Preparation of Heterogeneous Base Catalyst Immobilized on Mesoporous by Plasma Process

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Heterogeneous base catalysts are promising materials in organic reactions that demand basic catalysts. It was very difficult to use as catalyst because they are rapidly deactivated by water and acidic vapor. To overcome the drawbacks, organic base immobilized on the soild supports was designed.

In this study, organic base immobilized heterogenous base catalyst was prepared by low temperature plasma polymerization process. Several amine containing organic compounds were deposited onto various mesoporous materials. The immobilization experiments were conducted under different RF discharge powers and treatment times, in order to determine the optimal plasma conditions. The physico-chemical state and stability of immobilized bases were examined by in-situ FT-IR, solid NMR and ESCA analysis. Basic catalytic activity of prepared immobilized base was investigated in the Knoevenagel condensation between ECA and BA. The prepared amine immobilized base catalyst gave conversion of 70~90% and the catalyst can be reused after decanting of the product mixture and washing.