

Effect of Al_2O_3 Addition and WO_3 Modification on Catalytic Activity of $\text{NiO}/\text{Al}_2\text{O}_3$ - TiO_2/WO_3 for Ethylene Dimerization

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Strong solid acid catalysts, $\text{NiO}/\text{Al}_2\text{O}_3$ - TiO_2/WO_3 for ethylene dimerization were prepared by the addition of Al_2O_3 and the modification with WO_3 . The acid sites and acid strength were increased by the inductive effect of WO_3 species bonded to the surface of catalysts. The larger the dispersed WO_3 amount, the higher both the acidity and catalytic activity for ethylene dimerization. The addition of Al_2O_3 to TiO_2 up to 5 mol% enhanced acidity and catalytic activity gradually due to the interaction between and TiO_2 and consequent formation of Al-O-Ti bond