

A study on the catalytic role of potassium carbonate for CO<sub>2</sub> fixation on naphthoxide

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The synthesis of 6-hydroxy-2-naphthoic acid(6.2-HNA) by the carboxylation of 2-naphthol with carbon dioxide was studied to examine the effects of reaction conditions such as reaction time, temperature, pressure, and alkali metal cations as a catalyst. In particular, this study focused on the investigation of the role of potassium carbonate (K<sub>2</sub>CO<sub>3</sub>) as a catalyst in the carboxylation of 2-naphthol in the presence of potassium hydroxide(KOH). The reaction tests were conducted in a batch type autoclave reactor at 538 K and 4 atm, where 2-naphthol, KOH, K<sub>2</sub>CO<sub>3</sub>, and hexadecane as solvent were loaded. It was noteworthy that the yield and selectivity towards 6.2-HNA was found to increase with the addition of K<sub>2</sub>CO<sub>3</sub>. The yield of HNA reached the highest at the mole ratio of K<sub>2</sub>CO<sub>3</sub>/KOH of 0.5.