

Selective ethane dehydrogenation and subsequent CO₂ activation over FeTiOx catalysts using different synthesis method

문지원, 배종욱[†]

성균관대학교

(finejw@skku.edu[†])

Ethylene is an important building block for numerous compounds including polyethylene, ethanol, ethylene glycol and various chemical intermediates. The FeTiOx is one of the attractive catalysts for oxidative dehydrogenation (ODH) of ethane to ethylene. The objective of the present work is to verify the roles of different morphology of FeTiOx for chemical looping (CL) ODH reaction. The FeTiOx catalysts were synthesized using hydrothermal and impregnation method, where the hydrothermal method used sucrose additive and it showed a superior activity for ethane dehydrogenation to ethylene and subsequent CO₂ activation to CO. The physicochemical properties of FeTiOx catalysts were characterized by XRD, N₂-Sorption, H₂-TPR and XPS.

Keywords: Ethane dehydrogenation, CO₂ activation, Redox catalyst, FeTiOx catalyst, Ethylene, Ethane, CO₂.