Applied Organometallic Chemistry

(Appl. Organometal. Chem.)

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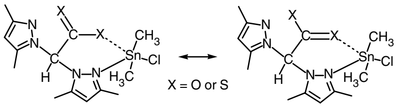
Section: Bioorganometallic Chemistry

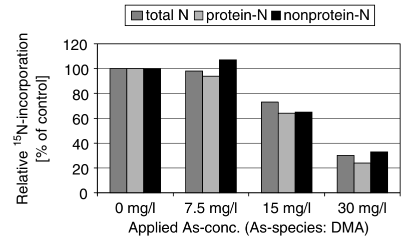
New dimethyltin(IV) derivatives containing anionic *N*,*O*- or *N*,*S*-scorpionate ligands have been synthesized and fully characterized. The acute toxicity of these organotin(IV) complexes and dimethyltin chloride administered intraperitoneally as a single dose was evaluated on rat. Their effect, *in vivo* and *in vitro*, was determined on lymphocyte DNA of rats; the level of DNA damage was investigated with the 'comet assay'.



M. Pellei, C. Santini*, G. G. Lobbia, F. Cantalamessa, C. Nasuti, M. Di Prinzio, R. Gabbianelli and G. Falcioni **583–589**

Synthesis, spectroscopic characterization (IR, ^{1}H, ^{13}C and ^{119}Sn NMR, electrospray mass spectrometry) and toxicity of new organotin(IV) complexes with N,N′,O- *and* N,N′,S-*scorpionate ligands*

How the various organic and inorganic arsenic species affect the nitrogen metabolism of a model plant, *Tropaeolum majus*, was studied in order to evaluate the toxicological impact of the various chemical forms of arsenic. For this purpose, the effects on the (a) entire nitrogen pool, (b) protein fraction, and (c) non-protein fraction were distinguished.

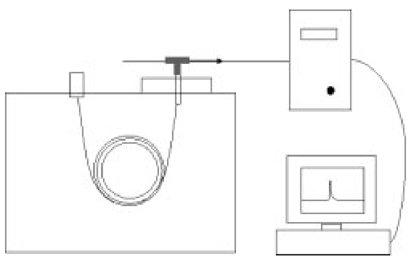


A.-C. Schmidt, J. Mattusch*, W. Reisser and R. Wennrich **590–599**

Evaluation of the influence of arsenic species on the nitrogen metabolism of a model angiosperm: nasturtium, Tropaeolum majus

Section: Speciation Analysis and Environment

This analytical strategy combines total mercury determination with two sample treatment options for Hg speciation based on either organomercury chlorides or ethylated mercury species determination by GC-AFS.



J. L. Gómez-Ariza*, F. Lorenzo and T. García-Barrera **600–604**

Sample treatment selection for routine mercury speciation in seafood by gas chromatography–atomic fluorescence spectroscopy

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Section: Materials, Nanoscience and Catalysis

Oxidative dissolution of copper occurred by the mechanism of single-electron transfer. The kinetic and thermodynamic parameters of the reaction were found. The reaction mechanism is discussed.

$$2n\,\mathrm{PhCH_2Br} + 2n\,\mathrm{Cu} + 2m\,\mathrm{L} \longrightarrow$$

$$\longrightarrow n\,\mathrm{PhCH_2CH_2Ph} + 2\,[\mathrm{Cu}_n\mathrm{L}_m\mathrm{Br}_n]$$

A. M. Egorov, S. A. Matyukhova and A. V. Anisimov* 605–613

Kinetics and mechanism of the reaction of substituted benzyl bromides with copper in dimethylformamide

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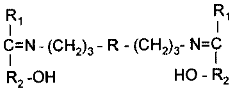
New types of ligand were obtained by reaction of 1,3-bis(3-aminopropyl)tetramethyldisiloxane (AP_0) with acetylacetone, 2,4-dihydroxybenzophenone and 2,4-dihydroxyacetophenone. These compounds were complexed with divalent metals (copper, nickel, cobalt). Some of the bifunctional chelates were inserted in polymeric structures by polycondensation with bis(*p*-carboxyphenyl)diphenylsilane as a diacid chloride.



$$\underset{R_2\text{-}OH}{\overset{R_1}{C}}{=}N\text{-}(CH_2)_3\text{-}R\text{-}(CH_2)_3\text{-}N{=}\underset{HO\text{-}R_2}{\overset{R_1}{C}}$$

with R: $(CH_3)_2SiOSi(CH_3)_2$

R_1: CH_3 or C_6H_5

R_2: $CH{=}\underset{|}{C}\text{-}CH_3$ or $C_6H_5\text{-}OH$

M. Vasiliu, M. Cazacu*, M. Marcu, C. Racles and A. Vlad 614–620

Chelate polymers. IV. Siloxanes functionalized with chelating groups derived from hydroxy-ketones, their metal complexes and some polymers

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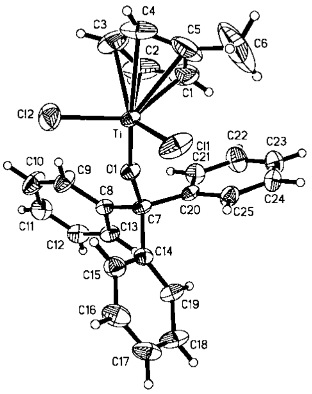
Eight new $Cp'TiCl_2(OR)$ complexes were synthesized and the structure of a suitable single crystal of complex **2** (R^1: CH_3; R^2: H) was determined by X-ray diffraction. When activated by methylaluminoxane (MAO), all complexes were active for the polymerization of ethylene, styrene and MMA. The effect of variation in temperature, catalyst concentration and MAO/catalyst molar ratio was studied, and the influence of the functional group on the catalyst activity is also discussed.



