

Studies on the Catalyst packing method in the fixed-bed reactor with inert material for Fischer-Tropsch synthesis

홍기훈, 정재선<sup>1</sup>, 주가영<sup>1</sup>, 양은혁<sup>1</sup>, 노영수<sup>1</sup>, 신철아<sup>1</sup>, 박지인<sup>1</sup>, 문동주<sup>1,†</sup>

한국과학기술연구원/UST; <sup>1</sup>KIST

(djmoon@kist.re.kr<sup>†</sup>)

Recently there has been a revival of interest in eco-friendly fuels and alternative route for oil production. The Gas to Liquid (GTL) process is one of the promising technologies for clean energy production. In the GTL process, Fischer-Tropsch synthesis(FTS) reaction is a catalytic process that converts synthesis gas ( $\text{CO} + \text{H}_2$ ) to hydrocarbon products. In this study, Ru/Co/ $\text{Al}_2\text{O}_3$  catalysts were prepared by impregnation method and characterized by  $\text{N}_2$  physisorption, XRD, and TGA analysis, and investigated in the fixed-bed reactor with inert material such as  $\alpha\text{-Al}_2\text{O}_3$ . The experiment was carried out at different weight fraction and packing methods with FTS catalyst and inert material. The catalytic performance was evaluated by liquid fuel productivity under the same GHSV (Gas Hourly Space Velocity) and discussed the effect of inert material in catalyst packing method.