

ABSTRACT:

The effect of iridium loading on the properties and catalytic isomerization of n-heptane over Ir-HZSM-5 is studied. Ir-HZSM-5 was prepared by impregnation method and subjected to isomerization process in the presence of flowing hydrogen gas. XRD and BET studies show that the presence of iridium stabilizes the crystalline structure of HZSM-5, leading to more ordered framework structure and larger surface area. TGA and FTIR results substantiate that iridium species interacts with OH group on the surface of HZSM-5. Pyridine FT-IR study verifies the interaction between iridium and surface OH group slightly increased the Brönsted and Lewis acid sites without changing the lattice structure of HZSM-5. The presence of iridium and the increase of strong Lewis acid sites on HZSM-5 were found to bring an increase about 4.1, 33.2 and 11.8 in conversion, selectivity and yield of n-heptane isomerization, respectively.