B. Lian, Y. Qian, W. Zhou and J. Huang* 621–626

Titanium(IV) complexes containing monocyclopentadienyl and bulky trityloxy mixed ligands: synthesis and polymerization activity

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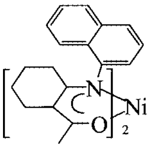
A β-ketoimine ligand and the corresponding new bis(β-ketoamino)nickel(II) complex $Ni[2\text{-}CH_3C(O)C_6H_8({=}NAr)]_2$ (Ar = naphthyl) were synthesized and characterized. Their structures have been determined by single-crystal X-ray diffraction. Additionally, the new complex is a highly active catalyst precursor for vinyl polymerization of norbornene in combination with methylaluminoxane.



Complex

G. Gui, F. Bao, H. Gao, F. Zhu and Q. Wu* 627–632

Vinyl polymerization of norbornene catalyzed by a new bis(β-ketoamino)nickel(II) complex–methylaluminoxane system

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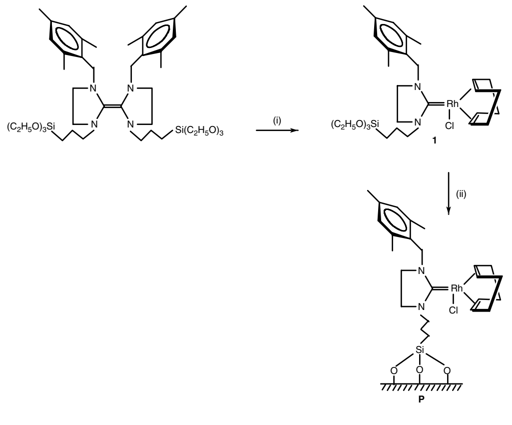
The silica-supported catalytically active functional material rhodium(I) carbene complex with 1-(triethoxysilylpropyl)-3-(2,4,6-trimethylbenzyl) imidazolidine-2-ylidine (1) complex was prepared via the sol–gel method.



I. Özdemir*, N. Gürbüz, T. Seçkin and B. Çetinkaya 633–638

Synthesis of silica-supported rhodium carbene complex as efficient catalyst for the additon of phenylboronic acid to aldehydes

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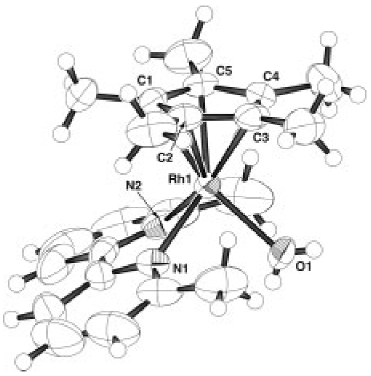
Crystal structures of organometallic aqua complexes $[Cp^*Rh^{III}(bpy)(OH_2)]^{2+}$ ($Cp^* = \eta^5$-C_5Me_5, bpy = 2,2′-bipyridine) and $[Cp^*$-$Rh^{III}(6,6'$-$Me_2bpy)(OH_2)]^{2+}$ (6,6′-Me_2bpy = 6,6′-dimethyl-2,2′-bipyridine) used as key catalysts in regioselective reduction of NAD^+ analogues were determined definitely by X-ray analysis.



S. Ogo*, H. Hayashi, K. Uehara and S. Fukuzumi** 639–643

Crystallographic report: Crystal structures of organometallic aqua complexes $[Cp^*Rh^{III}(bpy)(OH_2)]^{2+}$ and $[Cp^*Rh^{III}(6,6'$-$Me_2bpy)(OH_2)]^{2+}$ used as key catalysts in regioselective reduction of NAD^+ analogues

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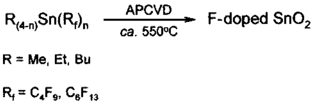
Section: Main Group Metal Compounds

Fluoroalkyltin compounds have been used as chemical vapour deposition precursors for the deposition of thin films of fluorine-doped SnO_2.



J. E. Stanley, A. C. Swain, K. C. Molloy*, D. W. H. Rankin, H. E. Robertson and B. F. Johnston 644–657

Atmospheric pressure chemical vapour deposition of fluorine-doped tin(IV) oxide from fluoroalkyltin precursors

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High quality fluorine-doped SnO_2 thin films can be grown from single-source $R_3SnO_2CR_f$ precursors.

