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Contents

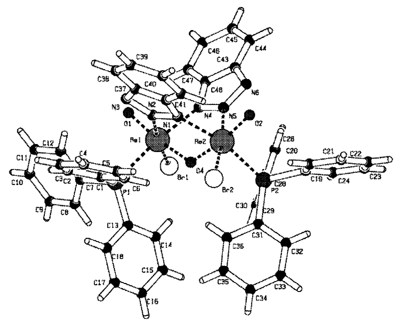
Papers

B. Machura, Jan O. Dziegielewski, R. Kruszynski, T.J. Bartczak

Polyhedron 22 (2003) 2869

The synthesis, spectroscopic characterisation, crystal and molecular structure of two novel bent oxo-bridged dimers of rhenium(V) with μ-benzotriazolate ligands

The $[ReOX_3(PPh_3)_2]$ complexes (X = Cl and Br) react with an excess of benzotriazole (Hbta) in ethanol/acetone to give the symmetrically substituted dinuclear rhenium complexes $[\{Re(O)Br(PPh_3)\}_2(\mu\text{-}O)(\mu\text{-}C_6H_4N_3)_2]$ (**1**) and $[\{Re(O)Cl(PPh_3)\}_2(\mu\text{-}O)(\mu\text{-}C_6H_4N_3)_2]$ (**2**), respectively. The structures of **1** and **2** reveal the presence of two rhenium(V) centers linked through two bridging bta anions and an oxo group. Each rhenium atom is in a pseudooctahedral environment of two benzotriazole N donors, a halide ion, the phosphorous atom of triphenylphosphine, a terminal and bridging oxo ligand. Due to the geometric constraints of the two bridging N-donor ligands the $\{Re_2O_3\}$ units in **1** and **2** are bent.

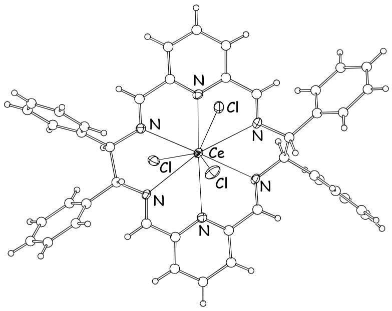


Jarosław Mazurek, Jerzy Lisowski

Polyhedron 22 (2003) 2877

Chiral macrocyclic lanthanide complexes derived from (1*R*,2*R*)-1,2-diphenylethylenediamine and 2,6-diformylpyridine

The enantiopure La^{3+}, Ce^{3+} and Eu^{3+} complexes of the new chiral macrocycle derived from (1*R*,2*R*)-1,2-diphenylethylenediamine and 2,6-diformylpyridine have been obtained in template condensation. The complexes have been characterised by 2D NMR spectroscopy and mass spectrometry. The X-ray crystal structure of the cerium(III) complex shows the Ce(III) ion coordinated by six nitrogen atoms of the macrocyclic ligand and three chloride anions. The macrocycle in this complex adopts a relatively flat, twist-bent conformation.

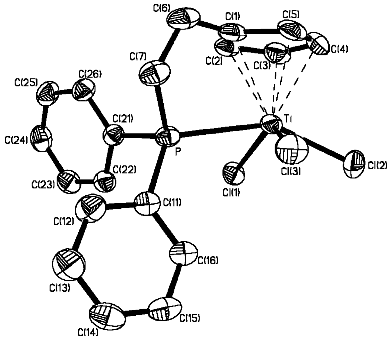


Dmitrii P. Krut'ko, Maxim V. Borzov, Eduard N. Veksler, Andrei V. Churakov, Karel Mach

Polyhedron 22 (2003) 2885

Crystal structures and solution dynamics of monocyclopentadienyl titanium(IV) complexes bearing pendant ether and phosphanyl type functionalities

Two novel half-sandwich Ti(IV) complexes, $[\eta^5\text{:}\eta^1\text{-}O\text{-}C_5(CH_3)_4CH_2CH_2OCH_3]TiCl_3$ and $(\eta^5\text{:}\eta^1\text{-P-}C_5H_4CH_2CH_2PPh_2)TiCl_3$, were prepared and structurally characterised. Their dynamic behaviour in solutions has been studied by variable-temperature ^1H, ^{13}C and ^{31}P NMR spectroscopy. The intramolecular $M(IV) \leftarrow E$ (M = Ti, Zr; E = O, P) coordination in half-sandwich cyclopentadienyl complexes is discussed.



