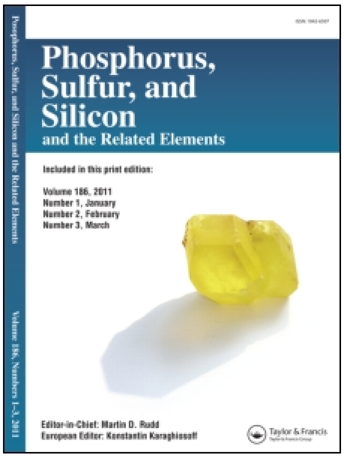

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Metal Phosphorus Double-bonded Complexes with Alkyl and Aryl Substituted Phosphorus

Ulrich Hofmockel[a]; Wolfgang Malisch[a]
[a] Institut für Anorganische Chemie der Universität Würzburg, Würzburg, FRG

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Metal Phosphorus Double-bonded Complexes with Alkyl and Aryl Substituted Phosphorus

Ulrich Hofmockel und **Wolfgang Malisch** *
Institut für Anorganische Chemie der Universität Würzburg,
Am Hubland, D-8700 Würzburg, FRG

The phosphane substituted complexes $Cp(CO)_2[R(Ph)PH]M-Cl$ (M= Mo, W; R= Me, t.Bu)(**2a-d**) are obtained via exchange of one CO ligand versus R(Ph)PH in the metalchlorides $Cp(CO)_3M-Cl$ (M= Mo, W)(**1a, b**).
While dehydrohalogenation of $Cp(CO)_2[t.Bu(Ph)PH]W-Cl$ (**2d**) with diazabicyclo-undecene(5.4.0) yields $Cp(CO)_2W{=}P(t.Bu)Ph$ (**3d**) as a violett-blue cristalline solid, which is stable at room temperature, the analogues reaction of $Cp(CO)_2[Me(Ph)PH]M-Cl$ (**2a,c**) results in the formation of the dinuclear hydrido-phosphido-bridged' species $(\mu\text{-}H)(\mu\text{-}MePhP)[M(CO)_2Cp]_2$ (**4a, b**). The intermediate formation of $Cp(CO)_2M{=}P(Me)Ph$ (M= Mo, W) (**3a, c**) was proved by trapping experiments, e.g. sulfur addition, which gives the three membered metallacycles $Cp(CO)_2M-P(S)MePh$ (**5a,c**).
Information concerning the reactivity of $Cp(CO)_2W{=}P(t.Bu)Ph$ towards divers small molecules (CO, CO_2, SO_2) will be given.