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Synthesis and structure of complexes of antimony [Me₃NH]⁺₃[Sb₂I₉]³⁻ u [Ph₃PrP]⁺₃[Sb₃I₁₂]³⁻·MeCN

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Abstract

Interaction trimethylammonium iodide and antimony iodide (molar ratio 3:2, respectively) in a solution of acetone synthesized complex $[Me_3NH]^+_3[Sb_2I_9]^{3-}$ (I). From equimolar amounts of iodide triphenyl-propylphosphonium and antimony iodide in acetonitrile was obtained complex $[Ph_3PrP]^+_3[Sb_3I_{12}]^{3-}$ · MeCN (II). Structure I, II found by X-ray. Cations of the complexes have a little distorted tetrahedral structure (CNC $109.6(6)^\circ$, $111.1(6)^\circ$, $112.5(6)^\circ$ in I, CPC- $107.6(3)^\circ$ - 110.85 (18) $^\circ$ in II), antimony atoms in the anions $[Sb_2I_9]^{3-}$ and $[Sb_3I_{12}]^{3-}$ have a coordination number of 6 (distances Sb-I_{brid} and Sb-I_{term} are 3.1904(5), 3.3745(5) and 2.8893(5), 2.8292(5) Å in I, (3.0090(5)-3.5120(5) and 2.7810(5)-2.8671(5) Å in II).