

## Reaction Kinetics of Biodiesel Production from Refined Cottonseed Oil Using Calcium Oxide

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**Abstract :** Power law approximation was used in this study to evaluate the reaction orders of calcium oxide, CaO catalyzed transesterification of refined cottonseed oil and methanol. The kinetics study was carried out at temperatures of 45, 55 and 65  $^{\circ}\text{C}$ . The kinetic parameters such as reaction order 2.02 and rate constant  $2.8 \text{ hr}^{-1} \text{ g}^{-1} \text{ cat}$ , obtained at the temperature of 65  $^{\circ}\text{C}$  best fitted the kinetic model. The activation energy,  $E_a$  obtained was 127.744 KJ/mol. The results indicate that the transesterification reaction of the refined cottonseed oil using calcium oxide catalyst is approximately second order reaction.

**Keywords :** refined cottonseed oil, transesterification, CaO, heterogeneous catalysts, kinetic model

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