

Catalytic decarbonylation in Ionic Liquids

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INTRODUCTION

With the depletion of the fossil resources and the increasing global demand for a more green chemistry industry, the development of new and improved catalytic systems for the conversion of renewable feedstocks, as biomass, are needed. A possibility of a greener chemical industry may be achieved by switching from environmentally challenging solvents to more benign ones such as ionic liquids.

METHOD

The thesis concerns with the decarbonylation of 2-Naphthaldehyde and *p*-Toluenaldehyde in various Ionic Liquids (IL's) and their effect as solvent compared to the previous reported diglyme reaction which is shown in the figure 2. The catalyst used for this experiment is the $[\text{Rh}(\text{dppp})_2]\text{Cl}$.

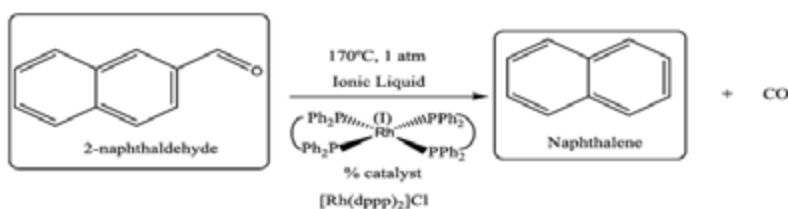


Figure 2: Global reaction

CONCLUSION

Here we demonstrate the utilization of different ionic liquids as solvent for decarbonylation of aldehydes.

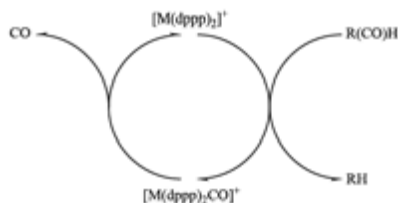


Figure 1: Pathway proposed for the catalytic decarbonylation reaction

The reaction presented in figure 1, provides a pathway for the conversion of aldehydes into decarbonylated molecules, which is a process that until now has shown low yields and poor selectivity. Recent studies have shown that the Group 9 metals are by far the most active metals for the catalytic decarbonylation reactions, and that the rate determining step is the decarbonylation of the metal complex. This knowledge presents an interesting opportunity for the selection of active catalyst-solvent combinations.