

### Synthesis of Propylene Carbonate by using Supported Ionic Liquid Catalyst

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Utilization of CO<sub>2</sub> has become an important global issue due to the significant and continuous rise in atmospheric CO<sub>2</sub> concentrations. Owing to its low viscosity and negligible vapor pressure, ionic liquids (ILs) have been widely used as environmentally benign solvents in various organic reactions and regarded as a new important precursor material for catalyst. In this study, various ionic liquids supported on silica were prepared and their catalytic performances were investigated for the cycloaddition of carbon dioxide to propylene oxide (PO). The resulting catalysts were systematically characterized by scanning electron microscopy, thermogravimetric analyzer, BET and elemental analysis. In addition, our current studies indicated that the structure of ionic liquid and the reaction parameters such as reaction temperature, pressure, time, and the texture properties of polymer beads, play important roles in the catalytic cycloaddition reactions.