

Hydroprocessing of pure soybean and waste cooking oil to calculate conversion by simulated distillation

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Hydroprocessing of vegetable oil is a prominent technology for the production of next generation biodiesel. In this work, the conversion and paraffin content of hydroprocessed pure soybean and waste cooking oil under identical conditions is compared in a batch reactor. The effect of reaction time, initial hydrogen pressure and reactor temperature are investigated using various heterogeneous catalysts. The results of the experiments show that the highest paraffin content is at 400°C, 2h, 92bar for the pure soybean oil and 400°C, 6h44min, 120bar for the waste cooking oil. Conversion and diesel, gasoline selectivities are calculated by simulated distillation based on petroleum diesel boiling point range and feedstock.