

## The Synthesis of Glycerol Carbonate Using Product Gas from Glycerol

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Glycerol carbonate, an important glycerol derivative, can be polymerized or reacted with isocyanates or acrylates for use in coatings, adhesives and lubricants. Furthermore, glycerol carbonate is a valuable intermediate for the production of glycidol, used in resins, plastics, and throughout the pharmaceutical and cosmetics industries. Several methods for the synthesis of glycerol carbonate have been described. In our study, the glycerol carbonate was prepared from glycerol using product gas ( $\text{CO}_2$ ,  $\text{CO}$ ,  $\text{O}_2$ ,  $\text{H}_2$ ). It is an interesting process that can transform two waste products into a valuable product. The effects of variable product gas and temperature (353–433 K) were investigated in a batch autoclave reactor using Cu catalysts for glycerol carbonate production. The quantitative analysis of reactants and products was performed by GC-FID.