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POLYHEDRON

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Contents

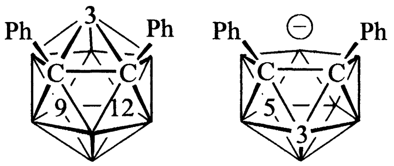
Papers

Susan Robertson, David Ellis,
Thomas D. McGrath, Georgina M. Rosair,
Alan J. Welch

Polyhedron 22 (2003) 1293

Synthesis and characterisation of labelled diphenylcarboranes

New 3-labelled and 9,12-dilabelled *closo*-, and 3- and 5-labelled *nido*-diphenyl carboranes, deliberately targeted to provide mechanistic information on heteroborane isomerisation following metallation, have been prepared and characterised.

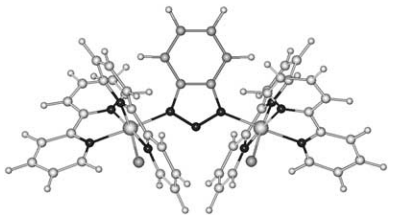


Reginaldo C. Rocha, Henrique E. Toma

Polyhedron 22 (2003) 1303

Intervalence, electron transfer and redox properties of a triazolate-bridged ruthenium-polypyridine dinuclear complex

A new dinuclear complex of the type *cis,-cis*-$[(bpy)_2ClRu(\mu\text{-}L_b)RuCl(bpy)_2]^{n+}$ (bpy = 2,2′-bipyridine; L_b = benzotriazolate (bta); $n = 1$, 2, or 3) has been synthesized, isolated as a PF_6^- salt, and investigated in organic solutions by means of cyclic voltammetry and UV/visible/NIR spectroelectrochemistry.



Stefania Tanase, Marius Andruh,
Nicolae Stanica, Corine Mathonière,
Guillaume Rombaut, Stéphane Golhen,
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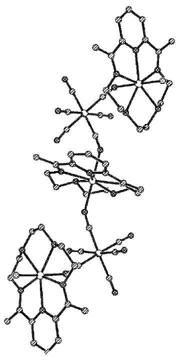
Polyhedron 22 (2003) 1315

A novel cyano-bridged pentanuclear complex: $[\{Mn_3(MAC)_3(H_2O)_2\}\{Fe(CN)_6\}_2]\cdot 6H_2O\cdot 2CH_3OH$—synthesis, crystal structure and magnetic properties (MAC = pentaaza macrocyclic ligand)

By reacting $[Mn(MAC)(H_2O)_2]Cl_2$ with $K_3[Fe(CN)_6]$, a novel pentanuclear complex with an unprecedented chain structure, $Mn^{II}-NC-Fe^{III}-CN-Mn^{II}-NC-Fe^{III}-CN-Mn^{II}$, has been obtained. The $\chi_M T$ vs. T curve displays a minimum which indicates an irregular spin state structure.



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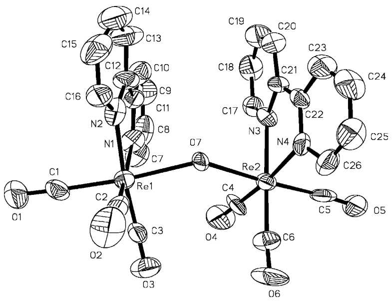
Peter J. Heard, Phunrawie Sroisuwan, Derek A. Tocher

Polyhedron 22 (2003) 1321

Synthesis and reactivity of *N,N,N′,N′*-tetramethyldiaminomethane complexes of tricarbonylrhenium(I). X-ray molecular structures of [ReBr(CO)$_3$(TMDM)] and [{Re(bipy)(CO)$_3$}$_2$(μ-OH)][SbF$_6$]

Reaction of neutral [ReX(CO)$_5$] (X = Cl, Br or I) with *N,N,N′,N′*-tetramethyldiaminomethane (TMDM) gave unexpectedly *fac*-[ReX(CO)$_3$(TMDM)] (X = Cl, Br or I), in which the intact TMDM ligand acts in a chelating fashion. Reaction of TMDM with [Re(CO)$_3$(bipy)]$^+$ under aerobic conditions yields three complexes: [{Re(CO)$_3$(bipy)}$_2$(μ-OH)][SbF$_6$] (**1**), which was characterised by X-ray crystallography, [{Re(CO)$_3$(bipy)}$_2$(μ-OH$_2$)][SbF$_6$]$_2$ (**2**) and [Re(OH)(CO)$_3$(bipy)] (**3**).

