Direct Synthesis of Glycerol Carbonate using Glycerol and CO_2 with irregular dispersed macroporous catalysts under the high pressure

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In order that we synthesize glycerol carbonate with glycerol and CO_2, specific condition and solvent are needed. The reaction should be occurred under the high pressure. Temperature of inside reactor was maintained 170 ℃ for 12h and pressure was gradually increased from 4 MPa to 7 MPa with a start. Also, for the reaction with glycerol and CO_2, acetonitrile should be used as the coupling agent. Different ratio of La/Zn mixed oxide catalysts were prepared. macroporous series of La/Zn catalysts were also prepared with irregular dispersed macropore. Those catalysts were characterized by SEM, XRD, BET (N_2 physisorption), and FT-IR for showing the improved performance of those catalysts. Reaction results were analyzed by Gas Chromatograph. By using the GC result, we calculated the yield of glycerol carbonate, conversion and selectivity then compared investigated catalysts and unordered macroporous catalysts.