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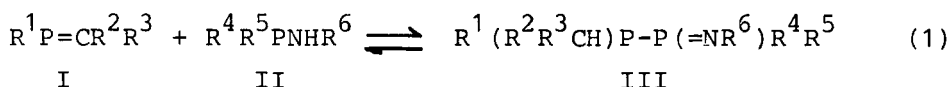
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REVERSIBLE PHOSPHAALKENE FORMATION FROM IMINODI-PHOSPHINES

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Addition of various nucleophiles to phosphaaalkenes is considered to be irreversible. As an example, the quantitative formation of iminodiphosphine III from phosphinous amide and phosphaaalkene was recently reported (1). We found that the reaction (1) is reversible



The equilibrium is shifted completely to the right, when $\text{R}^1=(\text{Me}_3\text{Si})_2\text{N}$, $\text{R}^2=\text{H}$, $\text{R}^3=\text{R}^6=\text{Me}_3\text{Si}$, $\text{R}^4=\text{Me}_3\text{SiCH}_2$, $\text{R}^5=\text{Et}_2\text{N}$; and to the left, when $\text{R}^1=(\text{Me}_3\text{Si})_2\text{N}$, $\text{R}^2=\text{H}$, $\text{R}^3=\text{Et}_3\text{Si}$, $\text{R}^4=\text{R}^5=\text{i-Pr}$, $\text{R}^6=\text{Ph}$ or t-Bu . When the substituents R^1-R^5 are the same as in the latter case and $\text{R}^6=\text{Me}_3\text{Si}$, equilibrium ratio may be observed by ^{31}P NMR. Very strong temperature dependence of the equilibrium was observed (the content of phosphaaalkene increases from 6.5% at 20°C to 30% at 85°C ; after cooling an initial equilibrium ratio is recovered). Thus, as stated in (2), phosphaaalkenes may be produced via pyrolysis of iminodiphosphines.

(1) R.H.Neilson, B.L.Li, *Inorg. Chem.* 25, 358 (1986).

(2) V.L.Foss, Yu.A.Veits, *Zh. Obshch. Khim.* 54, 2670 (1984).