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Alkylation of Hydrothiophosphoryl Compounds by Digalogenoalkanes Under Phase Transfer Caralysis Conditions

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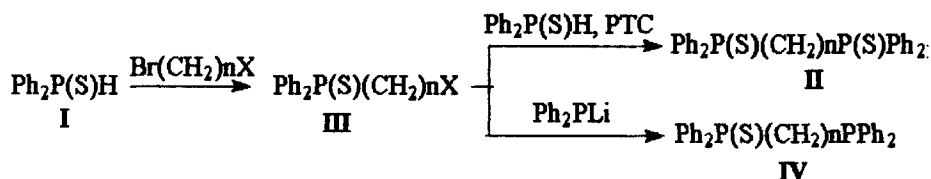
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ALKYLATION OF HYDROTHIOPHOSPHORYL COMPOUNDS BY DIGALOGENOALKANES UNDER PHASE TRANSFER CATALYSIS CONDITIONS

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The course of reactions of hydrothiophosphoryl compounds with dihalogenoalkanes under PTC conditions depends both on the nature of halogen atom and the length of the alkylene chain. **I** reacts with CH_2Br_2 to yield $\text{Ph}_2\text{P}(\text{S})\text{CH}_3$; with ICH_2Cl $\text{Ph}_2\text{P}(\text{S})\text{CH}_2\text{Cl}$ is formed.



$\text{X} = \text{Cl, Br, } n=3,4$

In the case of $\text{BrCH}_2\text{CH}_2\text{Br}$ only $[\text{Ph}_2\text{P}(\text{S})]_2$ was isolated. Alkylation of **I** by ω -di-bromoalkanes ($n = 3,4$; 2:1 ratio) produces disulfides **II**, whereas the reaction of **I** with ω -bromochloroalkanes yields ω -chloroalkylphosphine sulfides **III**. Unsymmetrical bis-phosphorus ligands were prepared from **III** ($\text{X} = \text{Cl}$) and Ph_2PLi . Compounds **III** ($\text{X} = \text{Br, I}$) produce stable cyclic thiaphosphonium salts **V**. The structures of **V** were confirmed by X-ray analysis. This work was partially supported by Russian Fundamental Research Foundation (grant no 93-03-04351)

