

Biodiesel: A Renewable Source of Fuel

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Abstract: Biofuels are renewable alternatives to petroleum-based motor fuels, such as gasoline and diesel. These are derived from plants, animal waste, or algae material. The major biofuel variants available in the market include bio-gasoline from sugar-based bioethanol and biodiesel from vegetable oils or fatty acid methyl esters (FAME). These fuels offer several advantages over conventional fossil fuels, such as better lubricating properties, cost-effectiveness, ease of source, and reduced greenhouse gases emissions. Since biofuels are created from organic matter (Biomass), they can be quickly replenished. At the same time, the low emissions associated with their combustion means they are an attractive prospect for usage in various industries. Biodiesel production is the process of producing biofuel, biodiesel, through the chemical reactions of Trans esterification and esterification. This involves vegetable or animal fats and oils being reacted with short-chain alcohols (typically methanol or ethanol). The alcohols used should be of low molecular weight. Biodiesel has become more attractive recently because of its environmental benefits and the fact that it is made from renewable resources. The cost of biodiesel, however, is the bottleneck to its commercialization. To make Bio-diesel, hydrocarbons (i.e., oil or fats) are filtered and get mixed with alcohol, which are usually methanol and a catalyst. Ester and glycerol bio-diesel fuel, are the major products of this reaction.

Keywords: Biomass, Biofuels, Biodiesel, Bioethanol