

Au Supported on $\text{CeO}_2\text{-Mg(OH)}_2$ as Heterogeneous Catalysts for Direct Oxidative Esterification of Methacrolein

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Methyl methacrylate (MMA) is a monomer of poly(methyl methacrylate) (PMMA) used in plastic building block. Traditionally, MMA is mainly produced by the acetone cyanohydrin (ACH) process which has a drawback of producing toxic and corrosive hydrocyanine. As an ideal alternative, we present the direct oxidative esterification reaction of methacrolein (MACR) with MeOH using multifunctional heterogeneous catalyst. In this work, Au nanoparticles supported on CeO_2 , MgO, and $\text{CeO}_2\text{-Mg(OH)}_2$ were synthesized for the oxidative esterification of MACR. $\text{Au/CeO}_2\text{-Mg(OH)}_2$ showed the best catalytic performance. The reaction studies and the characterizations revealed that the strong metal-support interaction between the three components (Au, CeO_2 , Mg(OH)_2) is an important factor in obtaining the desired product in the oxidative esterification. The details of reaction and the results are going to be discussed in this poster.