

**Preparation and Use of  $Ta(CD_2Bu^t)_5$  To Probe the Formation of  
 $(Bu^tCD_2)_3Ta=CDBu^t$ . Kinetic and Mechanistic Studies of the  
Conversion of Pentaneopentyltantalum to the Archetypical Alkylidene  
Complex**

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**Supporting Information**

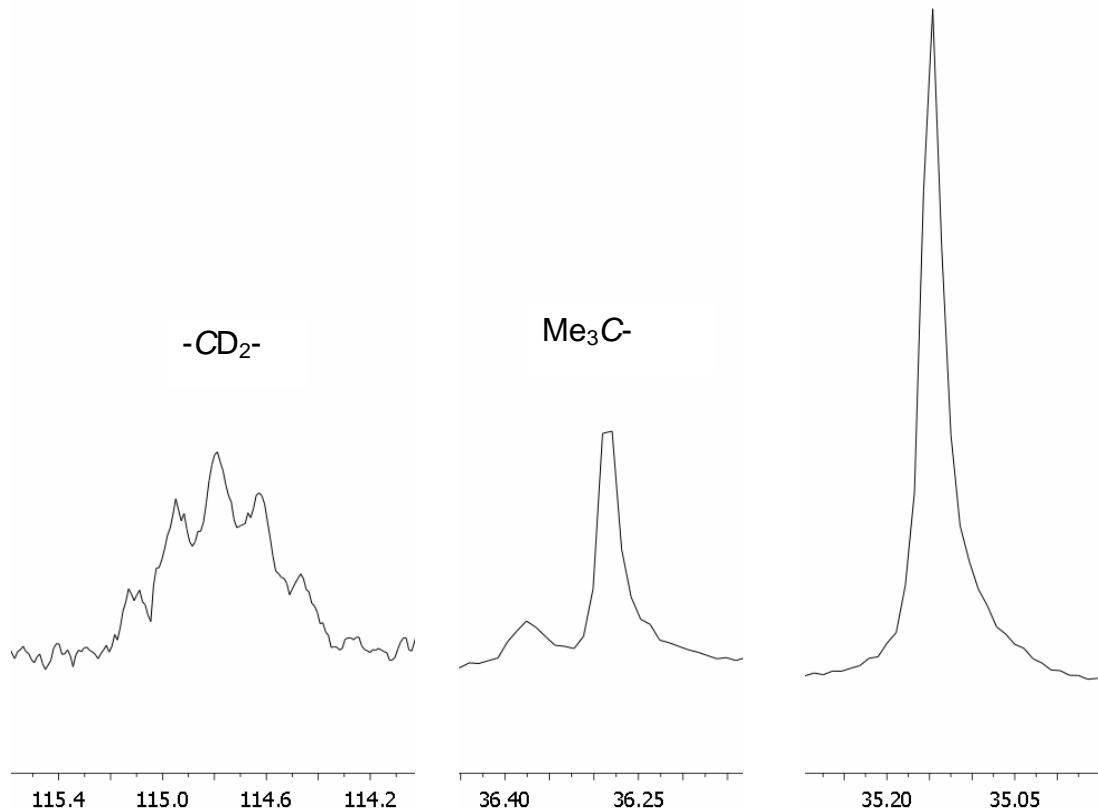
**Ref. 2b**

Blanton, J. R.; Chen, T.-N.; Diminnie, J. B.; Cai, H.; Wu, Z.-Z.; Li, L.-T.; Sorasaenee, K. R.; Quisenberry, K. T.; Pan, H.-J.; Wang, C.-S.; Choi, S.-H.; Wu, Y.-D.; Lin, Z.-Y.; Guzei, I. A.; Rheingold, A. L.; Xue, Z.-L. *J. Mol. Catal. A* **2002**, *190*, 101.

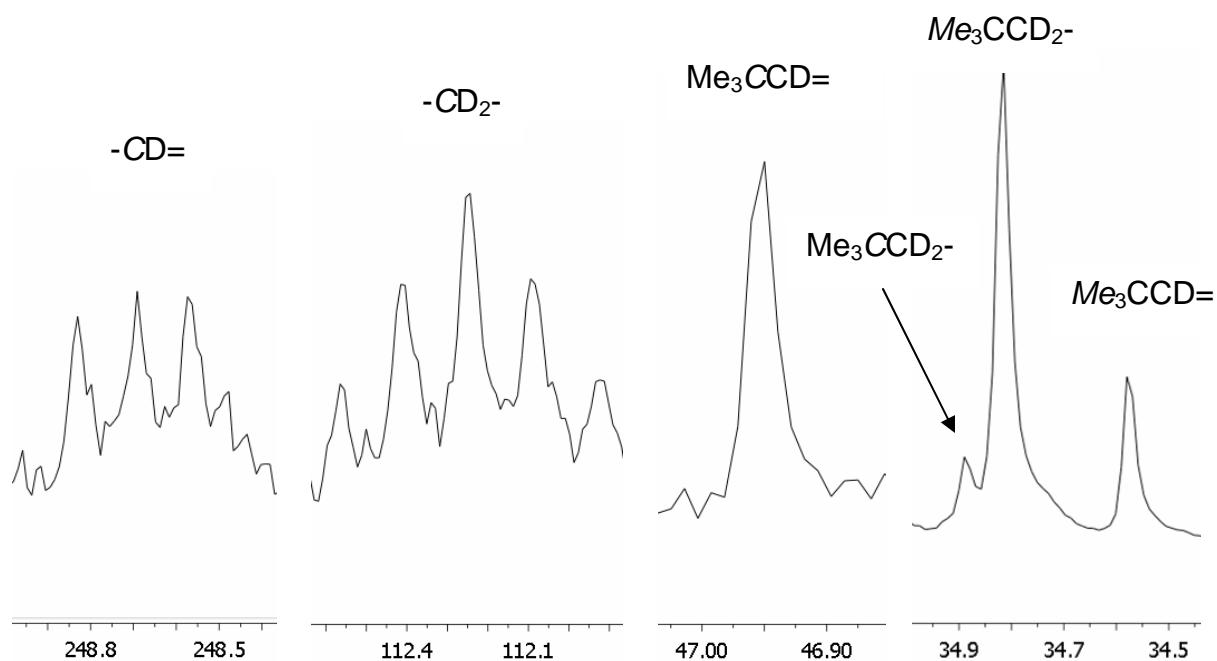
**Ref. 2d**

Diminnie, J. B.; Liu, X.-Z.; Cai, H.; Wu, Z.-Z.; Blanton, J. R.; Chen, T.; Tuinman, A. A.; Quisenberry, K. T.; Vallet, C. E.; Zuhur, R. A.; Beach, D. B.; Peng, Z.-H.; Wu, Y.-D.; Concolino, T. E.; Rheingold, A. L.; Xue, Z.-L. *Pure Appl. Chem.* **2001**, *73*, 331.

*Me<sub>3</sub>C-*



**Figure S1.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of  $\text{Ta}(\text{CD}_2\text{CMe}_3)_5$  (**1-d<sub>10</sub>**, toluene- $d_8$ , 268 K)



**Figure S2.**  $^{13}\text{C}\{\text{H}\}$  NMR spectrum of  $(\text{Me}_3\text{CCD}_2)_3\text{Ta}=\text{CDCMe}_3$  (**2-d<sub>7</sub>**, toluene- $d_8$ , 268 K)