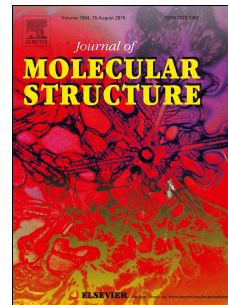


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Dual-ligand complex catalysts for the cycloaddition of propylene oxide and carbon dioxide

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Abstract: This paper reported some dual-ligand complexes composed of ZnBr_2 , *N*-methylimidazole(NMI) and ammonium bromine. The entire complexes were characterized by different spectroscopic techniques. The X-ray crystallography data of sample ZnBr_2 /tetra methyl ammonium bromide/*N*-methylimidazole displayed that the Zn atom was coordinated with three bromine atoms, a nitrogen atom, and an independent cation to form the tetracoordinated complex. However, the other samples cannot form the structure, which plays an important role in the catalytic performances due to the limitation of some characteristics of the ammonium bromine. The catalytic activity of the formed complex containing active leaving group was higher than that of non-containing active leaving group. And the catalytic activity for the cycloaddition of propylene oxide and carbon dioxide enhanced dramatically, in which the yield of propylene carbonate could be more than 85% at the mild conditions.

Key words: dual-ligand complex; cycloaddition; carbon dioxide; propylene oxide; propylene carbonate

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