

A Novel Process Technology Alternative to Address the Contaminant Challenge for Pretreating feedstock for Renewable Diesel production

Mr Sashikant Madgula
Business Segment Leader, Clean Fuels & Chemical Licensing Group
Sulzer Chemtech, Houston, USA

Various Renewable Feedstock used in Renewable Diesel (HVO) production by Hydrotreatment fall into one of the three categories – Fats, Oils, & Greases (FOGs) – that share similar characteristics despite the source. These triglycerides-based feedstocks also contain impurities such as phosphorus, chlorides, and metals that needs removal prior to hydrotreating. This requires pretreatment to remove contaminants to avoid issues like coking & plugging of the catalyst bed, early catalyst deactivation and throughput limitation that can potentially cause failure to meet desired product properties.

Multiple processes already exist for feedstock purification, but they have been developed primarily with edible fats and oils using acid degumming and bleaching to remove phosphorus and metals while the main feed remaining unconverted. The pre-treated product, when processed in a subsequent hydrotreater (revamped or new), will still require olefin saturation, deoxygenation, and isomerization, along with associate high hydrogen consumption relative to petroleum feedstock.

This presentation focuses on an alternate pretreatment approach - BioFlux[®] Thermal Pretreatment, that is designed to economically treat FOGs to not only remove the impurities but also enable more efficient hydrotreating operations downstream by converting the feedstock into a distillate like product. It can also be used to treat feedstocks that are difficult to treat in conventional pretreatment processes.

The main aspects covered in this presentation are:

1. Industry Transformation to Sustainable Clean Fuels
2. Global Scenario of Fatty Oils & Greases Feedstock
3. Biofuel policies and mandates around the world
4. Conventional pretreatment options
5. BioFlux Thermal pretreatment - Alternate approach to pretreatment
6. Advantages of Thermal pretreatment over Conventional pretreatment
7. Case study of advantages of an integrated thermal pretreatment and Hydrotreatment unit for Renewable Diesel (HVO) production
8. The advantages of HVO biodiesel production compared to FAME.