

Preparation of Amine Immobilized Heterogeneous Base Catalyst by Low Temperature Plasma Process

조명덕^{1,2}, 조동련^{1,2,*}, 송선정², 박 준^{1,2}, 박유정^{1,2},
정경운^{1,2}

¹전남대학교 신화학소재공학과;

²BK21 기능성나노신화학소재사업단

(dlcho@chonnam.ac.kr*)

The base catalyst has been studied because it is typically used to make biodiesel fuel. The heterogeneous of base catalysts has a disadvantage of conventional wet process as well as an advantage of recycling. The representative low temperature plasma polymerization of dry process can easily introduce functional groups and plasma polymers have advantages of good adhesion. In this study, several amine containing organic compounds were deposited onto mesoporous silica-alumina support by low temperature plasma polymerization under different RF discharge powers and treatment times. The chemical structure and thermal stability of immobilized bases were examined by solid NMR, ESCA, FT-IR and TG analyses. Basic active sites on prepared catalyst were confirmed by in-situ IR during NO₂-TPD. Base catalytic activity of prepared catalyst was evaluated by the Knoevenagel condensation reaction between ethyl cyanoacetate and benzaldehyde. The prepared amine immobilized base catalyst gave conversion of 70~90% and the catalyst can be reused after washing.