

## Polymerization of allyl glycidyl ether and carbon dioxide using mixed catalysts of ionic liquid and zinc-cobalt cyanide

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Polymerizations of allyl glycidyl ether (AGE) have been carried out by using double metal cyanide (DMC) and ionic liquid. DMC catalyst was prepared by reacting  $ZnCl_2$  and  $K_3[Co(CN)_6]$  in the presence of tert-butyl alcohol (t-BuOH) and PEG-PPG-PEG as complexing agents. Ionic liquids based on tetrabutylammonium salts with different alkyl group and anions were used as catalysts. The conversion of AGE was affected by the structure of quaternary ammonium salt ionic liquids; the one with the cation of bulkier alkyl chain length and with more nucleophilic anion showed better reactivity. High reaction temperature and carbon dioxide pressure enhanced the addition of carbon dioxide to AGE. However, higher temperature decreased the selectivity to polycarbonate.