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

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

### Interaction of Tertiary Phosphines with Acetylenic Compounds. Alkyl Migration Accompanied by C-P Bond Cleavage and Fragmentation During the Interaction of Trialkylphosphines with Phenylacetylene in the Presence of Proton Donors

M. H. Injikian<sup>a</sup>; G. Ts. Gasparian<sup>a</sup>; S. K. Barseghian<sup>a</sup>; M. Zh. Hovakimian<sup>a</sup>

<sup>a</sup> Institute of Organic Chemistry, Armenian Academy of Sciences, Yerevan, USSR

**To cite this Article** Injikian, M. H. , Gasparian, G. Ts. , Barseghian, S. K. and Hovakimian, M. Zh.(1990) 'Interaction of Tertiary Phosphines with Acetylenic Compounds. Alkyl Migration Accompanied by C-P Bond Cleavage and Fragmentation During the Interaction of Trialkylphosphines with Phenylacetylene in the Presence of Proton Donors', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 51: 1, 259

**To link to this Article:** DOI: 10.1080/10426509008040793

**URL:** <http://dx.doi.org/10.1080/10426509008040793>

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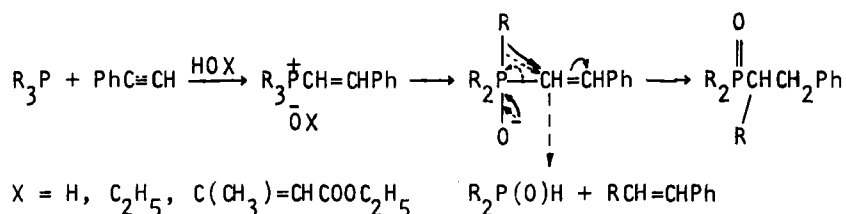
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# INTERACTION OF TERTIARY PHOSPHINES WITH ACETYLENIC COMPOUNDS. ALKYL MIGRATION ACCOMPANIED BY C-P BOND CLEAVAGE AND FRAGMENTATION DURING THE INTERACTION OF TRIALKYLPHOSPHINES WITH PHENYLACETYLENE IN THE PRESENCE OF PROTON DONORS

M.H.INJIKIAN, G.Ts.GASPARIAN, S.K.BARSEGHIAN, and  
 M.Zh.HOVAKIMIAN

Institute of Organic Chemistry, Armenian Academy of  
 Sciences, Kamo Str. 167a, Yerevan 375094, USSR

We have recently described phosphobetaines with negative charge on  $\beta$ -carbon atom of vinyl group or on  $\delta$ -carbon atom of 1,3-butadienyl group prepared by interaction of trialkylphosphines with acetylenic and vinylacetylenic compounds, respectively. In the course of developing these investigations an extra route of phosphobetaine formation has been found representing the deprotonation of corresponding phosphonium salts. It has been found that the reaction of trialkylphosphines with phenylacetylene in the presence of proton donors leads to the formation of an intermediate compound containing pentacovalent phosphorus linked with negatively charged oxygen atom. The intermediate undergoes a migration of alkyl group followed either by protonation of  $\beta$ -carbon atom or by unusual cleavage of P-C bond as a result of the electrons back transition:



The experimental data obtained during the investigation of the reaction of trialkylphosphines with phenylacetylene in aqueous media is in favour of C-C fragmentation in intermediate O-phosphobetaine.