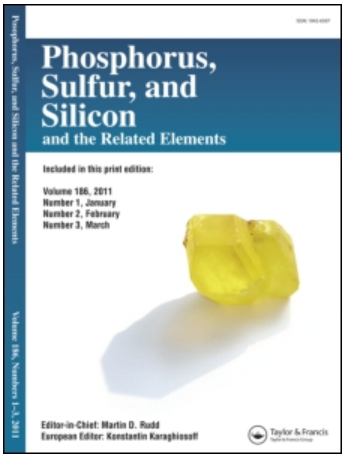

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Hydrogen Migration and Reductive Elimination of Alkyne in $Fe(CO)_4$ P(tBu) (C °CPh)H Induced by the Action of Co_2 $(CO)_8$

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Hydrogen Migration and Reductive Elimination of Alkyne in $Fe(CO)_4$ P(tBu) (C ≡CPh)H Induced by the Action of $Co_2(CO)_8$

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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 β carbon of the alkynyl group.

In a first attempt we have choosen $Co_2(CO)_8$ 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

$$P(tBu)(C\equiv C\text{-}Ph)Cl + HFe(CO)_4^- \longrightarrow {}_4(Co)FeP(tBu)(C\equiv C\text{-}Ph)H + Cl^-$$

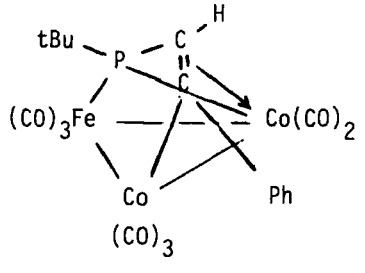
1

Reaction of 1 with $Co_2(CO)_8$ is quantitative at room temperature.

$$1 + Co_2(CO)_8 \longrightarrow (CO)_4FeP(tBu)H(C\equiv CPh)Co_2(CO)_8 + 2CO$$

2

To induce hydrogen migration, 2 has been refluxed in hexane. Two derivatives have been isolated : a phosphinidene cluster $tBuPFeCo_2(CO)_9$ 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.



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