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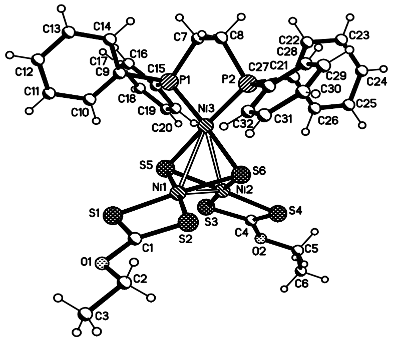
Ionel Haiduc, Radu F. Semeniuc, Marius Campian, Victor Ch. Kravtsov, Yurii A. Simonov, Janusz Lipkowski

Polyhedron 22 (2003) 2895

The reaction of nickel(II) xanthates with tetraphenyldiphosphinoethane (dppe) revisited. Formation and crystal structures of $Ni_3S_2(S_2COR)_2(dppe)$ (R = Me, Et; dppe = $Ph_2PCH_2CH_2PPh_2$) at room temperature and of $Ni(S_2CO)(dppe)$ at 150 K

Two new trinuclear Ni(II) complexes, $[Ni_3(\mu_3\text{-}S)_2(S_2COR)_2(dppe)]$ (R = Me, Et), have been prepared and there crystal structures were determined. These complexes contain a trigonal bipyramidal central Ni_3S_2 core, with sulfur atoms in axial positions and nickel atoms in equatorial positions. One of the Ni(II) sites is coordinated by a chelating dppe ligand, the other two nickel atoms are chelated by two xanthate ligands. The crystal structure of the mononuclear $[Ni(S_2CO)(dppe)]$ was reinvestigated at low temperature (150 K).

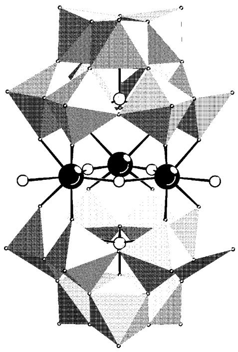


Adrian-Raul Tomsa, Liana Muresan, Aglaia Koutsodimou, Polycarpos Falaras, Mariana Rusu

Polyhedron 22 (2003) 2901

Synthesis and characterisation of two new lanthanide sandwich-type heteropolyoxometalates

The sodium and cesium salts of two new heteropolyoxometalate complexes $[\{Ln_3O_3(OH_2)_2\}(PW_9O_{34})_2]^{15-}$ were synthesized and studied using spectroscopy and cyclic voltammetry. We proposed for $[\{Ln_3O_3(OH_2)_2\}(PW_9O_{34})_2]^{15-}$ ($Ln = La^{III}$, Ce^{III}) polyoxoanions the sandwich-type structure, consisting of two $[PW_9O_{34}]^{9-}$ units connected by a belt of three lanthanide atoms alternating with three oxygen atoms, in agreement with the structure of the $[(Ce^{IV}O)_3\ (OH_2)_2(PW_9O_{34})_2]^{12-}$ polyoxoanion determined by Knoth (Inorg. Chem. 25 (1986) 1577).

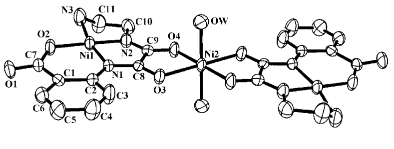


Ruo-Jie Tao, Shuang-Quan Zang, Yan-Xiang Cheng, Qing-Lun Wang, Ning-Hai Hu, Jing-Yang Niu, Dai-Zheng Liao

Polyhedron 22 (2003) 2911

Oxamido-bridged heterobinuclear copper(II)–nickel(II) complex and homotrinuclear nickel(II) complex with 2D supramolecular structure: synthesis, crystal structure, magnetic and spectroscopic properties

Dissymmetrical oxamido-bridged heterobinuclear copper(II)–nickel(II) complex, $[Cu(oxbe)Ni(phen)_2]ClO_4\cdot 3H_2O$ (**1**) and trinickel homologue $\{[Ni(oxbe)]_2Ni(H_2O)_2\}\cdot 2.5DMF$ (**2**) have been synthesized. It is proposed that complex **1** has extended oxamido-bridged structure consisting of planar copper(II) and octahedral Nickel(II) ions. The χ_M and μ_{eff} versus T plots of **1** is typical of an antiferromagnetically coupled Cu(II)Ni(II) pair with a spin-doublet ground state. The molecular structure of **2** is centrosymmetrical, with one octahedral nickel atom lying on an inversion center and two terminal Ni(II) atoms in approximately square planar environment. Through the hydrogen bonds and π–π stacking interactions, a 2D supramolecular structure is formed.

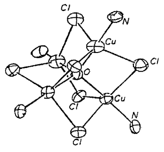


Saad M. Alshehri

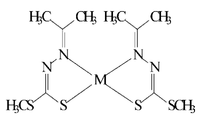
Polyhedron 22 (2003) 2917

The kinetics of adduct formation between heteropolymetallic targets $(\mu_4\text{-}O)N_4\text{-}Cu_{4-x}M_xX_6$ and $Cu(NS)_2$ reagent in nitrobenzene

The rate laws for the earliest events in the specific stoichiometric monotransmetalation of heteropolymetallic targets $(\mu_4\text{-}O)(amine)_4Cu_{4-x}M_xX_6$, where the amine are pyridine type ligand, x is 1–3, M is Co or $Ni(H_2O)$, X is Cl or Br, by transmetalators $M'(NS)_2$, B, and their solution adduct formation by reagent $Cu(NS)_2$ in nitrobenzene, where M′ is Co, Ni or Zn and NS is monoanionic S-methylisopropylidinehydrazinecarbodithioate, depends on the amine, M, M′, x and X. The structural-mechanistic origins of monotransmetalation specificity and adduct formation in these systems are discussed.



