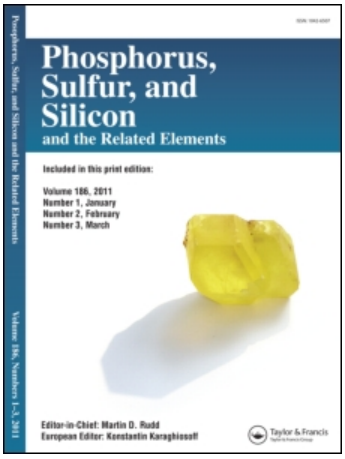

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Complex Formation of $[Ph_2P(O)I_2\ C{=}CH_2$ and $[Ph_2\ P(O)\ I_2\ C{=}PPh_3$ with Phosphorus and Tantalum Pentafluorides

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COMPLEX FORMATION OF $[Ph_2P(O)]_2C=CH_2$ AND $[Ph_2P(O)]_2C=PPh_3$ WITH PHOSPHORUS AND TANTALUM PENTAFLUORIDES

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Reactions of PF_5 and TaF_5 with $[Ph_2P(O)]_2C=CH_2$ (I) and $[Ph_2P(O)]_2C=PPh_3$ (II) in MeCN and CH_2Cl_2 were studied by means of ^{19}F, ^{31}P, ^{1}H and ^{13}C NMR spectroscopy. It has become evident, that one or two phosphoryl groups in (I) and (II), as well as in cis- and trans-$Ph_2P(O)CH=CHP(O)Ph_2$, are involved in complex formation. The formation of tetrafluoro cations PF_4L and TaF_4L along with pentafluorocomplexes PF_5L and TaF_5L was found. Ligands are coordinated with central ions of complexes as chelates. The trans-atoms F_1 of TaF_5L are nonequivalent because of nonsymmetric position to the Ph_3P-group. The F_1-atoms in PF_4L are supposed to be symmetric to the Ph_3P-group. The formation of trifluorocomplexes $TaOF_3L$ was also observed. Since the position of ^{19}F NMR resonance lines of $TaOF_3L$ is near to that of pentafluorocomplexes, it can be supposed that either the change of Ta coordination number takes place, either oxygen atom comes into complex with inner sphere in the reaction with ligand or during hydrolysis.