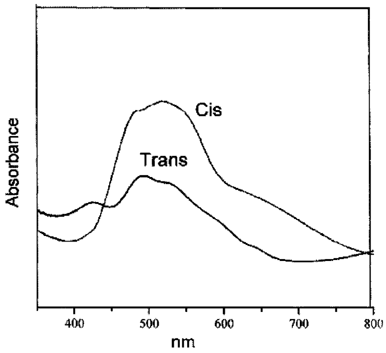


Barbara Barszcz, Tadeusz Glowiak, Katarzyna Detka

Polyhedron 22 (2003) 1329

Synthesis, crystal structures and spectroscopic studies on *trans* and *cis* isomers of Co(II) complexes with 1-benzyl-2-hydroxymethylimidazole

By carrying out the synthesis in a special way, two novel cobalt(II) isomers of *trans*(*O*)-[Co(1-Bz-2-CH$_2$OHIm)$_4$](NO$_3$)$_2$ (**1**) and *cis*(*O*)-[Co(1-Bz-2-CH$_2$OIm)$_4$](NO$_3$)$_2$·1.5H$_2$O (**2**) have been separated. The crystal structures of the Co(II) isomers show the triclinic space group $P\bar{1}$ (**1**) and the monoclinic space group *C*2/*c* (**2**). The coordination geometry around the Co atom is approximately octahedral (**1**) or very distorted octahedral (**2**). The structural data obtained for the Co(II) isomers were confirmed by IR and UV–Vis spectroscopic methods.

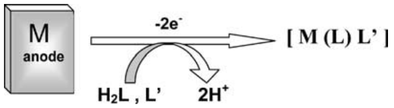


D.A. Garnovskii, M.F.C. Guedes da Silva, M.N. Kopylovich, A.D. Garnovskii, J.J.R. Fraústo da Silva, A.J.L. Pombeiro

Polyhedron 22 (2003) 1335

Electrochemical synthesis of adducts of 2-aminopyridine or methanol in metal chelates of a *N,N,N*-tridentate Schiff base ligand. X-ray crystal structures of the Ni(II) and Zn(II) derivatives

The electrosyntheses of novel adducts of 2-aminopyridine and methanol in metal chelates of the *N,N,N*-tridentate basic form of the Schiff base 2-*N*-tosylamino(2′-tosylaminobenzylidene)aniline (H$_2$L), [M(L)L′] (M = Co, Ni, Zn, L′ = 2-aminopyridine; M = Cu, L′ = CH$_3$OH), were performed by using the corresponding metal as a sacrificial anode, and the crystal structures of the Zn and Ni derivatives, as well as of the Schiff base, were determined by X-ray diffraction analyses.

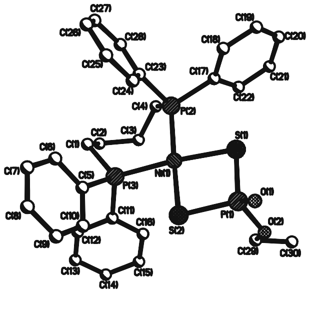


Lucie Szűčová, Zdeněk Trávníček, Jaromír Marek

Polyhedron 22 (2003) 1341

O,O′-Dialkyldithiophosphato and O-alkyldithiophosphato nickel(II) complexes with bidentate P-donor ligands

