Synthesis, IR and X-Ray Studies of Tetra(N,N'-tetraethyl-N''-benzoylphosphoric triamide)-tetra(\(\mu\)-3-methoxo)-tetra(methanol)tetra-Nickel(II)

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Nickel (II), Carbacylamidophosphates, X-Ray Data

A new nickel(II) complex with N,N'-tetraethyl-N''-benzoylphosphortriamide (HL = C\(_6\)H\(_5\)C(O)N(H)P(O)(NEt\(_2\))\(_2\)) of composition Ni\(_4\)L\(_4\)(OCH\(_3\))\(_4\)/(HOCH\(_3\))\(_4\) (1) has been synthesized. The crystal and molecular structure of 1 has been determined from the X-Ray diffraction data (tetragonal, space group P\(\bar{4}\)2\(_1\)c with \(a = 17.000(2)\) Å, \(c = 15.338(3)\) Å, \(Z = 2\); \(R = 0.0399\) for 1412 unique reflections). The structure is made up of cubane-like tetramers. In the corners of a cube there are 4 atoms of nickel and 4 atoms of oxygen of methoxy groups. The nickel atoms are characterized by a slightly distorted octahedral environment, which consists of three oxygen atoms of methoxy groups, carbonylic and phosphorylic oxygen atoms of the ligand L\(^-\), and an oxygen atom of a methanol molecule. The ligands L\(^-\) coordinate to the metal ion forming a chelate via the oxygen atoms of carbonylic and phosphorylic groups.

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