

### Transesterification of soybean oil with zinc oxide in supercritical methanol

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In this study, transesterification of soybean oil using supercritical methanol in the presence of zinc oxide was investigated. Response surface methodology (RSM) was employed to evaluate the relationship between the content of fatty acid methyl esters (FAMEs) and reaction parameters. A central composite design was employed to fit the available response data to a second order polynomial RS model. The optimal conditions maximizing the content of FAMEs in the biodiesel was investigated. Effects of water and free fatty acid were also investigated to validate the application possibility for the transesterification of waste oil.