

Large scale production of macroporous Ti-MoO₂ powders and their application for partial oxidation of *n*-dodecane

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Recently, MoO₂ has attracted a lot of attention as reforming catalyst for hydrocarbons such as a surrogate of gasoline and jet-A fuel, due to its high resistance to coking, high thermal stability and high sulfur tolerance. However, the phase stability of MoO₂ is very limited at the narrow window of O₂/C ratio for partial oxidation of hydrocarbon. Ti⁴⁺ has been used as a dopant to improve stability of MoO₂. In this study, macroporous Ti doped MoO₂ powders were directly produced by ultrasonic spray pyrolysis using polystyrene (PS) beads as templates. Macroporous Ti-MoO₂ powders were characterized by XRD, HR-SEM, EDX and BET. To evaluate catalytic activity of macroporous Ti-MoO₂ powders, partial oxidation of *n*-dodecane was performed.