One-step preparation of biological aviation kerosene by catalytic hydrogenation of waste lard over Pt/SAPO-11


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Abstract: Biological aviation kerosene was produced by one-step catalytic hydrotreatment of waste lard oil over Pt/SAPO-11 in a high-pressure fixed bed micro reactor. The influence of reaction conditions such as temperature, pressure, hydrogen oil ratio, and space velocity on the deoxygenation rate, the selectivity of C8-C16 hydrocarbons and the isomerization rate of C8-C16 hydrocarbons have been investigated. The experimental results showed that the temperature of 400°C, pressure of 5 MPa, hydrogen oil ratio of 1000 and space velocity of 1.2 h⁻¹ were the best experimental reaction conditions. Under these conditions, the conversion rate is 96.62%, the selectivity of C8-C16 hydrocarbons is 50.25%, and the isomerization rate of C8-C16 hydrocarbons is 55.68%.

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Main headings: Kerosene

Controlled terms: Batch reactors - Hydrocarbons - Hydrogen - Hydrogenation - Isomerization - Isomers

Uncontrolled terms: Catalytic hydrogenation - Catalytic hydrotreatment - Conversion rates - Deoxygenation - Fixed bed micro-reactor - High pressure - Reaction conditions - Space velocities

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