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

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### Ferrio-Dimethylphosphanes

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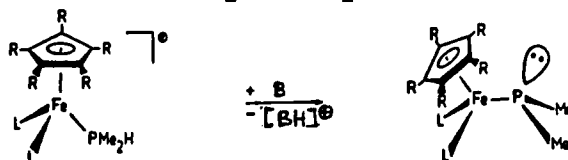
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## FERRIO-DIMETHYLPHOSPHANES

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Stable metallo-dimethylphosphanes are available via the deprotonation of the PH-functional cationic iron complexes  $[(C_5R_5)(L)_2(HMe_2P)Fe]^+$  ( $R = H, Me$ ;  $L = CO, HMe_2P, Me_3P$ ) (1a-d). While  $[Cp(CO)_2(HMe_2P)Fe]^+$  (1a) yields the dinuclear ferrio-phosphane 2a, the analogous reaction of 1b-d leads to the monomeric derivatives 2b-d as a consequence of the electron releasing character of  $C_5Me_5$  unit or the phosphane ligands respectively. The mechanism for the formation of 2a involves the intermediate formation of the metallo-phosphane " $Cp(CO)_2Fe-PMe_2$ ".



1	a	b	c	d	2	a	b	c	d
R	H	Me	H	H	R	H	Me	H	H
L	CO	CO	HMe <sub>2</sub> P	Me <sub>3</sub> P	L	CO/Cp(CO) <sub>2</sub> FePMe <sub>2</sub>	CO	HMe <sub>2</sub> P	Me <sub>3</sub> P

2a-d show pronounced reactivity at the phosphido phosphorus towards diverse electrophilic reagents (HCl, MeI, AgCl etc.), a behaviour, which is characteristic for metallophosphanes <sup>1a-c</sup>. The reactions of 2a,b with some transition metal complexes  $[Cp(CO)_3MX]$  ( $M = Mo, W$ ;  $X = H, Cl, Me$ );  $[Cp(CO)_3Fe]BF_4$ ;  $Pt(PPh_3)_2(C_2H_4)$  etc.] will be reported.

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