



BIODIESEL: A GROWING MARKET FOR METHANOL



Under the corporate tax reform bill signed by President Bush in October 2004, a 20-cents-per-gallon tax incentive is now available for B20 blends (20% biodiesel fuel and 80% conventional diesel). EPA regulations requiring ultra low sulfur diesel will lift biodiesel sales, as biodiesel both lowers sulfur content and adds lubricity. Demand for biodiesel is forecast to increase by 32% per year, rising from 30 million gallons in 2004, to 150 million gallons by 2008, and 350 million gallons by 2013. The demand value for biodiesel will rise from \$60 million in 2004 to \$240 million in

2008. Methanol is used in the production of biodiesel fuel (usually 12% by volume), so the explosive demand growth for biodiesel fuel will create an expanding market for methanol too. According to the Freedonia Group, the price of biodiesel fuel will drop from today's \$2.50 per gallon to \$1.46 per gallon in 2013. While the federal tax incentive is a welcome lift, the new law only authorizes the incentive for two years. The National Biodiesel Board has made extension of the tax break for an additional six years as its top legislative priority, and the Methanol Institute has gone on record endorsing that proposal.

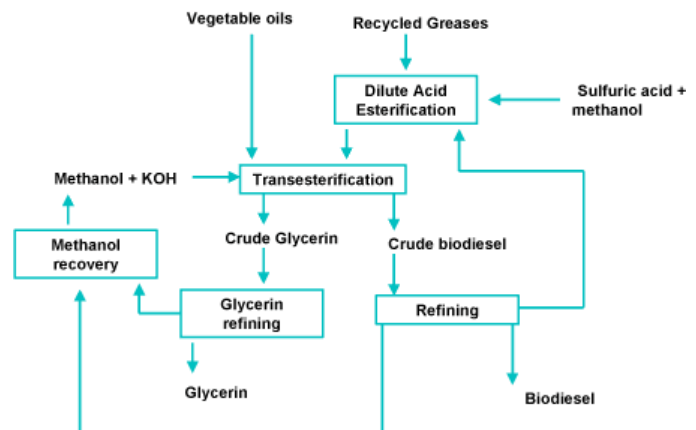
"Biodiesel... will be the fastest growing fuel additive, as the additive not only provides environmental benefits, but also enhances the performance of diesel fuel."
Freedonia Group, March 2005

In the United States, most biodiesel is made from soybean oil or recycled cooking oils. The use of biodiesel is more widespread in Europe, where rapeseed oil is the



principal feedstock. The main reaction for converting oil to biodiesel is called transesterification. The transesterification process reacts methanol with the triglyceride oils contained in vegetable oils, animal fats, or recycled greases, forming fatty acid alkyl esters (biodiesel) and glycerin. Some feedstocks must be pretreated before they can go through the transesterification process. In this step, the feedstock is reacted with methanol in the presence of a strong acid catalyst (sulfuric acid), converting the free fatty acids into biodiesel. The remaining triglycerides are converted to biodiesel in the transesterification reaction. The methanol is typically removed after the biodiesel and glycerin have been separated, to prevent the reaction from reversing itself. The methanol is cleaned and recycled back to the beginning of the process.

Basic Technology



More than 400 major fleets use biodiesel fuel in the United States including city bus systems, school districts, military bases, and national parks. Chrysler is shipping new 2005 Jeep Liberty diesel-powered SUVs fueled with 5% biodiesel, and John Deere is shipping all of its new tractors and combines to customers filled with B2, a 2% biodiesel blend. For more information, visit the National Biodiesel Board's web site at www.biodiesel.org, or the European Biodiesel Board at www.ebb-eu.org.