A



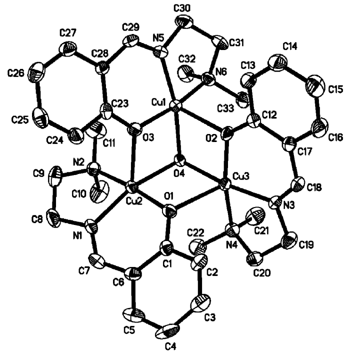
B

He-Dong Bian, Jing-Yuan Xu, Wen Gu, Shi-Ping Yan, Peng Cheng, Dai-Zheng Liao, Zong-Hui Jiang

Polyhedron 22 (2003) 2927

Synthesis, X-ray structure and magnetic properties of trinuclear copper(II) tridentate Schiff base complexes containing a partial cubane Cu_3O_4 core

Two copper(II) complexes have been synthesized and characterized by X-ray structural analysis. Both complexes contain a partial cubane Cu_3O_4 core. Complex **1** exhibits an antiferromagnetic interactions between the copper ions with $J = -2.40$ cm^{-1} and $g = 2.038$. Complex **2** exhibits a rare ferromagnetic interaction between the copper ions with $J = 7.83$ cm^{-1} and $g = 2.02$.



Suparna Banerjee, Michael G.B. Drew, Ashutosh Ghosh

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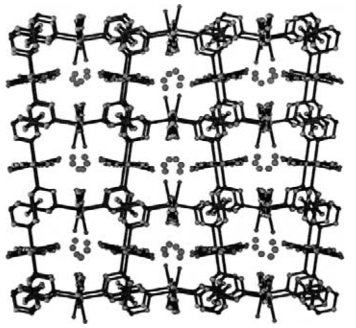
Construction of coordination polymers of cadmium(II) with mixed hexamethylenetetramine and terephthalate or thiocyanate ligands

Hexamethylenetetramine forms two different one-dimensional polymeric chains with Cd(II) thiocyanate, $[Cd(hmt)(SCN)_2(H_2O)_2]_n$ and $[Cd_3(\mu_2\text{-}hmt)_2(SCN)_6(H_2O)_2]_n$. With Cd(II) terephthalate it forms a three-dimensional polymer having water-filled microporous channels. X-ray single crystal structures of all three compounds are determined.

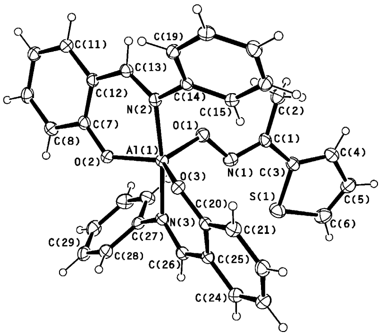


Nikita Sharma, Amit K. Jain, Rajnish K. Sharma, Rakesh Bohra, John E. Drake, Michael B. Hursthouse, Mark E. Light

Polyhedron 22 (2003) 2943

Reactions of (*N*-phenylsalicylideneiminato)aluminium(III)di(μ-isopropoxo)di (isopropoxo)aluminium(III) with simple and internally functionallized oximes. Molecular structure of the penta-coordinated complex (2-acetylthiophenyloximato)bis(*N*-phenylsalicylideneiminato)aluminium(III)

Binuclear complexes of the type, $[C_6H_4O\{CH{=}N(C_6H_5)\}]_2Al(\mu\text{-}OPr^i)_2Al(ON{=}CRR')(OPr^i)$ as well as $[C_6H_4O\{CH{=}N(C_6H_5)\}]_2Al(\mu\text{-}OPr^i)_2Al(ON{=}CRR')_2$ and $[C_6H_4O\{CH{=}N(C_6H_5)\}]_2Al(ON{=}CRR')$ [where $R = R' = CH_3$; $R = CH_3$, $R' = C_4H_3S\text{-}2$, $C_4H_3O\text{-}2$ and $C_5H_4N\text{-}2$] have been prepared and characterised by elemental analyses, molecular weight measurements and spectroscopy. The crystal structure of $[C_6H_4O\{CH{=}N(C_6H_5)\}]_2Al\{ON = C(CH_3)C_4H_3S\text{-}2\} \cdot CH_2Cl_2$ indicates the presence of penta-coordination around aluminium.



Chao Jiang, Zhi-Yong Wang

Polyhedron 22 (2003) 2953

Synthesis, structure and interconversion of two Co(II) coordination polymers showing topological isomerism from 1D chain to 3D chiral network

Two Co(II) coordination polymers have been synthesized, which were characterized by single crystal X-ray determination, IR and thermogravimetric analysis. They show an unusual example of topological isomerism. The structural interconversion between the two compounds revealed that self-assembly in the synthesis and interconversion of crystalline solids is a thermodynamically controlled process.