

## Cycloaddition of Carbon Dioxide to Allyl Glycidyl Ether Using Polymer Supported Ionic Liquid as Catalyst

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By the increasing concentration of carbon dioxide in the atmosphere, industrial revolution has given rise to widespread concern about the possible consequences. As an effective sequestration for CO<sub>2</sub>, it can be used as an environmentally benign feedstock for the synthesis of polycarbonate or cyclic carbonate. Due to the low toxicity, biodegradability and high boiling point, cyclic carbonates find application as useful solvents and chemical intermediates. Ionic liquids immobilized on polymer is an effective heterogeneous catalyst for synthesizing cyclic carbonates from CO<sub>2</sub>. In this work, the catalytic activity studies were performed for the cycloaddition of carbon dioxide to allyl glycidyl ether (AGE) to produce a five-membered cyclic carbonate. The synthesis of the cyclic carbonate was carried out without using any solvent in the presence of polymer supported ionic liquid (PSIL) as catalyst. The PSIL showed good catalytic performance as a heterogeneous catalyst. The structure of the PSIL affected the reactivity of the catalyst. The conversion of AGE increased with increasing reaction temperature and CO<sub>2</sub> pressure from 80–140 °C and 80–210 psi, respectively.