

The Performance of PtSn/Al₂O₃ with Cylindrical Particles for Acetic Acid Hydrogenation

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Abstract : Alumina supported PtSn catalysts with cylindrical particles were prepared and characterized by using low temperature N₂ adsorption/desorption and X-ray diffraction. Low temperature N₂ adsorption/desorption demonstrate that the tableting changed the texture properties of catalysts. XRD pattern indicate that the crystal structure of supports had no change after reaction. The performances over particles of PtSn/Al₂O₃ catalysts were investigated with regards to reaction temperature, pressure, and H₂/AcOH mole ratio. After tableting, the conversion of acetic acid and selectivity of ethanol and acetyl acetate decreased. High reaction temperature and pressure can improve conversion of acetic acid. H₂/AcOH mole ratio of 9.36 showed the best performance on acetic acid hydrogenation. High pressure had benefits for the selectivity of ethanol and other two parameters had no obvious effect on selectivity.

Keywords : acetic acid hydrogenation, cylindrical particles, ethanol, PtSn

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