Diorganotin dihalides, RNnHal, with Hal = Cl, Br, I, belong to the basic chemicals in organotin(IV) chemistry because they are versatile precursors for the preparation of other diorganotin compounds like complexes, hydrolysis products, hydrides and so on. Since the first structural characterization of Me₃SnCl in 1970 by Davies et al. [1] some dozens structures of dihalides were determined but no general classification scheme was evolved. In solid state, many of these dihalides exist as monomers without any intramolecular tin-halide interactions because of intramolecular Lewis-base Lewis-acidic adduct formation or because of steric hindrance but especially the common ones with hydrocarbon rests are dominated by intermolecular tin halide interaction with strong effects on intramolecular bond angles and lengths. For this kind of interaction which is often termed secondary bonding [2] or supramolecular architecture [3] two main types of arrangements were found: 1) side by side with the dipole moments more or less antiparallel (a) to each other or 2) one after another with two equal or different tin halide interactions and a more or less parallel (p) ordering of the dipole moments.

In the course of a systematical study on the crystal structures of diorganotin dihalides we obtained – in addition to the already known structure types - a lot of new ones which gave us the possibility to develop a general classification scheme for the intermolecular tin-halide interaction. To discriminate the different structure types, our scheme takes into account the dipole-dipole interaction represented by the angle bisector between the halide atoms, the crystallographic symmetry elements between the interacting molecules and a tin-halide respectively tin-tin aggregation plane. The poster will show the limitations and options of our scheme covering oligomeric (2a, 4a) arrangements, the different chainlike ones built up by monomers with parallel (P₁ – P₂) or antiparallel (A₁ – A₂) orientations of the dipole moments, the chainlike ones built up by dimers [C2(2a)] as well as the band [B[pp]] and sheet [S(2a)] like structure types.


Keywords: organotin, halides, classification

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Crystal structures of few new β-octamolybdates

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Octamolybdates are important and interesting group of compounds. Among the molybdates, they are the most numerous group of compounds. In addition, there are several types of octamolybdates. Why are they important to study, when their applications are not especially numerous yet? The reason is a desire to understand the rules governing the formation of certain polytetrahalooctanions. These rules are quite complex, the type of anion depends on the reaction time, concentration and type of reactants. An additional element is the richness of anionic forms and their potential applications in crystal engineering. For a deeper understanding of principia of polytetrahalooctanation, structural studies of a group of newly obtained compounds, have been undertaken. We investigated octamolybdates of anilines derivatives with the general formula NH₂-Ph-R towards mm2 symmetry.

Synthesis: aqueous solution of molybdic acid and amine, acidified with HCl or CH₂COOH was boiled under reflux for 1-24hrs.

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Keywords: molybdate, isopolytetratetrahalooctanate, catalysis

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Crystal structure of C₄H₆ONH₂-PbBr₂ by neutron and X-ray diffraction experiments

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C₄H₆ONH₂-PbBr₂ has a lead-based inorganic-organic perovskite structure. One-dimensional chains of face shearing PbBr₂ octahedra are isolated by C₄H₆ONH₂ cations to be quantum wire, so this material can be regarded as a naturally self-organized one-dimensional system. The crystal structure of the material is orthorhombic with space group P2₁2₁2₁. PbBr₂ octahedra are strongly distorted because of the existence of

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