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Tetraorganylphosphonium triiodide [Ph₃RP]⁺[I₃]⁻ $(R = CH_2CHMe_2, CH_2Ph)$. Synthesis and Structure.

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Abstract

Reaction of tetraorganylphosphonium iodides Ph₃RPI (R = CH₂CHMe₂, CH₂Ph) with antimony triiodide in dimethylsulfoxide resulted in synthesizing complexes [Ph₃PCH₂CHMe₂]⁺[I₃] (I), [Ph₃PCH₂Ph]⁺[I₃] (II). According to the X-ray data, the phosphorus atoms in the cation complex I-II have a tetrahedral coordination (CPC 107.2(3)-111.1(2)°), bond lengths P-C are 1.788(5)-1.815(5) Å, respectively. In linear anions $[I_3]$ I-I-I angles and I-I bond lengths are equal to 178.31(2)°, 179.15(2)°) and 2.8882(6)-2.9298(8) Å, respectively. Cations and anions in the crystals I and II are connected with each other through weak hydrogen bonds H···I 3.57 Å (I), 3.06 (II) Å.