Supporting information

Synthesis of diphenylphosphino 2-aminopyridine, Ph_2P-NH-py.

In a Schlenk tube under nitrogen, a mixture of 2-aminopyridine (1.0052 g; 10.68 mmol) and triethylamine (1.5 mL, 10.76 mmol) was dissolved in dry THF (45 mL) under constant stirring. Then, the solution was cooled down with an ice-bath and chlorodiphenylphosphine (2 mL, 11.14 mmol) was added dropwise. The mixture was then allowed to warm up at room temperature and it was left with constant stirring overnight. The precipitate of Et_3N•HCl obtained was filtered off via cannula and the solution was evaporated to dryness to obtain an oily solid. This product was dissolved in the minimum amount of chloroform (5 mL) and then precipitated with cold diethyl ether (30 mL). Finally, the white solid obtained was filtered and dried several hours under vacuum. (1.0395 g) Yield: (35%), Colour: White, Melting point: 129-130°C. ^{31}P-NMR ($CDCl_3$): δ 26.15 (s). ^{1}H-NMR (400 MHz, $CDCl_3$, δ = ppm) δ 8.0-8.2 (H_{15}, dd, $^{3}J_{H15H14}$=3.927 Hz), δ 7.6-7.4 (5H, m), δ 7.4-7.3 (6H, m), δ 7.0, 7.05 (H_{14}, dt), δ 6,75-6,65 (H_{12}, m), δ 5,5-5,4 (H_{11}, d, $^{2}J_{H11P}$=8.415 Hz). ^{31}P{^{1}H}-NMR (162 MHz, $CDCl_3$, δ = ppm) δ 26 (1 P, s). IR (KBr pellets, cm^{-1}): ν (N–H)= 3124 (*m*); ν (C-H)= 2946 (*m*); ν(C=N)= 1598 (*vs*); ν(C=C)=1573 (*vs*); ν(P-Ph)= 1434, 1413 (*vs*); ν(C-N)=1303 (*vs*); ν(P-N)=916 (*vs*).

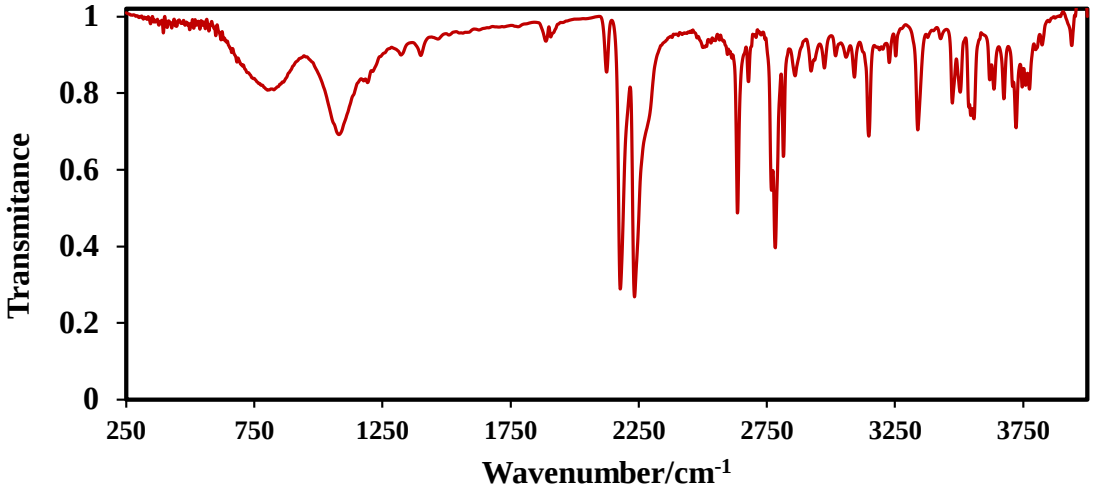

Figure 1. FT-IR spectrum of $Ru(CO)_2Cl_2(Ph_2P\text{-}NH\text{-}py)$ (**1**)

