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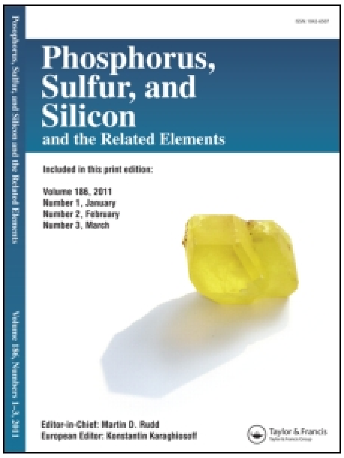

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THE MECHANISM OF REACTIVE GROUP EXCHANGE AT TRICOORDINATE PHOSPHORUS CENTRE

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Compounds of tricoordinate phosphorus are well known to have the ability to exchange some reactive groups bound to the P(III) centre (scheme 1) or they may exchange reactive groups in result of the interaction with compounds of other heteroatoms like silicon (scheme 2)

$$R'_1R'_2PX \;+\; R'_1R'_2PY \rightleftharpoons R'_1R'_2PY \;+\; R'_1R'_2PX \qquad (1)$$

$$R_1R_2PX \;+\; R{\equiv}SiY \rightleftharpoons R_1R_2PY \;+\; R{\equiv}SiX \qquad (2)$$

R_1, R_2, R'_1, R'_2= Alk, Ar, OAlk, OAr, $NAlk_2$

Particularly remarkable reactivity and often amazingly high selectivity are exhibited by systems involving R_1 and R_2 substituents increasing nucleophilicity of the phosphorus centre like dialkylamine groups. It was shown that in these systems ionic complexes are formed (scheme 3,4) which are stable on the NMR time scale at low temperatures. Variant temperature ^{31}P and ^{29}Si NMR studies of these complexes proved that they are true intermediates in the ligand exchange processes.

$$R_1R_2PX \;+\; R'_1R'_2PY \rightleftharpoons [R_1R_2XP{-}PR'_1R'_2]^+Y^- \qquad (3)$$

$$R_1R_2PX \;+\; R{\equiv}SiY \rightleftharpoons [R'_1R'_2XP{-}Si{\equiv}]^+Y^- \qquad (4)$$

The mechanism of the decomposition of these intermediates to the exchange products is discussed.