

Support and Temperature Effects through Deoxygenation of Oleic Acid over Platinum or Palladium Catalysts

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As a concern about greenhouse effects and limits of fossil fuel, using a biofuel is the most promising alternative. Biofuel refers to a fuel derived from agricultural crops, animal fats or waste grease but not from fossil fuel. These crops grow up by photosynthesis converted carbon dioxide and using the energy from sunlight. Therefore, concentration of carbon dioxide is totally equal in the atmosphere.

In this study, oleic acid is used as a reactant. It composes 24 wt% in soybean oil and 44 wt% in palm tree oil. The deoxygenation without using hydrogen was performed over commercial metal supported catalysts, i.e. platinum supported on silica (1 wt% Pt/SiO₂), platinum supported on activated carbon (1 wt% Pt/C, 5 wt% Pt/C) and palladium supported on activated carbon (5 wt% Pd/C), to convert fatty acid to hydrocarbon. Dependences of the sorts of metal and support were compared and optimized according to reaction temperature (573–673 K).