MS15-P38 Influencing Rh(I) dicarbonyl and phosphine complexes with substituted enaminoketones

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X-PhonyH (X = aromatic substituents; PhonyH = 4-(phenyl-amino)pent-3-en-2-one) compounds belong to the group of enaminoketones. These compounds contain nitrogen and oxygen donor atoms as well as an alkene functionality (see Figure 1), and as such these electron-rich compounds are of interest in various areas, including application as liquid crystals [1], in fluorescence studies [2], the medical field [3,4] and with significant potential in homogeneous catalysis [5].

This study is therefore concerned with the synthesis of PhonyH derivatives as ligand system and the influence of halide and aryl substitution on such ligands with regard to rhodium(I) complex formation. A range of crystal structures of the (i) free ligands, (ii) complexes of the type $[Rh^{I}(X\text{-Phony})(CO)_2]$ (X-Phony = 4-(phenyl-amino)pent-3-en-2-onato derivatives) [6], and (iii) $[Rh^{I}(X\text{-Phony})(CO)(PPh_3)]$ (substitution of a CO group in (ii) by PPh_3) complexes [7,8] as catalyst precursors will be discussed. Furthermore, the exchange between free and coordinated phosphine as indicated through nuclear magnetic spin transfer techniques will be highlighted.

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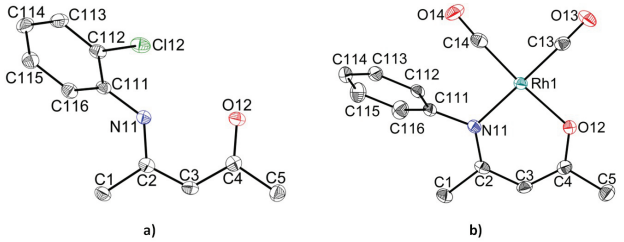

Figure 1. Illustration of a) 4-(2-chloro-phenyl-amino)pent-3-en-2-one (2-Cl-PhonyH) and b) dicarbonyl-[4-(phenylamino)pent-3-en-2-onato]-rhodium(I) $[Rh(Phony)(CO)_2]$.

Keywords: rhodium, enaminoketone, catalysis, exchange

MS15-P39 High-temperature behavior of lithium peroxide Li_2O_2

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Lithium peroxide Li_2O_2 is one of the well-known classic compound. And also, Li_2O_2 is very important compound for Li-air batteries,[2] because the overall reaction in a Li−O_2 cell is the oxidation of lithium metal to Li_2O_2 upon discharge and its subsequent reduction upon charge. Even so, the accurate crystal structure of this compound had not been solved. Recently, we solved its crystal structure using powder synchrotron x-ray diffraction data, and its space group was $P6_3/mmc$.

For the application, we must know the details of thermal behavior of this compound to avoid any troubles on the battery. Therefore, in this study, we examined this compound using TG-DTA and high-temperature XRD in our lab.

Keywords: Lithium battery compound, Li2O2