

Sn₉⁴⁻ Zintl Ions as Reactive Precursor for Neat Solids: Syntheses and Crystal Structures of Rb₄[SnTe₄], K_xCs_{4-x}[SnTe₄], and K_xCs_{10-x}[Sn₄Te₁₂]

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Dedicated to Professor Hubert Schmidbaur on the occasion of his 75th birthday

The reactions of Zintl ions Sn₉⁴⁻ formed in ethylenediamine solutions of K₂Cs₂Sn₉ and Rb₄Sn₉ with elemental tellurium have been investigated. Addition of elemental tellurium to the filtrates of these solutions leads – depending on the reaction conditions – to four different products: Compounds K_{0.36(1)}Cs_{3.64(1)}[SnTe₄] (**1**) and Rb₄[SnTe₄] (**2**) contain the tetrahedral anion [SnTe₄]⁴⁻, and Cs₄[Sn₂Te₇] (**3**) features the anion [Te₂Sn(μ-Te)(μ-Te₂)SnTe₂]⁴⁻, whereas a novel Zintl anion [Sn₄Te₁₂]¹⁰⁻ is present in compound K_{0.44(1)}Cs_{9.56(1)}[Sn₄Te₁₂] (**4**). Compounds **1**, **2** and **4** have been structurally characterized by single-crystal X-ray diffraction.

Key words: Zintl Ions, Crystal Structure, Tellurium