

Reactivity of Cu(I) Nacnac Complexes Towards Polypnictogen Compounds

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The conversion of white phosphorus and yellow arsenic, respectively, in the coordination sphere of transition metals was studied extensively within the last decades yielding a plethora of polypnictogen (E_n) ligand complexes ($E = P, As$).^[1] The most prominent derivative is $[Cp^*Fe(\eta^5-E_5)]$ ($E = P$ (**1a**), As (**1b**), $Cp^* = \eta^5-C_5Me_5$) which contains a *cyclo*- E_5 ligand that is isolobal to the well-known Cp ligand.^[2] In our group, compounds **1** and its derivatives are of central interest to explore their reactivity.^[3] Current investigations focus on the reactivity of $[LCu(NCMe)]$ (**2**, $L = \{[N(C_6H_3Me_2-2,6)C(Me)]_2CH\}^-$) towards E_n ligand complexes such as **1** which leads to $[(Cp^*Fe)(\mu_3, \eta^{5:2:1}-E_5)(LCu)_2]$ (**3**) and $[(Cp^*Fe)(\mu, \eta^{5:2}-E_5)(LCu)]$ (**4**), respectively (Figure 1). These complexes prefer a η^2 -side-on coordination over an η^1 -end-on coordination of the *cyclo*- E_5 -ligand, in which the coordinated bond is still intact according to DFT calculations. Its dynamic behaviour was examined by different NMR techniques. Furthermore, the reactivity of **2** towards other *cyclo*- E_n ligand complexes was investigated and the results are discussed.

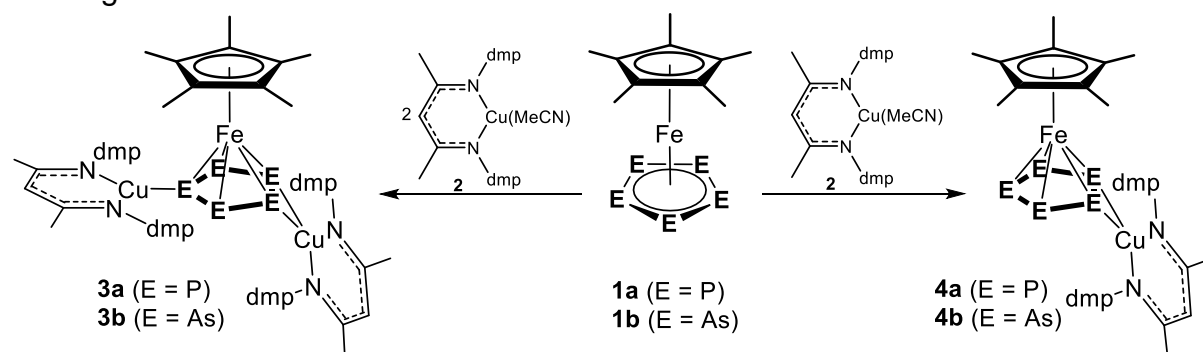


Figure 1. Reaction of $[Cp^*Fe(\eta^5-E_5)]$ with one or two equivalents of $[LCu(NCMe)]$.

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