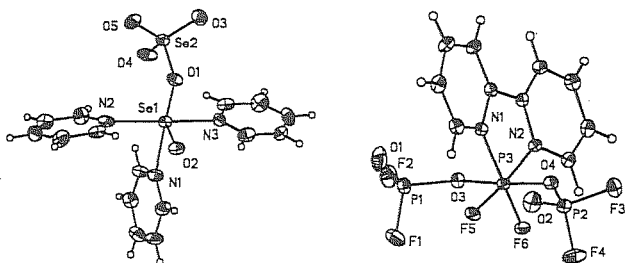


PS08.05.02 HYDROTHERMAL SYNTHESIS AND STRUCTURE OF NEW FRAMEWORK MOLYBDENUM (VI) ARSENATES. Kuei-Fang Hsu, SueLein Wang*, Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan 30043

A large number of new compounds have been synthesised and structurally characterized in the A-Mo-P-O system where A is an alkali or alkaline-earth metal and Mo is in the oxidation states below VI. In contrast to the rich structural chemistry of molybdenum phosphates, little is known about their arsenate analogues. As a part of our research program to study the structural chemistry of transition-metal arsenates, we began to synthesise new compounds in the A-Mo^{VI}-As^V-O system using hydrothermal techniques. By incorporating either organic or hydrated inorganic cations in the hydrothermal reactions, novel frameworks have been produced. In this presentation, the synthesis and crystal structures of three series of molybdenum(VI) arsenates will be given. They include: (1) A₂Mo₂O₅(HAsO₄)₂·H₂O (A = Cs and C₅H₅NH); (2) A₅[Mo₄O₁₂(OH)]₂AsO₄·2H₂O (A = Rb and Cs), and the thermal decomposition product Cs₇(MoO₃)₂O₂AsO₄; and (3) SrMoO₃(HAsO₄)·H₂O and Ba(MoO₃)₆(AsO₄)₄(H₂O)₂. Structural relationship among some of these molybdenum arsenates is also discussed.

PS08.05.03 DONOR-STABILIZED OXIDE AND OXIDE FLUORIDE OF MAIN GROUPS ELEMENTS Z. Zák, M. Ěrník, K. Neplechová, J. Touzin, Department of Inorganic Chemistry, Masaryk University, Brno, Czech Republic.

The crystal structures of two new compounds, [F₂OP(O)PF₂(bipy)-O-POF₂]⁺ [PO₂F₂]⁻ (I), and [O₃Se-O-SeO(py)₃].py (II), with different coordination numbers of P or Se atoms were determined. The middle P atom in (I) is surrounded by six ligands in a nearly octahedral configuration, while terminal P atoms are coordinated tetrahedrally. The cation of (I) which can be formally derived from PF₄⁺ cation [1] by coordination of one molecule of 2,2'-bipyridine and a substitution of two F atoms by -OP(O)F₂ groups has both F atoms in cis-positions and represents the first reported halogenophosphorus(V) cation with more than one P atom in the molecule. The compound (II) can be regarded as monomeric diselenium pentaoxide stabilized by coordination of pyridine. While crystalline Se₂O₅ is a coordination polymer forming infinite zig-zag chains of oxygen-bridged Se(IV)O and Se(VI)O₂ units [2], (II) represents rather a covalent seleninyl selenate. The Se(IV) atom of the seleninyl group is coordinated by one O atom of the selenate and three pyridine molecules in a ψ -octahedral fashion.



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PS08.06.01 DOUBLE SPIRALS IN STRUCTURES OF INORGANIC COMPOUNDS. V.M. Talanov, Chemical Department, State Technical University, Novocherkassk, 346400 Russia

Problem of uniqueness of albuminous-nucleinic way of organization of life is fundamental problem of natural sciences. Important aspect of this problem is existence in inorganic substance structures fragments which are the similar double spirals of DNA: Different types of double spiral were predicted as the result of theoretical calculations ordered spiral structures [1,2] and then were found in structures of different classes of inorganic compounds [3, 4]. The chain of inorganic double spirals are complementary, there are simple conformity between atoms of different spirals. Hence, these double spirals are not molecular. They are bound in a complicated way. Inorganic double spirals form hard framework thanks to strong ionic-covalent bonds not able, certainly, to self-reproduction. It may be thought, that chemical evolution led to replicational systems of genetic coding not at once. On the first stages of chemical evolution structures of inorganic substances could be matrices for abiogenic synthesis of DNA.

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