

Oxidative Dehydrogenation of Propane with CO₂ over Cr-TUD-1 Type Mesoporous Catalysts modified with Zr and Ce-oxides

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It has been proposed that CO₂ can play a role as a soft oxidant especially in dehydrogenation of alkanes into the corresponding olefins. The soft oxidant showed enhanced activity and stability of catalysts with less byproducts, which is mainly due to moderate oxidizing ability. Even though such advantageous role of CO₂ has been observed, sole use of CO₂ in dehydrogenation of propane is still challenging because of heavy coke formation and fast deactivation. In the present work, CO₂ assisted oxidative dehydrogenation of propane was investigated as a new on-purpose propylene process over different amount of Cr-loaded TUD-1 mesoporous catalysts. Different combination of metal oxides such as Zr and Ce-oxides as a promoter was investigated to enforce the effect of CO₂.