

A study on deoxygenation of oleic acid over $Ce_{0.6}Zr_{0.4}O_2$ catalysts depending on the reaction time

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$Ce_{0.6}Zr_{0.4}O_2$ catalyst was prepared by a co-precipitation method for deoxygenation (DO) of oleic acid in hydrogen environment (20% H_2/N_2 condition). In this study, reaction time was systematically varied to optimize diesel yield at a reaction temperature of 300 °C. When the reaction time was 3 h, C_{15} & C_{17} hydrocarbons were the major products. As the reaction time increased from 3 to 12 h, the portions of $C_9 \sim C_{13}$ and C_{17} hydrocarbons increased while C_{15} selectivity decreased. The conversion and selectivity increased as the reaction time increased. Although the conversion and selectivity were increased, the increase of reaction time did not show totally good points because side reaction (cracking) also occurred. For the production of gasoline, longer contact time should be considered to maximize yield. Therefore, shorter contact time should be chosen to optimize diesel yield.