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Synthesis and structure of hexachlorobismuthate of diethylammonium $[Et_2NH_2]_3^+[BiCl_6]^{3-}$ and solvate of tetraiododipyridinobismuthate of ammonium with pyridine $[NH_4]^+[BiI_4(C_5H_5N)_2]^-\cdot 2C_5H_5N$

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Abstract

By the reaction of diethylammonium chloride with bismuth iodide in scetone there has been synthesized hexachlorobismuthate of diethylammonium $[Et_2NH_2]^+_3[BiCl_6]^{3^-}$. From bismuth iodide and ammonium iodine in pyridine there has been obtained ammonium tetraiododipyridinobismuthate solvate with pyridine $[NH_4]^+$ $[BiI_4(C_5H_5N)_2]^-\cdot 2C_5H_5N$. According to X-ray structural analysis data the atoms of N in ammonium cations have tetrahedral coordination; atoms Bi in anions $[BiCl_6]^{3^-}$ and $[BiI_4(C_5H_5N)_2]^-$ are hexacoordinated $(Bi-Cl\ 2.683(2)-2.877(2)\ \text{Å};\ Bi-N\ 2.577(3),\ 2.652(3)\ \text{Å};\ Bi-I\ 2.9542(3)-3.0778(3)\ \text{Å}).$

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