5Si_3C_{0.8}$ and $Mn_5Ge_3C_{0.8}$ films prepared by magnetron co-sputtering or C^+ -ion implantation exhibit ferromagnetic properties with Curie temperatures T_C well above room temperature and metallic conductivity, making them possible candidates for future magnetic semiconductor-based devices.

H_2O_2 –HBr: A metal-free and organic solvent-free reagent system for the synthesis of arylaldehydes from methylarenes

Mohammad Ghaffarzadeh, Mohammad Bolourtchian, Kourosh Tabar-Heydar, Iman Daryaei and Farshid Mohsenzadeh 177–182



Environmentally benign approach has been developed for the oxidation of methylarenes using H_2O_2 –HBr system in water. Arylaldehydes containing electron-withdrawing groups are isolated in good to high yields. Methylarenes containing electron-donating groups, in contrast, are transformed into bromo-substituted arylaldehyde undergoing a tandem oxidation–bromination process.



Synthesis of new heteroaryldi(diindolyl)methanes: Colorimetric detection of DNA by di(diindolylmethyl)carbazoles

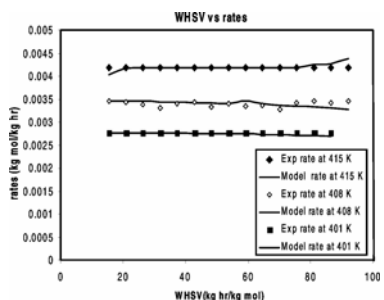
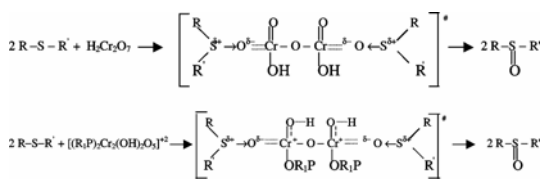
Ramu Meesala and Rajagopal Nagarajan 183–187

Synthesis of di(diindolylmethyl)carbazoles and di(diindolylmethyl) pyrroles by the reaction of substituted indoles with the corresponding carbazole and pyrrole dicarboxaldehydes by employing a new catalyst $\text{PPh}_3 \cdot \text{CF}_3\text{SO}_3\text{H}$ has been done. The utility of di(diindolylmethyl)carbazole derivatives for the colorimetric and fluorometric detection of DNA has been demonstrated.

Kinetics and correlation analysis of reactivity in the oxidation of organic sulfides by butyltriphenylphosphonium dichromate

K M Dilsha and Seema Kothari 189–197

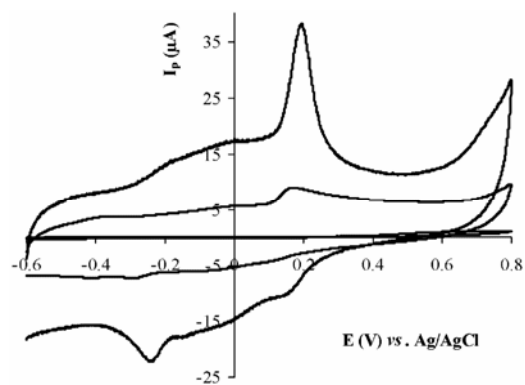
Oxidation of organic sulfides by butyltriphenylphosphonium dichromate leads to the formation of corresponding sulfoxide via single-step electrophilic oxygen transfer.



Alkylation of toluene with isopropyl alcohol over SAPO-5 catalyst

Sreedevi Upadhyayula 199–207

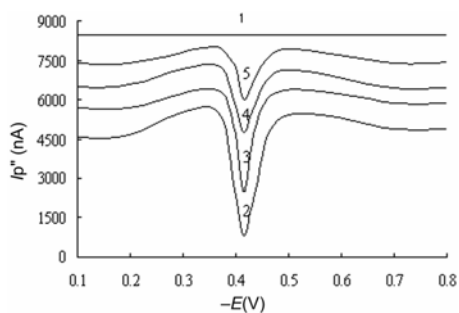
Isopropylation of toluene with isopropyl alcohol was studied over the large pore silicon aluminophosphate molecular sieves (SAPO-5) with varying Si content. Toluene conversion was found to increase with increase in the Si of the catalysts. The highest yield and selectivity for cymene was observed at 513 K.



Voltammetric behaviour of levodopa and its quantification in pharmaceuticals using a β-cyclodextrine doped poly(2,5-diaminobenzenesulfonic acid) modified electrode

Mehmet Aslanoglu, Aysegul Kutluay, Sultan Goktas and Serpil Karabulut 209–215

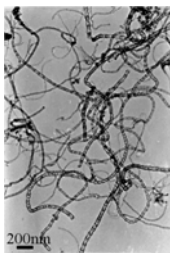
A voltammetric method based on a β-cyclodextrine doped poly(2,5-diaminobenzenesulfonic acid) modified glassy carbon electrode was developed for the determination of levodopa. The poly(2,5-diaminobenzenesulfonic acid)-β-cyclodextrine/GCE exhibits a remarkable shift of the oxidation potentials of levodopa in the cathodic direction and a drastic enhancement of the anodic current response.



Linear sweep voltammetric studies on the supramolecular complex of alizarin red S with lysozyme and determination of lysozyme

Wei Sun, Na Zhao, Xueliang Niu, Yan Wang and Kui Jiao 217–223

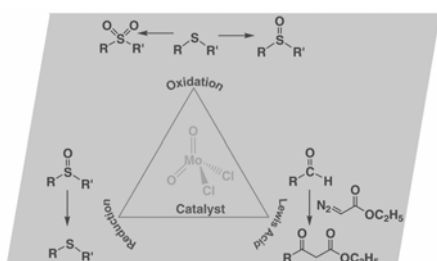
The electrochemical behaviours of alizarin red S interacted with lysozyme were investigated on a dropping mercury working electrode and further used to establish a new electroanalytical method for the determination of lysozyme by linear sweep voltammetry. Different kinds of lysozyme samples were further detected satisfactorily with this proposed method.



Catalytic synthesis of nitrogen-doped multi-walled carbon nanotubes using layered double hydroxides as catalyst precursors

Yong Cao, Yun Zhao, Qingxia Li and Qingze Jiao 225–229

Nitrogen-doped carbon nanotubes were synthesized by pyrolysis of ethylenediamine on the Ni-based catalyst derived from $\text{Ni}_{2.31}\text{Mg}_{0.08}\text{Al-LDH}$. These tubes had an obvious bamboo-like morphology with transverse carbon bridges forming compartments.



Cover picture: MoO_2Cl_2 – A mild and selective catalyst for diverse organic transformations. For details see the paper by Kandasamy Jeyakumar and Dillip K Chand (pp 111–123).