

Synthesis and crystal structure of tetrabutylphosphonium tetrabromoaurate $[\text{Bu}_4\text{P}]^+[\text{AuBr}_4]^-$

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Abstract

Reaction of hydrate tetrabromoauratehydrogen acid with tetrabutylphosphonium bromide resulted in obtaining the complex $[\text{Bu}_4\text{P}]^+[\text{AuBr}_4]^-$ (**I**). According to X-ray data, the crystal of complex **I** represented tetrahedral cations $[\text{Bu}_4\text{P}]^+$ (bond lengths P-C 1.75(3)-1.83(3) Å, angles CPC 108.7(16)°-114.8(14)°) and somewhat distorted square planar anions $[\text{AuBr}_4]^-$ (*cis*-angles BrAuBr 89.52(7)°-90.40(6)°, *trans*-angles BrAuBr 179.60(7), 179.84(10)°), bond lengths Au-Br 2.3909(18)-2.4126(15) Å).