

# Synthesis of Cyclic Carbonates from CO<sub>2</sub> and Epoxide Catalyzed by Co, Ni and Cu Complexes in Ionic Liquids

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**Abstract:** A series of first row metal complexes (Co, Ni and Cu) containing commercial nitrogen ligands were synthesized and used as catalyst in the cycloaddition of CO<sub>2</sub> to epoxides. The reaction was carried out in ionic liquids based on 1-n-butyl-3-methylimidazolium as solvents. Best catalytic results were achieved with Co catalysts in 1-n-butyl-3-methylimidazolium tetrafluoroborate (BMIm.BF<sub>4</sub>). Under optimized reaction conditions cyclic carbonates were selectively obtained with good to excellent yields, presenting a reliable alternative to synthesize the product using low cost and abundant catalytic system containing a common ligand as ethylenediamine. Finally, macrocycle effects were studied in each case comparing the conversion rates obtained by using ethylenediamine and 1,4,8,11-tetraazacyclotetradecane. Graphical Abstract: [Figure not available: see fulltext.]. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.