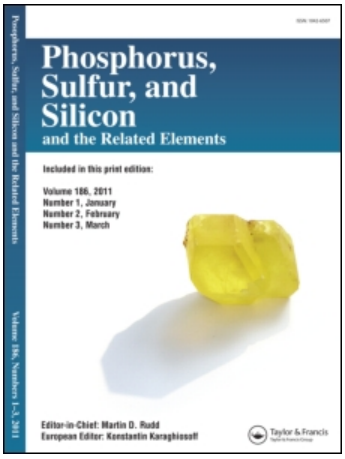

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A New Way to Triaryl- and Trialkylphosphine Oxides

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A New Way to Triaryl- and Trialkylphosphine Oxides

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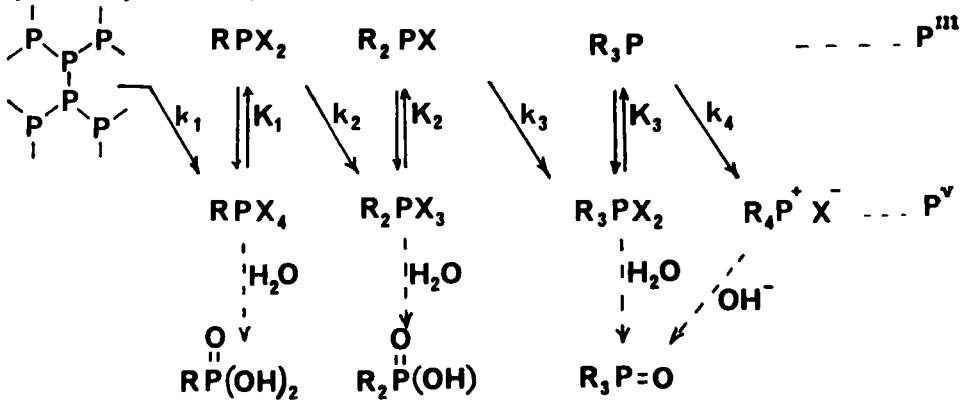
The use of the elemental phosphorus as starting material for organophosphorus synthesis often involves activation, as in the case of the nearly unreactive red phosphorus.

A fundamental research about the arylation or alkylation of red phosphorus has been carried out. In these processes, the shift inside a set of successive equilibriums allows progressive conversion of all the P-P bondings in P-C ones. The formation of P^{III} or P^{V} compounds depends both on their thermodynamic equilibrium, and on the oxidative or reductive reaction conditions.



The "hypo" or "per" -arylated or -alkylated nature of the products is controlled by the value of the k/K ratio of the kinetic (k) and thermodynamic (K) constants, together with the choice of the experimental parameters.

Preparative applicability is shown by the synthesis of 99% pure triphenylphosphinoxid (TPPO) with 97 per cent yield[1)]. The process can also be extended to the trialkylphosphinoxides[2].

1) H.J. CRISTAU, B. CHABAUD, F. GATEBLED, M. WALLET, enveloppe SOLEAU N° 43138 du 20.09.1983.

2) H.J. CRISTAU, F. GUIDA, F. PLENAT, M. WALLET, enveloppe SOLEAU N° 45917 du 26.12.1983 ; H.J. CRISTAU, J. PASCAL, F. PLENAT, M. WALLET, enveloppe SOLEAU N° 57977 du 13.02.1985.