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Synthesis and structure of complex $[Ph_3PrP]^+_2[PtBr_6]^{2-}_{0.83}$ $[PtBr_4]^{2-}_{0.17}$

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Abstract

By interaction of potassium hexabromoplatinate with triphenylpropylphosphonium bromide in water there was obtained platinum complex $[Ph_3PrP]^+_2[PtBr_6]^{2-}$ (**I**), which after recrystallization from dimethylsulfoxide was converted into the complex $[Ph_3PrP]^+_2[PtBr_6]^{2-}_{0.83}$ $[PtBr_4]^{2-}_{0.17}$ (**II**). According to X-ray data, in the crystal **II**, along with the cations $[Ph_3PrP]^+$, there are two types of centrosymmetric anions: $[PtBr_6]^{2-}$ (83%) and $[PtBr_4]^{2-}$ (17%), the inversion centers of which coincide. Anions are undistorted octahedron (axial angles BrPtBr 180)°, equatorial angles BrPtBr 89.10(4)° and 90.90(4)°) and square (angles BrPtBr 180°, 92.4(2)°, 87.6(2)°). The bond lengths Pt-Br are 2.421(5)-2.469(1) Å. Cations $[Ph_3PrP]^+$ have tetrahedral structure (P-C_{Ph} 1.786(8)-1.789(8) Å, P-C_{Pr} 1.820(10) Å, CPC 104.6(4)°-112.9(5)°).