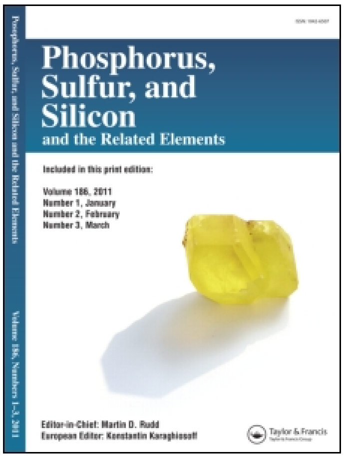

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REACTIONS OF VINYLENDIPHOSPHINE DIOXIDES WITH PHOSPHORUS AND TANTALUM PENTAFLUORIDES

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Reactions of trans-$R_2P(O)CH=CHP(O)R_2$ R=Ph (I), Tol (II), $Ph_2P(O)CH=CHP(O)PhEt$ (III), $Et_2P(O)CH=CHP(O)PhEt$ (IV), and cis-$R_2P(O)CH=CHP(O)R_2$ R=Ph (V), Tol (VI) with PF_5 and TaF_5 have been studied in MeCN and CH_2Cl_2 solutions by means of ^{1}H, ^{19}F, ^{31}P and ^{13}C FT NMR. The results indicate that in solutions the trans-isomers of dioxides (I-IV) can be monodentate ligands or bridging groups, and that they use one or two donor centers in complex formation with pentafluorides. In the latter case the ligands attach two Lewis acids to form binuclear complexes. The cis-isomers of dioxides (V-VI) can be monodentate or bridging ligands, and can also form chelate with substitution of fluoride-atoms and with formation of tetrafluorocations. The differences in relative stability of tetrafluoro-complexes of phosphorus and tantalum with chelate ligands were detected. In the case of tantalum complexes the intermolecular exchange of fluorine atoms occurs faster. The kinetic parameters of the fluorine exchange process are calculated.