

Kinetics of simultaneous transesterification and partial hydrogenation of soybean oil over copper catalyst using supercritical methanol

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In the present study, a supercritical one-pot process combining transesterification and partial hydrogenation over Cu catalyst was applied for the production of quality-improved biodiesel from soybean oil. The effect of variables affecting the supercritical one-pot process was studied to design the optimum reaction conditions. Kinetic parameters were determined at the initial stage of the reaction to examine the reaction rate of transesterification and partial hydrogenation and were compared with the results in the literatures. The activity of recycled catalyst was determined for the reuse performance of catalyst under optimal condition of supercritical one-pot process and leaching amount of catalyst into biodiesel was also measured by ICP-MS.