

Reaction Kinetics for the Synthesis of Oligomeric Poly(lactic acid) and the Generation of Lactide

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In the oligomeric PLA synthesis, the type of catalyst had more significant effect than the temperature on the reaction kinetics in the temperatures ranging from 180 to 220 °C. The highest polymerization rate with the least production of lactide was observed when the sulfuric acid was used as catalyst. The maximum reaction rate was observed around the temperature from 200 to 210 °C, as the reaction rate decreased with temperature above 210 °C due to the enhancement of depolymerization rate. Higher polymerization rate was obtained at the reduced pressure.