C_4 olefin production from n-butane by oxidative dehydrogenation using CO_2 as soft oxidant over TiO_2-ZrO_2 based materials

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Oxidative dehydrogenation (ODH) of n-butane was investigated over TiO2-ZrO2 based mixed oxides catalysts with the aim of utilizing CO2 as the soft oxidant, and to study the effect of mixed oxide support on the ODH activity and C4 olefins selectivity. A significant difference in the catalyst activity and selectivity was noted in the presence and absence (He) of CO2 feed gas. The catalysts showed 12% and 45% conversion of n-butane and selectivity of C4 olefins respectively.