



What are biofuels and how much do we use?

Biofuels are liquid fuels produced from biomass materials and are used primarily for transportation¹. The term biofuels most commonly refers to ethanol and biodiesel. In 2007, the United States consumed 6.7 billion gallons of ethanol and 358 million gallons of biodiesel². By comparison, 2007 consumption of motor gasoline and diesel (not inclusive of biofuels) was 136 billion gallons and 53 billion gallons, respectively.

What Is Biodiesel?

Biodiesel consists of chemicals known as fatty acid methyl esters (FAME) that can be used as a diesel fuel substitute or diesel fuel additive. Biodiesel is typically made from oils produced from agricultural crops such as soybeans or canola but can also be made from various other feedstocks such as animal fats.

Currently, most biodiesel in the United States is produced from soybean oil, but recent increases in soybean crop prices have caused producers to switch to other feedstocks such as waste animal fats from processing plants or recycled grease from restaurants. Biodiesel can be made from virtually any feedstock that contains an adequate amount of free fatty acids, which are the raw materials that are converted to biodiesel through a chemical process. Research is underway to harvest algae for biodiesel production because they contain fat pockets that help them float, and this fat can be collected and processed into biodiesel. Continued biodiesel production and usage will help the United States meet levels of biofuels consumption mandated by the Renewable Fuel Standard.

In addition to biodiesel derived from FAME, it is also possible to make a diesel fuel substitute from cellulosic material. This fuel, sometimes called renewable diesel, would also count towards meeting the Renewable Fuel Standard mandate. Like cellulosic ethanol, however, its commercial viability has yet to be demonstrated.

How Is Biodiesel Used?

Biodiesel has chemical characteristics much like petroleum-based diesel and, therefore, can be used as a direct substitute for diesel fuel or blended with petroleum diesel in any percentage without suffering any significant loss of fuel economy³. Blends are named in the same manner as ethanol-gasoline blends, for example, a blend of 20% biodiesel with 80% petroleum diesel is known as B20. Low level, i.e., B2-B5, biodiesel blends are a popular fuel in the trucking industry because biodiesel has excellent lubricating properties, and therefore usage of the blends can be beneficial for engine performance. Biodiesel also has virtually no sulfur content, making it a popular additive for low- and ultra-low-sulfur diesel fuels required by the Environmental Protection Agency⁴.