A series of nickel(II) complexes, having the general formula [Ni(S$_2$P{O}OR)(P–P)] {R = Et (**1**), *i*-Pr (**2**), P–P = dppe; R = Et (**3**), P–P = 1,4-bis(diphenylphosphino)butane (dppb)}, [Ni(S$_2$P{OR}$_2$)(P–P)]X {R = *i*-Pr (**4**), Et (**5**), P–P = 1,2-bis(diphenylphosphino)ethane (dppe); R = Et, P–P = 1,1-bis(diphenylphosphino)methane (dppm) (**6**); X = ClO$_4^-$} and [Ni(S$_2$P{OR}$_2$)(dppe)X] {R = *i*-Pr, X = NCS$^-$ (**7**); R = Et, X = Br$^-$ (**8**)}, have been prepared and characterized. Single crystal X-ray analysis revealed the molecular structures of [Ni(S$_2$P{O}OEt)(dppe)] (**1**), [Ni(S$_2$P{O}OEt)(dppb)]·EtOH (**3**) and [Ni(S$_2$P{OEt}$_2$)(dppe)]ClO$_4$ (**5**), and confirmed a square-planar geometry around the nickel atoms. We assume that the coordination geometry in [Ni(S$_2$P{OEt}$_2$)(dppe)Br]·H$_2$O (**8**) is probably tetrahedral with monodentate coordinated (S$_2$P{OEt}$_2$) monoanion.

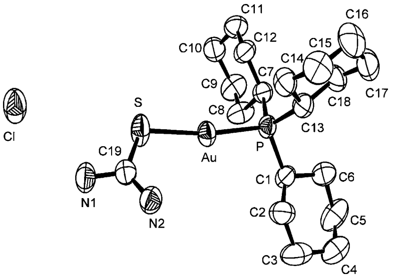


Anvarhusein A. Isab, Mohammed Fettouhi, Saeed Ahmad, Lahcène Ouahab

Polyhedron 22 (2003) 1349

Mixed ligand gold(I) complexes of phosphines and thiourea and X-ray structure of (thiourea-κS)(tricyclohexylphosphine)gold(I) chloride

A series of mixed ligand gold(I) complexes with thiourea (Tu) and various phosphines, [R_3PAuTu]Cl, have been prepared and characterized by elemental analysis, IR and NMR (^{13}C, ^{15}N and ^{31}P) spectroscopies. The single crystal X-ray structure of the complex [Cy_3P–Au–Tu]Cl revealed that the geometry is not perfectly linear at the gold(I) with a P–Au–S bond angle of 168.54(9)°. The spectral data of all complexes are consistent with the sulfur coordination of thiourea to gold(I).

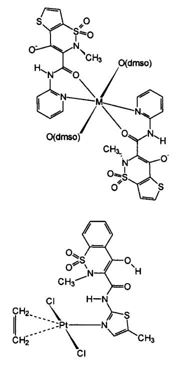


Sandra Defazio, Renzo Cini

Polyhedron 22 (2003) 1355

Synthesis, X-ray structural characterization and solution studies of metal complexes containing the anti-inflammatory drugs meloxicam and tenoxicam

The reaction of tenoxicam (H_2ten) with some divalent transition metal acetates at a 2:1 molar ration in alcohol/dmso produces octahedral complex molecules of the type *trans*-[M(Hten)$_2$(dmso)$_2$] (M = Cd, Co, Zn) in which the pyridyl nitrogen atom and the amide oxygen atom from a Hten$^-$ chelate the metal center. The reaction of Zeise's salt and H_2ten or meloxicam(H_2mel) in alcohol/benzene gives complex molecules of type *trans*-[PtCl$_2$ (C_2H_4)(H_2L)] that have the Pt–N (pyridyl) or Pt–N (thiazolyl) bond trans to ethene.

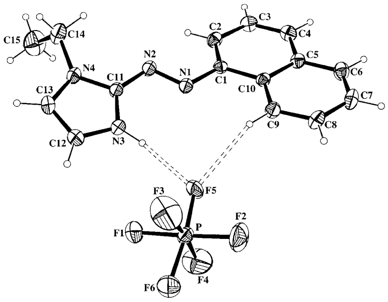


J. Dinda, K. Bag, C. Sinha, G. Mostafa, T.-H. Lu

Polyhedron 22 (2003) 1367

Naphthylazoimidazole and mercury(II) complexes. Single crystal X-ray structure of 1-ethyl-2-(naphthyl-α-azo)imidazolium hexaflurophosphate

A series of coordinated and cyclometallated mercury(II) compounds of 1-alkyl-2-(naphthyl-(α/β)-azo)imidazoles are described. The X-ray structure of 1-ethyl-2-(naphthyl-α-azo)imidazolium hexaflurophosphate shows supramolecular geometry through noncovalent interactions. The C(9)–H activation by Hg(OAc)$^+$ has been supported by charge density calculation using PM3 single point Hamiltonian.

