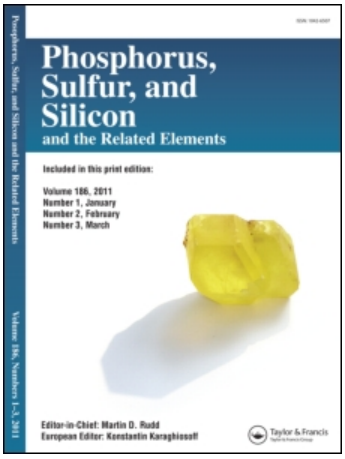

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The Ene-Reaction of Phosphaalkynes-Application for the Synthesis of Phosphiranes

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THE ENE-REACTION OF PHOSPHAALKYNES - APPLICATION FOR THE SYNTHESIS OF PHOSPHIRANES

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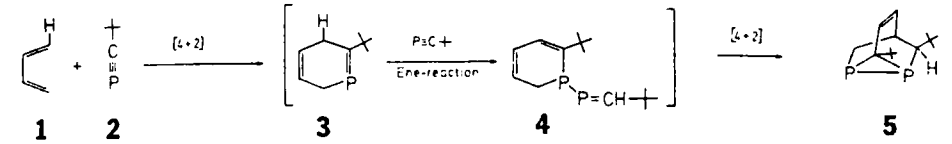
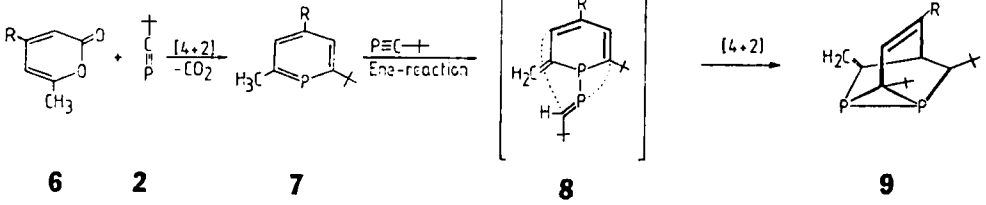
1,3-Butadienes 1 and 6-Methyl-2H-pyran-2-ones 6 react with two equivalents of phosphaalkynes 2 in a domino-reaction to the diphosphiranes 5 and 9 respectively. Diels-Alder-reaction of 1 with 2 leads to 3 which cannot be isolated. An Ene-reaction of the phosphacyclohexa-1,4-diene 3 with additional 2 gives 4 followed by an intramolecular Diels-Alder-reaction yielding the stable diphosphatricyclooctenes 5.



1 2 3 4 5



6 2 7 8 9

The phosphaalkyne 2 transforms α-pyrones 6 into the stable λ^3-phosphinenes 7 via a [4+2]-cycloaddition reaction followed by cycloelimination of carbon dioxide. Subsequent Ene-Reaction with phosphaalkyne 2 and intramolecular [4+2]-cycloaddition leads to the final diphosphiranes 9.