

15N and 31P NMR studies of cyano(trialkyl/triaryl)phosphine gold(I) complexes. Akhtar, M. Naseem; Gazi, Ibrahim H.; Isab, Anvarhusein A.; Al-Arfaj, Abdul Rahman; Wazeer, Mohammed I. M.; Hussain, M. Sakhawat. Department Chemistry, King Fahd University Petroleum and Minerals, Dhahran, Saudi Arabia. *Journal of Coordination Chemistry* (1995), 36(2), 149-57. Publisher: Gordon & Breach.

Abstract

The ligand scrambling reaction of R_3PAuCN to form $(R_3P)_2Au^+$ and $Au(CN)_2^-$ has been studied (by ^{15}N and ^{31}P NMR spectroscopy) for $R = Me, Et, i-Pr,$ and Ph . ^{31}P NMR showed two resonances due to R_3PAuCN and $(R_3P)_2Au^+$ species, while ^{15}N NMR showed only an averaged resonance due to R_3PAuCN and $Au(CN)_2^-$ species, except for Et_3PAuCN , for which two sep. resonances were detected. $R_3PAu^{13}C^{15}N$ (where $R = Me, Et$ and Ph) complexes were also prepd. and $2J(^{31}P-^{13}C)$ as well as $3J(^{31}P-^{15}N)$ consts. were measured. The free activation energy for ligand scrambling in Ph_3PAuCN was detd. by ^{31}P NMR band shape anal. to be 39.7 kJ/mol⁻¹.