

Catalytic performance of alumina-supported Ni and Ru via n-dodecane autothermal reforming

주동건, 정석용, 이수출, 김재창*
경북대학교
(kjchang@knu.ac.kr*)

To investigate performance of alumina-supported Ni(NA10-PM) and Ru(R5Al) catalysts for n-dodecane autothermal reforming, it were carried out in a fixed-bed reactor at 500~750°C, S/C = 0.5~3, O₂/C= 0.1~0.25 and GHSV = 5000~12000h⁻¹. N-dodecane was used to surrogate diesel fuel because it is regarded to have similar properties. NA10-PM catalyst was prepared by porous material method using PMMA (poly methyl methacrylate). A commercial catalyst (R5Al) was used in this study. The catalyst showed various catalytic activities according to the conditions. The NA10-PM catalyst exhibited the higher H₂ yield, CO yield and dodecane conversion than R5Al. The catalysts were charaterized by XRD and XPS. But all of two catalysts were deactivated when sulfur was present. The other analysis like SEM-EDS, BET and TPR were also coducted to characterize catalysts.