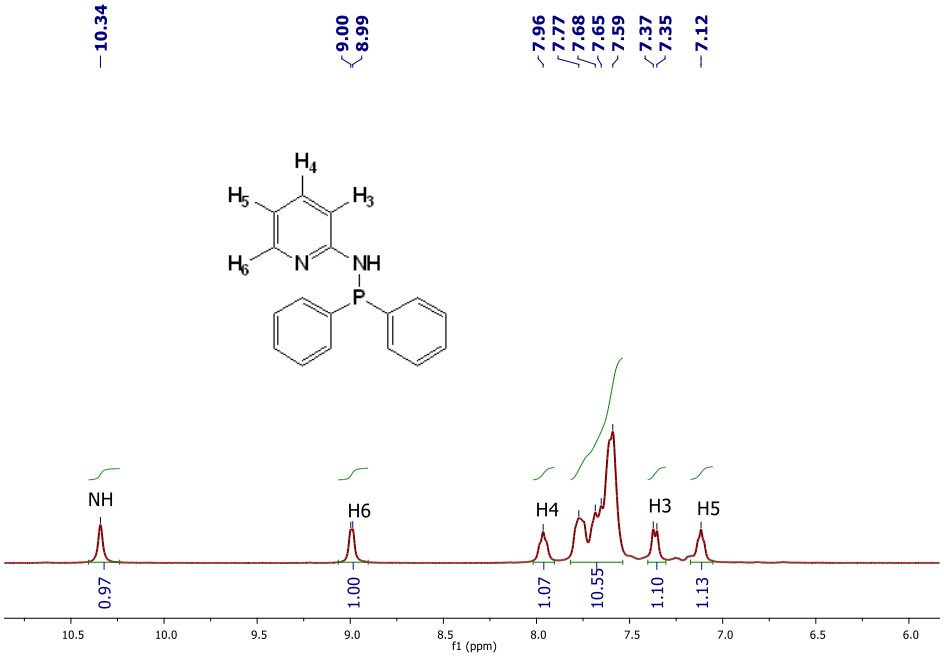

Figure 2. ^{1}H-NMR spectrum of 2-aminopyridine, $Ph_2P\text{-}NH\text{-}py$

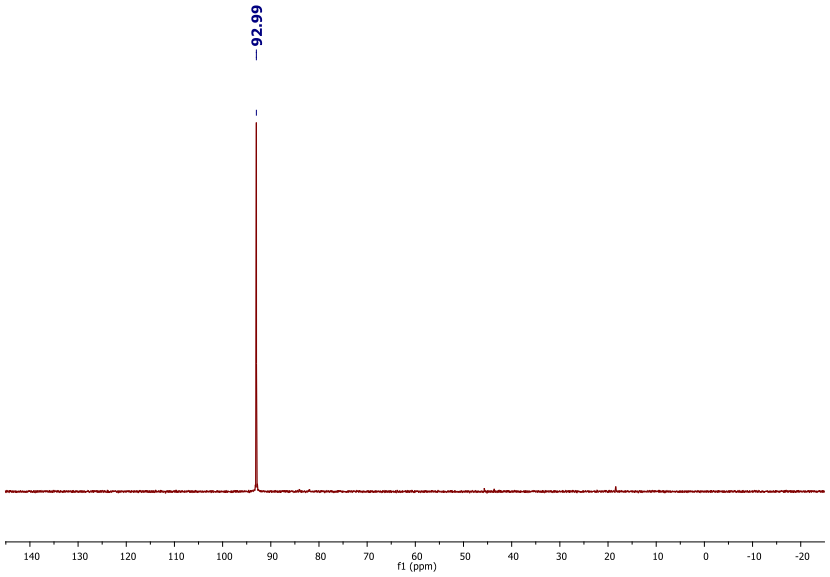

Figure 3. ^{31}P-NMR spectrum of *trans*-Cl-*cis*-(CO)-Ru(CO)$_2$Cl$_2$(Ph$_2$P-NH-py) complex.