

Reading instructions for “Controlling Secondary Alkyl Radicals: Ligand effects in Chromium-Catalyzed C-P Bond Formation”

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Things to Keep In Mind While Reading:

- 1) What is the role of the activated manganese powder? (Think about the oxidation state of the catalyst through the reaction scheme). With this in mind, what are the important things to take away from Table 1.
- 2) From what we have learned about β -hydride elimination, why is this catalyst a good choice for this reaction?
- 3) Do some research: why is it important to form P-C bonds? Can you find any industrial processes that would benefit from a P-C bond catalyst?
- 4) What does it mean for a compound to “trap carbon-based radicals”? How were they able to take advantage of this property?
- 5) What were the important differences that the authors pointed out between compound 6 and compound 3? Use these differences to explain the differing yields in table 1.

Important terms:

- 1) Reversible metal-alkyl bond homolysis-Reversible unimolecular dissociation of a metal-alkyl bond, forming two radical species
- 2) Ancillary ligands – A ligand that is not directly involved in the chemistry of the metal complex.
- 3) β -diketiminato-

