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### Reaction of Allenylphosphonic Diamides with Bromine

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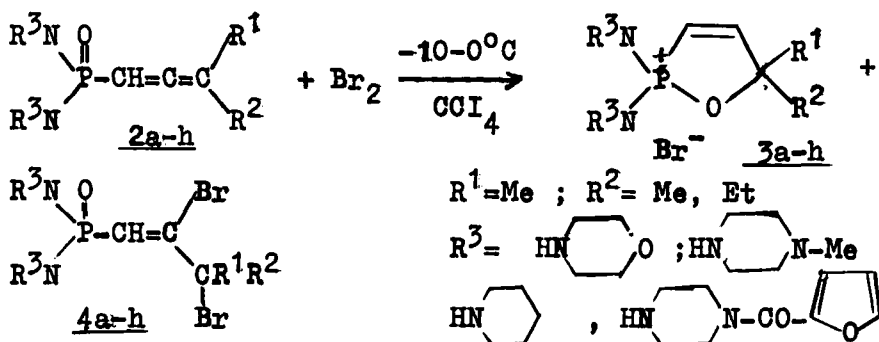
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# REACTION OF ALLENYLPHOSPHONIC DIAMIDES WITH BROMINE

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In contrast to allenylphosphonic dichlorides and dialkyl esters, the diamides are little known and practically not studied. The allenylphosphonic diamides 2a-h were prepared from the 3,3-disubstituted allenylphosphonic dichlorides 1a,b,  $\text{Cl}_2\text{P}(\text{O})-\text{CH}=\text{C}=\text{CR}^1\text{R}^2$ , and heterocyclic amines at low temperature. Here we report the results of the reaction of 2a-h with bromine. Unlike the halogenation of the corresponding dialkyl esters, dichlorides and tertiary phosphine oxides, where only one reaction route has been observed—cycloaddition or 2,3-addition, both reaction routes proceed in allied degree in the case studied:



The reaction products ratio depends on the  $\text{R}^3\text{N}$ -rest, the degree of heterocyclization being higher in all cases. The formed phosphonium salts 3a-h were isolated as crystals and appears to be stable substances. The structures of 2a-h, 3a-h and 4a-h were confirmed by IR, MS,  $^1\text{H}$ - and  $^{13}\text{C}$  NMR. The high chemo- and Z-stereoselectivity of the reaction is discussed.