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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### On the Electronic Structure of Phosphorus- (III)-p- $\pi$ -Bonded Systems: UV- and PE- Spectroscopic Investigations of Phosphaalkenes

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# On the Electronic Structure of Phosphorus- (III)-p- $\pi$ -Bonded Systems: UV- and PE- Spectroscopic Investigations of Phosphaalkenes

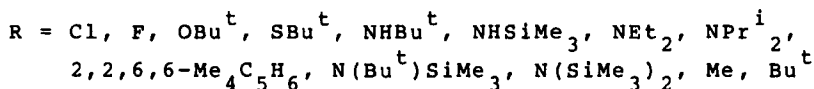
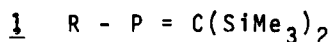
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UV- and He-I-p.e. spectra of phosphaalkenes 1 are discussed.



Assignment of  $\pi(P=C)$ - and  $n(P)$ - ionization potentials agrees with u.v. data as well as semiempirical MNDO - calculations. The alkyl-substituted species exhibit a sequence of  $\pi(P=C)$  and  $n(P)$ -i.p.'s which is unusual for phosphaalkenes ( i.p. (n) < i.p. ( $\pi$ ) ). Introduction of RO- and RS- substituents results in formation of a mesomeric 3-center-4-electron  $\pi$ -system. Two different conformers of amino-phosphaalkenes can be distinguished which depend on the steric demand of the substituent, and differ in the orientation of the amine-ligand in relation to the plane of molecular symmetry. Coexistence of both isomers is proved in the case of  $R = NPr^i_2$  by temperature dependant u.v. studies.

D. Gudat, E. Niecke, W.Sachs, and P. Rademacher, Z. anorg. allg. Chem., in press.