

Annual Conference on
GREEN CATALYSIS AND SUSTAINABLE ENERGY
November 15-16, 2018 Dubai, UAE

Converting organic waste into sustainable aviation fuel

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FlexJET will build a demonstration plant at pre-commercial scale to deliver high quality SAF, this project will provide clear technical and economic validation. The flexJET process is highly scalable and less capital-intensive than current technologies and can be integrated into the existing aviation infrastructure and supply chain. Furthermore, the flexJET process offers a solution that supports decarbonisation of the aviation transport sector, contributing to the Renewable Energy Directive Targets in Europe and the fulfilment of the Carbon Offsetting and Reduction Scheme for International Aviation goals. FlexJET's innovative process combines SABR technology from Green Fuels Research which refines biodiesel from organic waste fats with the TCR® technology. This TCR technology produces biocrude oil from organic solid waste which is subsequently upgraded into aviation fuel by hydro processing. In terms of process, green hydrogen is separated from synthesis gas using a decentralised technology from Hygear. The non-food competing waste vegetable oils (cooking oils) are transformed into SAF in line with existing standards (ASTM D7566, Annex 2). Hydrogen from residual biomass conversion and renewable process energy is then used to enable a significant reduction in the remaining CO₂ footprint of regular SAF. Following this, the SAF output will be increased by producing SAF through co-refining of organic waste fats with biocrude oil from food and market waste: the resulting novel SAF will be targeted for the ASTM approvals process.

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