

Al-Ti Mixed Oxide Catalyst for Dechlorination of By-product of Methane Chlorination

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In this study, Al-Ti mixed oxides are prepared by sol-gel method and they are used as catalysts for dechlorination of dichloromethane which is by-product of methane chlorination. The mixed oxides are characterized by X-ray diffraction, Brunaure-Emmett-Teller analysis, NH₃-temperature programmed desorption and fourier transform infrared spectroscopy. The Al_{0.5}Ti_{0.5}O_x has abundant and stronger Lewis acid sites than Al₂O₃. Dechlorination of dichloromethane with Al_{0.5}Ti_{0.5}O_x catalyst has high dichloromethane conversion and chloromethane yield than Al₂O₃ under 360 °C. The result show that acidity of catalysts played important role in catalytic dechlorination of dichloromethane. Therefore, the Al-Ti mixed metal oxides increase efficiency of dechlorination and convert the dichloromethane to chloromethane, increase the overall efficiency of methane chlorination.