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Coordination mode of the nickel(II) cation with N-diisopropoxyphosphinyl-p- bromothiobenzamide

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Abstract

Reaction of the potassium salt of N-diisopropoxyphosphinyl-p- bromothiobenzamide $p\text{-BrC}_6\text{H}_4\text{C(S)NHP(O)(OiPr)}_2$ (HL) with $\text{Ni(NO}_3)_2$ in aqueous EtOH leads to complex of formula $[\text{Ni}(\text{HL-O})_2(\text{L-O,S})_2]$ (1). The structure of 1 was investigated by single crystal X-ray diffraction analysis, IR, ^1H and $^{31}\text{P}\{^1\text{H}\}$ NMR spectroscopy, MALDI and microanalysis. The nickel(II) ion in 1 has a tetragonal-bipyramidal environment, $(\text{O}_{\text{ax}})_2(\text{O}_{\text{eq}})_2(\text{Seq})_2$, with two neutral ligand molecules coordinated in axial positions through the oxygen atoms of the P=O groups. The equatorial plane of bipyramide is formed by two anionic ligands involving 1,5-O,S-coordination mode. The chelating ligands are bound in trans configuration. © 2008 Wiley-VCH Verlag GmbH & Co. KGaA.

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Keywords

Amidophosphate, Chelates, Crystal structure, Nickel