New Stable Ge(II) and Sn(II) Organic Derivatives: an X-Ray Diffraction Study

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New types of stable Ge(II) and Sn(II) organic derivatives have been studied by X-ray diffraction analysis.

1. It has been established for the first time that Ge(II) and Sn(II) compounds can be stabilized in the monomeric form solely by the electronic effects, *viz.*, intramolecular M(II)←N coordination and σ-acceptor ability of the oxygen atoms, without substantial steric shielding of the central metal atoms.

2. It has been shown that very interesting Ge(II) and Sn(II) species (for example, azides, carboxylates, etc.) can be isolated as thermally stable solids owing to the electronic effects described above.

3. It has been found that the substituent effects responsible for the stabilization of divalent Group 14 derivatives in the monomeric form are drastically different for homoleptic and heteroleptic compounds and thus do not follow the simple "building block" principle.

4. It has been revealed that the bidentate ligands in the Ge(II) carboxylates (both in neutral and in anionic complexes) are not chelating, and the Ge(II) atoms have the most favorable trigonal-pyramidal configuration.

The stereochemistry and polymorphism of the investigated compounds are discussed.

This work was financially supported by the Russian Foundation for Basic Research (Project No. 04-03-32662).

Keywords: low-coordinated germanium and tin compounds, intramolecular interactions, x-ray crystal structure analysis