Supplementary Material (ESI) for Chemical Communications

Electronic Supplementary Infomation

Unprecedented Reversibile Coupling of Alkynyl and Phosphide ligands on a Dinuclear Platinum Framework

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$[Pt_2(\mu\text{-}P^tBu_2)\{\mu,\eta^1{:}\eta^2\text{-}C(Ph)CH_2\}(C{\equiv}C\text{–}Ph)(CO)(PH^tBu_2)(Br)]$ (3)

Anal. Calcd. for $C_{33}H_{49}BrOP_2Pt_2$: C, 39.9; H, 5.0. Found: C, 40.1; H, 5.1. δ_H (C_6D_6, 298 K): 8–7 (10H, phenyl), 4.76 (s, 1H, CH), 4.48 (dd, 1H, PH, $^1J_{PH}$ = 345.2 Hz, $^3J_{HP}$ = 4.0 Hz), 4.23 (t, 1H, CH, $^3J_{HP}$ = 11.6 Hz), 1.56 (d, 9H, CH_3, $^3J_{HP}$ = 15.2 Hz), 1.43 (d, 9H, CH_3, $^3J_{HP}$ = 14.4 Hz), 1.34 (d, 9H, CH_3, $^3J_{HP}$ = 14.0 Hz), 0.79 (d, 9H, CH_3, $^3J_{HP}$ = 14.6 Hz). δ_P (C_6D_6, 298 K): 35.3 ($^1J_{P2Pt1}$ = 1865 Hz, $^2J_{P1P2}$ = 329 Hz, $^3J_{P2Pt2}$ = 35 Hz), –30.5 ($^1J_{P1Pt1}$ = 2347 Hz, $^1J_{P1Pt2}$ = 2107 Hz, $^2J_{P1P2}$ = 329 Hz). δ_{Pt} (C_6D_6, 298 K): –4187.5 ($^1J_{Pt2P1}$ = 2107 Hz, $^3J_{Pt2P2}$ = 35 Hz), –4255.5 ($^1J_{P1Pt1}$ = 2347 Hz, $^1J_{P2Pt1}$ = 1865 Hz). IR (nujol mull): ν_{CO} = 2064 cm^{-1}.

$[Pt_2(\mu\text{-}\kappa P{:}\eta^2\text{–}P^tBu_2\text{–}C{\equiv}C\text{–}Ph)\{\mu,\eta^1{:}\eta^2\text{-}C(Ph)CH_2\}(CO)(P^tBu_2H)][PF_6]$ {4[PF_6]}

Anal. Calcd. for $C_{33}H_{49}F_6OP_3Pt_2$: C, 37.4, H, 4.7. Found: C, 37.7; H, 4.7. δ_H ($CDCl_3$, 298 K): 7.1–6.5 (10H, phenyl), 4.22 (d, 1H, PH, $^1J_{HP}$ = 363 Hz), 4.07 (s, 1H, CH), 4.03 (s, 1H, CH), 1.49 (d, 9H, CH_3, $^3J_{HP}$ = 18.2 Hz), 1.36 (d, 9H, CH_3, $^3J_{HP}$ = 18.2 Hz), 1.07 (d, 9H, CH_3, $^3J_{HP}$ = 16 Hz), 0.85 (d, 9H, CH_3, $^3J_{HP}$ = 16.2 Hz). δ_P ($CDCl_3$, 298 K): 64.2 (d, $^3J_{P1P2}$ = 15 Hz, $^1J_{P1Pt2}$ = 3885 Hz, $^2J_{P1Pt1}$ = 138 Hz), 26.2 (d, $^1J_{P2Pt1}$ = 2916 Hz, $^2J_{P2Pt2}$ = 228 Hz, $^3J_{P1P2}$ = 15 Hz), –137.0 (sp, $^1J_{PF}$ = 707 Hz). δ_{Pt} ($CDCl_3$, 298 K): –5427.4 (dd, $^2J_{Pt2P2}$ = 228 Hz, $^1J_{Pt2P1}$ = 3885 Hz), –5444.1 (dd, $^1J_{Pt1P2}$ = 2916 Hz, $^2J_{Pt1P1}$ = 138 Hz). IR (nujol mull): ν_{CO} = 2067 cm^{-1}.