

Synthese und Kristallstruktur von $\text{PPh}_4[\text{PhICl}_3]$

Synthesis and Crystal Structure of $\text{PPh}_4[\text{PhICl}_3]$

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Phenyl-trichloro-iodate(III), Synthesis,
Crystal Structure

Phenyl-iodo-dichloride reacts with tetraphenylphosphonium chloride in dichloromethane solution to give the phenyltrichloroiodate(III) complex $\text{PPh}_4[\text{PhICl}_3]$. The compound forms pale yellow crystals, which have been characterized by a crystal structure determination. Space group $\text{P}\bar{1}$, $Z = 2$, lattice dimensions at $-50\text{ }^\circ\text{C}$: $a = 1018.7(2)$, $b = 1232.9(2)$, $c = 1287.3(2)$ pm, $\alpha = 81.94(1)^\circ$, $\beta = 66.61(1)^\circ$, $\gamma = 71.62(1)^\circ$, $R_1 = 0.0425$ for 3976 observed independent reflections. The structure consists of PPh_4^+ ions and anions $[\text{Ph}-\text{ICl}_3]^-$ with a planar coordination environment of the iodine atom. The I–Cl bond length of the chlorine atom trans to the phenyl group is much longer (301.9(1) pm) than the cis chlorine atoms with 250,4(1) pm in average.

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