

Comparison of Co-based SiC and Co-based SiC-Al₂O₃ Catalysts for Fischer Tropsch Synthesis

정재선^{1,2}, 이재석^{3,4}, 최가람^{3,5}, 홍기훈¹,

문동주^{1,*}

¹KIST; ²과학기술연합대학원대학교 청정연료화학공학;

³KIST 청정에너지 센터; ⁴고려대학교 그린스쿨 신재생 에너지; ⁵연세대학교 공과대학 화공생명 공학과

(djmoon@kist.re.kr*)

Fischer-Tropsch Synthesis(FTS) for the production of clean synthetic fuels has been considered as a key technology in GTL (gas-to-liquids) process. In this work, Co-based modified catalysts supported on SiC and SiC-Al₂O₃ were prepared by an impregnation method. To investigate the effect of cobalt loading on SiC and SiC-Al₂O₃ support, the prepared catalysts were characterized by N₂ physisorption, XRD, TPR, and SEM techniques. The FTS reaction was carried out in a fixed bed reactor system with the H₂/CO ratio of 2:1 and reaction pressure of 20 bar during 120 h. It was found that Co/SiC-Al₂O₃ catalysts showed the higher conversion of CO than Co/SiC catalyst.