Metal Complexes of Heteroarenes, X [1].

\(\eta^1\)-Coordination of Phosphinine: Synthesis and Structure of

\(\textit{cis}\)-Dichloro-bis(2,6-dimethyl-4-phenyl-phosphinine)platinum

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Phosphinine Complex, Platinum, X-Ray Data, NMR Data, \(\textit{trans}\)-Influence

\(\textit{cis}\)-Dichloro-bis(2,6-dimethyl-4-phenyl-\(\eta^1\)-phosphinine)platinum (3) has been prepared by ligand substitution from \(\textit{cis}\)-dichloro(2,5-cyclooctadiene)platinum and characterized by spectroscopy (\(^1\)H, \(^{13}\)C, \(^{31}\)P NMR, IR, UV-Vis), CV and X-ray diffraction (space group P2\(_1\)/c, \(a = 14.998\), \(b = 16.540\), \(c = 11.506\) Å, \(\alpha = \gamma = 90^\circ\), \(\beta = 92.46^\circ\), \(Z = 4\)). In line with findings for similar P hybridization states, the Pt-P bond length (221 pm) in 3 equals that in \(\eta^1\)-phosphaalkene Pt complexes and falls short of the respective parameters in Pt phosphane species. The stretching frequencies \(\nu_{\text{Pt-Cl}}\) and the bond length Pt-Cl indicate that phosphinines and phosphaalkenes, relative to phosphanes, adopt a lower position on the \(\textit{trans}\)-influence scale. This gradation is also suggested by the coupling constants \(^1J(^{195}\text{Pt},^{31}\text{P})\).

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