M. F. Mahon, K. C. Molloy*, J. E. Stanley, D. W. H. Rankin, H. E. Robertson and B. F. Johnston 658–671

Atmospheric pressure deposition of fluorine-doped SnO_2 thin films from organotin fluorocarboxylate precursors

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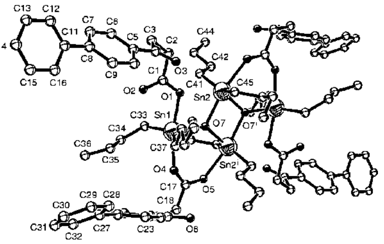
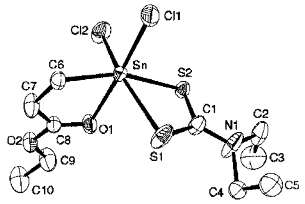
The di- and tri-organotin derivatives of fenbufen were prepared and characterized by elemental analysis, IR, NMR (^{1}H, ^{13}C and ^{119}Sn) and X-ray crystallography. Their *in vitro* antitumour activity against two human tumour cell lines was much better than that of *cis*-platin



L. Tian*, Q. Yu, X. Zheng, Z. Shang, X. Liu and B. Qian 672–676

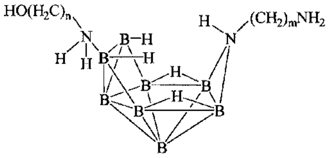
Synthesis, characterization and in vitro *antitumour activity of di- and tri-organotin derivatives of fenbufen*

2-Alkoxycarbonylethyltin trichloride derivatives with *N,N*-diethyldithiocarbamate were synthesized and characterized by elemental analysis, IR, NMR(^{1}H, ^{13}*C* and ^{119}*Sn*), X-ray crystal diffraction and *ab initio* calculations.



L. Tian*, Q. Yu, Z. Shang, Y. Sun and L. Zhang 677–682

Synthesis and characterization of N,N-*diethyldithiocarbamate complexes of 2-alkoxycarbonylethyltin trichloride*



A new series of azanonaboranes was synthesized with different hydrophilic functional groups for possible use in the treatment of cancer by boron neutron capture therapy (BNCT). As compared with azanonaboranes containing free amino groups, results reported in this study have shown that their solubility in water and their low toxicity are advantages over the previously reported azanonaboranes.

M. E. El-Zaria* 683–689

Synthesis and biological evaluation of novel azanonaboranes as potential agents for boron neutron capture therapy

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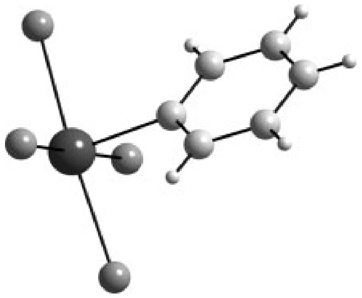
The complex [Ph_3PNPPh_3][$PhTeCl_4$] contains neither secondary Te$\cdots$Cl interactions nor significant cation–anion interactions, contrasting most previously described organotetrachlorotellurate complexes.



J. Beckmann*, A. Duthie and S. Moran 690–691

Crystallographic report: Bis(triphenylphosphoranylidene)ammonium phenyltetrachlorotellurate

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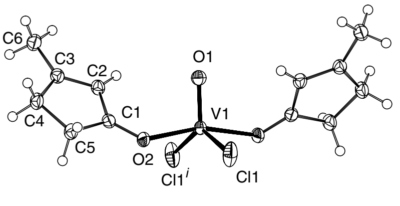
The crystal structure of the oxovanadium(IV) complex $(CH_3C_5H_5O)_2VOCl_2$ was determined. The molecule has trigonal bipyramidal geometry, with oxygen atoms of cyclopentenones in axial positions and oxygen and two chlorine atoms in equatorial positions.



J. Honzíček, Iv. Císařová and J. Vinklárek* 692–693

Crystallographic report: Bis(3-methyl-2-cyclopenten-1-one)dichloro-oxovanadium(IV)

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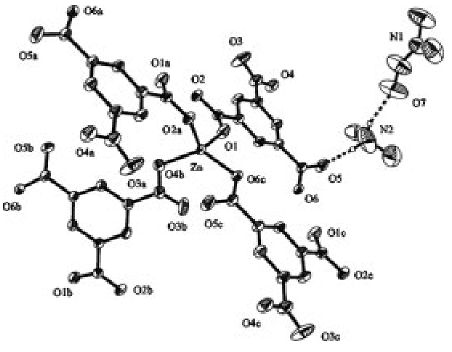
The structure features an anionic three-dimensional network built from zinc ions and trimesate ligands. The structure contains parallelogrammic channels in which H_2NMe_3 molecules interact with dimethylformamide guest molecules and the framework through hydrogen bonds.

X.-J. Zhao and J. Tao* 694–695

Crystallographic report: A three-dimensional zinc trimesate framework: $[(CH_3)_2NH_2][Zn(C_9H_3O_6)]\cdot(C_3H_7NO)$



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