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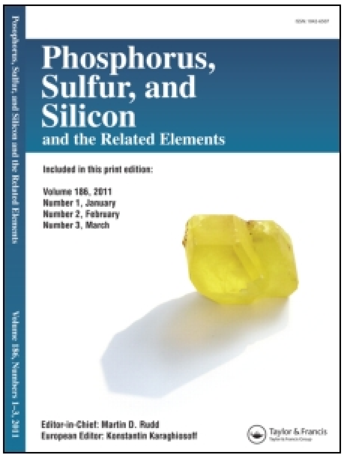

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2H-1,2,3-Diazaphospholes in Addition Reactions

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2H-1,2,3-DIAZAPHOSPHOLES IN ADDITION REACTIONS

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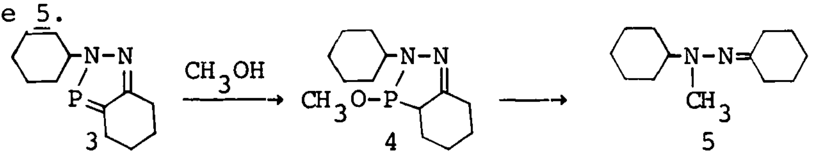
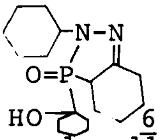
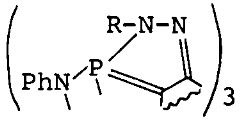
2H-1,2,3-Diazaphospholes activity depends on the nature of substituents in 2,4,5-positions of the diazaphosphole ring. 5-Methyl-2-phenyl(acetyl)-1,2,3-diazaphospholes 1, 2 react with the alcohols at room temperature, and 2-cyclohexyl-4,5-tetramethylen-1,2,3-diazaphosphole 3 - at 65°C. The adduct 4 degrades to cyclohexanon-N-cyclohexyl-N-methylhydrasone 5.



3 4 5

Diazaphosphole 3 is less active than diazaphosphole 1 in the reaction with cyclohexanon. The treatment of diazaphosphole 3 with cyclohexanon leads to the compound 6: the result of the 1:1-hydrolysis adduct. Two routs of the reaction were found in the case of diazaphosphole 1: via cyclohexanon addition to the $\lambda^3\sigma^2$P=C bond and at the $\lambda^3\sigma^2$P atom with formation of the product similar to 6. The interaction of diazaphospholes 1, 2, 3 with phenylazide gives trimers 7.





7

Diazocompounds add to diazaphospholes by 1,3-dipolar cycloaddition (AcCHN$_2$, (EtO)$_2$P(O)CHN$_2$, EtOC(O)CHN$_2$, Ph$_2$CN$_2$, PhCHN$_2$, diazofluoren to diazaphospholes 1,2). The existence of intermediate diazaphosphole ylides is ascertained in the reactions with Me$_2$CN$_2$, i-PrCHN$_2$, t-BuCHN$_2$. The availability of geometric isomeres of phosphirans is established in the case of MePhCN$_2$.