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Substainable Feedstock for Hydrogenated Vegetable Oil (HVO) Based Biorefineries

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Abstract

Vegetable oils have proved to be an excellent feedstock for bio-fuels production, mainly bio-Diesel. As well as allowing CO_2 reduction compared to traditional fuels, they lead to reduced content of sulphur and aromatics and therefore of particulate matter in fuels.
According to the European Directives, requiring at least 10% of all energy in road transport fuels to be produced from renewable sources by 2020, Eni has invested in the conversion of two traditional refineries into biorefineries based on the Ecofining™ co-patented technology to produce paraffinic Green Diesel (Hydrogenated Vegetable Oil, HVO). Paraffinic bio-fuels possess several advantages with respect to oxygenated ones (e.g. biodiesel), such as excellent cold properties, high heating value and high miscibility with traditional fuels.
A key point of this technology is the feedstock selection in order to improve the process sustainability.
The paper describes the different strategies adopted by Eni to ensure a sustainable feeding to the green refineries, taking advantage of the wide feedstock flexibility of the Ecofining™ technology, suitable for processing not only vegetable oils but also used cooking oil (UCO), animal fats and oil waste by-products, as such or after pre-treatment.
New technologies to produce advanced feedstock, such as microbial oil from lignocellulosic waste and algal oil from CO_2 waste, are also discussed.