

[Ta(O<sub>2</sub>C<sub>20</sub>H<sub>10-3,3'</sub>-{SiMe<sub>3</sub>}<sub>2</sub>)(H)(Cl)<sub>2</sub>(PMe<sub>3</sub>)<sub>2</sub>] (S)-11

A solvent sealed NMR tube was charged with [(S)-9/(S)-10], benzene-d<sub>6</sub> (~1 mL), [PMe<sub>3</sub>], and [Bu<sub>3</sub>SnH]. There were no immediate spectroscopic changes noticeable in the mixture. After approx. 24 hours, however, formation of a Ta-H species appears to occur. Major peaks <sup>1</sup>H NMR (C<sub>6</sub>D<sub>6</sub>, 30°C): δ 22.0 [dd, <sup>2</sup>J(<sup>1</sup>H-<sup>31</sup>P) = 92 Hz., Ta-H]; 8.24 (s), 6.67-8.41 (aromatics); 1.74 (br, NMe<sub>2</sub>); 1.36 (d), 1.00 [d, <sup>2</sup>J(<sup>1</sup>H-<sup>31</sup>P) = 9.2 Hz., PMe<sub>3</sub>]; 0.81 (s), 0.39 (s, SiMe<sub>3</sub>). <sup>31</sup>P NMR (C<sub>6</sub>D<sub>6</sub>, 30°C): δ 10.9 [d, <sup>2</sup>J(<sup>31</sup>P-<sup>31</sup>P) = 42.0 Hz., PMe<sub>3</sub>]; 3.7 [d, <sup>2</sup>J(<sup>31</sup>P-<sup>31</sup>P) = 41.2 Hz., PMe<sub>3</sub>].