

Process Development for Producing Renewable Aviation Fuel

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“Green Air” is now a popular task for developing an energy-sustainable and environmental friendly aviation. Drop-in alternative aviation fuel from renewable source, which reduces both the fuel consumption and engine pollutants, has been viewed as the best choice. Our research team has developed a JP-5-like aviation fuel based on the requirements of jet engine combustion and reducing emissions and in accordance with the most appropriate process and feedstock locally in Taiwan. The produced fuel, as shown in Fig. 1, has relatively lower sulfur content and higher C-H ratio compared to traditional jet fuel, is expected to reduce the PM emission from aircraft engine. The future study will be focused on the influences of fuel components and characteristics on the characteristics of flame, spray quality and ignition, which directly/indirectly associate with the emission of NO_x , CO , HC from the jet engine. In addition, the experimental conditions and results were applied to the process simulation, which the resulting mass and energy balances were used to perform the techno-economic analysis, for the purpose of evaluating the large scale production cost for producing renewable aviation fuel.



Fig. 1 “Home-made” renewable aviation fuel