

Aromatization of mixed light hydrocarbons over Zn-impregnated zeolite catalysts

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Recently the conversion of light hydrocarbons to highly value-added aromatic compounds has been intensively investigated. In this study, mixed light hydrocarbons were used as the feed gas for the production of aromatics. The catalytic activity of Zn-impregnated ZSM-5 catalysts were evaluated. The textural properties and acidities of the zeolite catalysts were characterized by XRD, N<sub>2</sub> physisorption, FESEM, TEM-EDS, NH<sub>3</sub>-TPD, pyridine absorbed FTIR, and ICP-OES analyses. In addition, XPS was conducted for the identification of state of Zn species. The Zn impregnation of 1 wt% led to the increased aromatics yield compared to HZSM-5. When the Zn impregnation increased to 2 wt%, however, the carbon conversion and aromatics yield decreased. The feed gas with the composition of decreased H<sub>2</sub> content was also tested. The total carbon conversion increased but the aromatics yield decreased.