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AN OVERVIEW OF RENEWABLE FUELS ETHANOL FROM CELLULOSE AND BIO-DIESEL FROM CONVENTIONAL/ALGAE FEED STATUS AND ECONOMIC OPTIONS FOR ETBE

Amarjit Bakshi
Refining Hydrocarbon Technologies LLC, USA

RHT-ETBE and RHT-TAEE are the smart configuration technologies to enhance the conversion to over 97 to 90 percent respectively by having multiple side draws from the columns and one can much better quality also than competitive technologies. The major advantage in these processes is that it allows wet ethanol to be used in the process and still meeting TBA (Tert-Butyl Alcohol) and TAA (Thioacetamide) specifications in the product. Essentially, this process is rejecting the water from wet ethanol and makes high quality ethers at low capex and opex to the competitive processes. RHT. biodiesel process is optimized to produce biodiesel from palm oil, rape seed oil, vegetable and animal product that are all fatty acids with even number of carbon atom typically 12 to 22 atoms. This biodiesel is comparable to hydrocarbon diesel. The triglycerides are reacted with methanol/ethanol or higher alcohol which all produce biodiesel in the acceptable boiling range. Methanol is most commonly used for the biodiesel production as being the cheapest alcohol, hence provides better economics. After the transesterification reaction the product, methyl esters of those oils/fats as product and glycerine is produced as a byproduct. Glycerine is separated from the methyl esters of vegetable oils that are the biodiesel by phase separation by gravity settling due to density differences. The methyl esters and glycerine are purified to meet the product specifications. The technology is able to provide that reaction also to meet high overall conversions and selectivity at low capex and opex without producing any liquid waste.

abakshi@rhtgulfcoast.com