

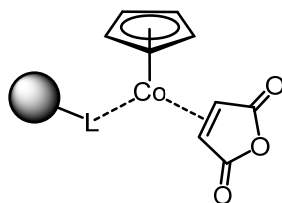
Towards a “Release and Catch” Catalytic System for [2+2+2] Cycloadditions

Dominik Krisch^a and Marko Hapke^b

^aInstitute of Organic Chemistry, Johannes Kepler University Linz, 4040 Linz, Austria

^bInstitute for Catalysis (INCA), Johannes Kepler University Linz, 4040 Linz, Austria
and Leibniz Institute for Catalysis e. V. at the University of Rostock (LIKAT),
18059 Rostock, Germany

Despite the myriad of Co(I)-complexes that catalyze [2+2+2] cycloadditions, the first catalytically active supported Co(I)-catalyst for this reaction type has just recently been reported, since immobilization of homogenous catalysts often results in decreased reactivity [1]. A potential circumvention of this problem is to synthesize a catalytic moiety that is reversibly attached to a solid support. Herein the efforts towards the development of a “release and catch” [2] catalytic system for [2+2+2] cycloaddition reactions are reported. Therefore two novel vinyl-functionalized phosphorus ligands and their respective CpCo(I)(P-ligand)(maleic anhydride) complexes were successfully prepared. Additionally the catalytic activity of one of those complexes was demonstrated. The obtained coordination compounds provide the possibility e.g. for copolymerization with styrene to prepare the first covalently immobilized catalysts that facilitate [2+2+2] cycloadditions via a “release and catch” mechanism.



[1] I. Thiel, M. Hapke, *J. Mol. Catal. A: Chem.* **2014**, 383–384, 153–158.

[2] M. Gruttadauria, F. Giacalone, R. Noto, *Green Chem.* **2013**, 15, 2608–2618.