

All-Inorganic Metallocenes and Related Transition Metal Derivatives of the Heavier Group 15 Elements

John E. Ellis, Department of Chemistry, University of Minnesota, Minneapolis, MN 55455

Our recent synthesis of the all-phosphorus metallocene, $[\text{Ti}(\eta^5\text{-P}_5)_2]^{2-}$ involved the reaction of white phosphorus, P_4 , with a highly labile (polyarene)titanate(2-), $[\text{Ti}(\text{C}_{10}\text{H}_8)_3]^{2-}$, C_{10}H_8 = naphthalene. To determine whether related sandwich complexes are possible for later transition metals, similarly labile polyarenometalates are required as precursors, such as the recently reported bis(η^4 -anthracene)ferrate(1-), the first homoleptic polyarene iron complex (see: Brennessel, W. W.; Jilek, R. E.; Ellis, J. E. *Angew. Chem. Int. Ed.* **2007**, *46*, 6132-6136). As shown below, this complex functions as the first available precursor to formal Fe^{1-} complexes. How will it react with P_4 and related main group reagents?

