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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### Structure and Physical Properties of Coordination Compounds of 2-Aminoindan-2-Phosphonic Acid with Some D-Electron Elements

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## STRUCTURE AND PHYSICAL PROPERTIES OF COORDINATION COMPOUNDS OF 2-AMINOINDAN-2- PHOSPHONIC ACID WITH SOME d-ELECTRON ELEMENTS

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Many complexes of 1-aminoalkylphosphonic acids have been obtained and their structures have been studied [1-3]. On the other hand, 2-aminoindan-2-phosphonic acid (2-AIP), the phosphonic conformationally restricted cyclic analogue of phenylalanine, has been recently obtained [4]. We undertook a study of interaction of cobalt(II), nickel(II), and copper(II) with 2-AIP, to learn how the rigid ligand structure influences the complexes structure.

Based on of elemental analyses, reflectance spectra in the visible region, infrared spectra (IR, FIR), and magnetic susceptibility measurements (295-4.2 K), the compositions of complexes were determined and their structures were suggested.

Only  $[\text{Cu}(\text{OH})(2\text{-AIP})]_2 \cdot \text{H}_2\text{O}$  is a dimer in which copper atoms are bound by the hydroxy bridge [5].  $[\text{Ni}(2\text{-AIP})(\text{H}_2\text{O})_3] \cdot 2\text{H}_2\text{O}$  and  $[\text{Co}(2\text{-AIP})(\text{H}_2\text{O})_3] \cdot 2\text{H}_2\text{O}$  are polymers in which the bridging role between the neighbouring metal atoms is played by the phosphonic groups. The amino group of 2-AIP takes part in coordination of metals, too. Copper(II) is four-coordinated and form distorted tetrahedral structure. Cobalt(II) and nickel(II) are six-coordinated and form distorted octahedral structures. The cobalt(II) complex exhibits metamagnetism at low temperatures.

The structure of the copper(II) and cobalt(II) complexes with 2-AIP can be compared with structure of copper(II) and cobalt(II) complexes with racemic 1-amino-2-phenylethylphosphonic acid as well as 1-aminocyclopentenyl-1-phosphonic acid.

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