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Some Aryl Substituted Metal Phosphorus Double Bonded Complexes $C_5R_5(CO)_2M=PR'_2$ ($R=H, CH_3$; $M=Mo, W$)

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Some Aryl Substituted Metal Phosphorus Double Bonded Complexes $C_5R_5(CO)_2M=PR'_2$ ($R = H, CH_3$; $M = Mo, W$)

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The attempt to generate the metal-phosphorus double bonded system $Cp(CO)_2M=PPh_2$ ($M = Mo, W$) (**4a,b**) via thermal or photochemical decarbonylation of $Cp(CO)_3M-PPh_2$ (**1a,b**) leads to the formation of hydrido-phosphido-bridged complexes $(\mu^2-H)(\mu^2-PPh_2)[M(CO)_2Cp]_2$ (**2a,b**).

4a,b can however be obtained in solution by base-assisted dehydrohalogenation of $Cp(CO)_2(HPPH_2)M-Cl$ (**3a,b**). The reactions of **4a,b** with $Fe_2(CO)_9$, Me_3P or S_8 are presented.

In contrast to **1a,b** the complexes $C_5Me_5(CO)_3M-PPh_2$ (**5a,b**) can be easily decarbonylated to the corresponding double bonded species $C_5Me_5(CO)_2M=PPh_2$ (**6a,b**), but are only stable in solution.

Introduction of mesityl groups at the phosphorus raise the stability of the $M=P$ complexes quite considerably. The compounds $Cp(CO)_2M=PMes_2$ (**7a,b**) are directly obtained via the heterogenous metalation of Mes_2PCl with $Na[M(CO)_3Cp]$. The X-ray structure of **7b** will be described.