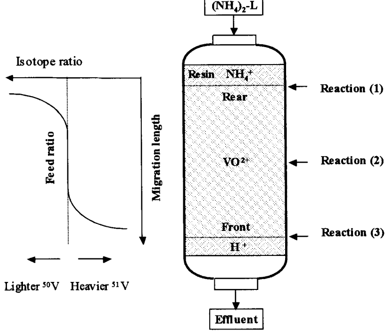


Yong-Hong Zhang, Yasutoshi Ban, Masao Nomura, Yasuhiko Fujii

Polyhedron 22 (2003) 1377

Isotope effects in the V(IV)-malate complex formation system

Cation-exchange displacement chromatography of VO^{2+} was carried out for studying vanadium isotope effects in the malate complex formation system. The heavier isotope ^{51}V was fractionated into the malate complex formed in aqueous solution, which follows the quantum mechanics based on molecular vibration. The isotope separation coefficient ε ($= \alpha - 1$) for ^{50}V and ^{51}V was 1.0×10^{-4} at 298 K.

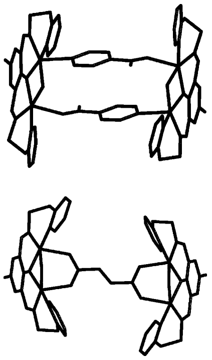


Diana Visinescu, Augustin M. Madalan, Victor Kravtsov, Yurii A. Simonov, Marc Schmidtmann, Achim Müller, Marius Andruh

Polyhedron 22 (2003) 1385

New tetranuclear copper(II) complexes obtained by using compartmental and *exo*-dentate ligands

The paper illustrates a straightforward synthetic route leading to tetranuclear copper(II) complexes, namely the self-assembly process involving binuclear copper(II) complexes and *exo*-dentate ligands (the isonicotinato anion, and the dianion of the dicarboxylic acid).

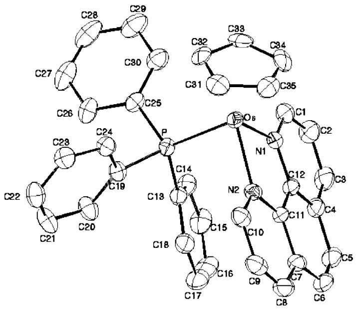


R. Lalrempuia, Patrick J. Carroll, Mohan Rao Kollipara

Polyhedron 22 (2003) 1391

Synthesis and reactivity studies of cyclopentadienyl bis(triphenylphosphine)osmium(II) complexes. Crystal and molecular structure of $[CpOs(PPh_3)(phen)]BF_4$

The reaction of $[CpOs(PPh_3)_2Br]$ with monodentate anions or neutral ligands in dry methanol yielded complexes of the type $[CpOs(PPh_3)_2X]^{0/+}$. Reactions of the complex $[CpOs(PPh_3)_2(CH_3CN)]BF_4$ with chelating ligands $L_2 =$ bipy and phen yielded cationic complexes of the type $[CpOs(L_2)(PPh_3)]BF_4$. These compounds were characterized by ^1H NMR, ^{31}P NMR and IR spectral data. The X-ray crystal structure of the complex $[CpOs(PPh_3)(phen)]BF_4$ has been determined.



Alexandra M.Z. Slawin, Joanne Wheatley, Matthew V. Wheatley, J. Derek Woollins

Polyhedron 22 (2003) 1397

Preparation and coordination chemistry of $Ph_2PNHNHpy$

$Ph_2PNHNHpy$ demonstrates an extended chain structure in the solid state due to H-bonding and monodentate coordination with a range of metal centres.