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

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### Hydrogen Migration and Reductive Elimination of Alkyne in $\text{Fe}(\text{CO})_4\text{P}(\text{tBu})(\text{C} \equiv \text{CPh})\text{H}$ Induced by the Action of $\text{Co}_2(\text{CO})_8$

Rané Mathieu<sup>a</sup>; Anne-Marie Caminade<sup>b</sup>; Jean-Pierre Majoral<sup>b</sup>

<sup>a</sup> Laboratoire de Chimie, Coordination du CNRS, Toulouse, France <sup>b</sup> Laboratoire de Synthèse, Structure et Réactivité de Molécules Phosphorées UA 454, Université Paul Sabatier, Toulouse Cédex, France

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# Hydrogen Migration and Reductive Elimination of Alkyne in $\text{Fe}(\text{CO})_4\text{P}(\text{tBu})(\text{C}\equiv\text{CPh})\text{H}$ Induced by the Action of $\text{Co}_2(\text{CO})_8$

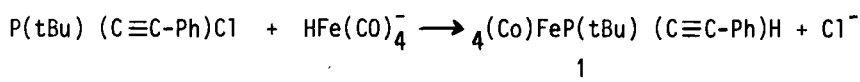
René MATHIEU <sup>a</sup>, Anne-Marie CAMINADE <sup>b</sup> and Jean-Pierre MAJORAL <sup>b\*</sup>

<sup>a</sup> Laboratoire de Chimie de Coordination du CNRS, 205 Route de Narbonne  
31400 Toulouse, France

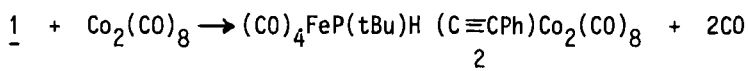
<sup>b</sup> Laboratoire de Synthèse, Structure et Réactivité de Molécules Phosphorées  
UA 454, Université Paul Sabatier, 118 Route de Narbonne  
31062 Toulouse Cédex, France

One of the possible ways of getting phosphacumulene complexes could be the complexation of phosphinoalkynes, which might induce the migration of hydrogen from phosphorus to the  $\beta$  carbon of the alkynyl group.

In a first attempt we have chosen  $\text{Co}_2(\text{CO})_8$  as complexing agent of the triple bond. To avoid the direct reaction between the free lone pair of phosphorus and cobalt, the secondary phosphinoalkyne has been first complexed by an iron tetracarbonyl group, using the original reaction



Reaction of 1 with  $\text{Co}_2(\text{CO})_8$  is quantitative at room temperature.



To induce hydrogen migration, 2 has been refluxed in hexane. Two derivatives have been isolated: a phosphinidene cluster  $\text{tBuPFeCo}_2(\text{CO})_9$  3 as the major compound and a second species 4 which was fully characterized by spectroscopic and X ray diffraction studies. The mechanism of formation of 3 and 4 will be presented.

