



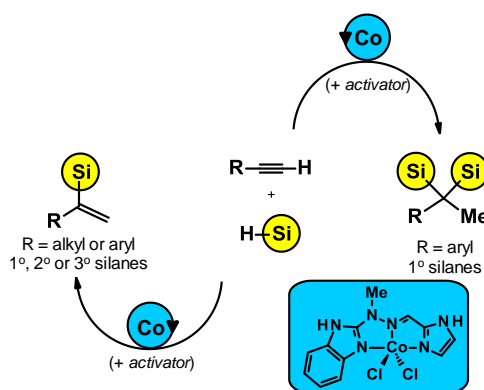
Markovnikov-Selective Hydrosilylation of Terminal Alkynes under Cobalt Catalysis

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The hydrosilylation reaction is one of the most important catalytic reactions used on an industrial scale in the synthesis and modification of silicon compounds.¹ The catalysts commonly used in this process are platinum, rhodium and ruthenium complexes. The high price of noble metals and the inability to reuse them in technological processes lead to the search for alternative, cheaper and similarly effective catalysts based on other metal complexes. A chance to solve this problem is created by catalytic systems based on more abundant first-row transition elements (3d electron metals) of the periodic table, such as iron, cobalt and nickel, and even compounds of main group elements.

In the communication we present the results of research on the development of new, effective and selective catalytic systems of Markovnikov hydrosilylation² and double hydrosilylation³ reactions of functionalized terminal alkynes based on cobalt(II) complexes with Schiff base-type 3N-donor ligands and alkali metal trialkylborohydrides (Scheme 1). An important aspect of the research is the optimization of procedures aimed at increasing the efficiency and selectivity of the tested systems, as well as an attempt to explain the mechanism of catalytic transformations. Particular emphasis will be placed on the influence of the ligand structure on the catalytic activity and selectivity of cobalt (pre)catalysts.



Scheme 1. Markovnikov hydrosilylation vs. double hydrosilylation of terminal alkynes

References

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