

### Effects of the Calcination on Co/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> for Fischer-Tropsch synthesis

최가람<sup>1,2</sup>, 정재선<sup>1</sup>, 이재석<sup>1</sup>, 홍기훈<sup>1</sup>, Ramesh S<sup>1</sup>,  
문동주<sup>1,\*</sup>

<sup>1</sup>KIST; <sup>2</sup>연세대학교

(djmoon@kist.re.kr\*)

Fischer-Tropsch Synthesis (FTS) has been suggested as a key process of gas-to-liquid (GTL) technology. And cobalt is preferred active metal for FTS. In this work, cobalt supported on  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> is was prepared by slurry impregnation method and it was well characterised. Catalysts were prepared with different amount of cobalt loading and calcined at different temperatures. It was found that calcination temperature and amount of cobalt play an important role on activity and selectivity for FTS. The catalyst with 30 wt % Co calcined at 400 oC showed best activity under moderate reaction conditions of H<sub>2</sub>/CO=2, GHSV=3000 h<sup>-1</sup>, 230 oC and 20 bars in a fixed-bed reactor system. The catalyst calcined at 400 oC showed a high mettalic cobalt surface density with FCC structure which are the important active species for FTS.