

Partial oxidation of propane over ceria promoted nickel-calcium hydroxyapatite

이상엽, 윤기준*

성균관대학교 화학공학과 촉매공학연구실
(kijyoon@skku.edu*)

Hydrogen is important source for the application as transportation and industrial fuel. For maximizing production, numerous studies on the natural gas conversion have been reported. However, studies on partial oxidation of propane are very few although propane is a readily available hydrocarbon in LPG and is expected to exhibit higher reactivity. In this work, Ni-calcium hydroxyapatite, which has been reported to show high performance in partial oxidation of methane, was tested for partial oxidation of propane. In addition, to improve the performance, ceria as a promoter, was added and its effects were studied. These catalysts were tested in a range from 823 to 1073K. Partial oxidation of propane showed high CO₂ formation owing to complete combustion below 873K. Above 923K, the methane selectivity was considerably high(15~20%). At 923K, the ethylene and propylene selectivities were the highest.