

Alumina- and Silica-Based Aerogels as Heterogeneous Basic Catalysts for the Production of Biodiesel

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Abstract:

We propose to investigate the application of highly porous alumina and silica aerogels as supports for alkaline earth and transition metal oxides for a potential application as heterogeneous basic catalysts for the production of biodiesel. The catalytic activities of similar solids prepared using various techniques, e.g. impregnation, co-precipitation, mechanochemistry, etc. were previously investigated. However, aerogel materials known for their high porosity and large surface area were never investigated in this field. The structural and textural characterization of the catalysts will be performed and correlated to the catalytic activity of the catalysts for the production of biodiesel via a transesterification reaction from waste cooking oil. The efficiency of the catalyst will be explored under various experimental conditions.