

## Statement

## Myth or Fact and the Details

### Specifications for Biodiesel

**There is an ASTM specification for biodiesel.**

**Fact.** The current biodiesel specification is called ASTM D6751-07 and applies to any biodiesel used as a blendstock.

**The ASTM D975 specification for petroleum diesel will soon include up to 5% biodiesel blends.**

**Fact.** The ASTM D975 specification for petroleum-based conventional diesel is being modified to include up to 5% biodiesel. This is expected to pass in late 2008 or early 2009.

**There will be an ASTM specification for B20 blends.**

**Fact.** An ASTM specification for B6 to B20 blends has been approved by the necessary subcommittees and is expected to pass in June 2008.

### Feedstocks for Biodiesel and Impact on Biodiesel Quality

**Biodiesel can be made from just about any vegetable oil or animal fat.**

**Fact.** Biodiesel can be made from all of the following: rapeseed, canola, soybean, corn, palm, coconut, cottonseed, mustard seed, and peanut oils as well as jatropha oil, animal fats, used cooking greases, and algae oil.

**Soy based biodiesel is inherently better than other types of biodiesel.**

**Myth.** Soy-based biodiesel is not inherently better – high-quality biodiesel can be made from a variety of feedstocks. The majority of the parameters in the ASTM D6751 biodiesel spec are processing related, not feedstock dependent. Each feedstock produces biodiesel with different performance characteristics. For example, animal fat biodiesel provides much higher cetane, lubricity and stability/shelf life as well as a lower carbon and greenhouse gas impact compared to soy biodiesel but will have a higher pour point. Blends of different types of biodiesel can also be made to achieve various performance and price objectives.

### Emissions Impact

**Biodiesel cuts down on targeted emissions.**

**Fact.** Biodiesel fuels reduce emissions of various pollutants and global warming gases such as CO, CO<sub>2</sub>, hydrocarbons and particulate matter by as much as almost 50% compared to conventional diesel. The higher the percentage content of biodiesel, i.e. using B20 instead of B5 fuels, the greater the reduction in harmful emissions and pollutants.

**Biodiesel causes an increase in NOx emissions.**

**Myth.** According to the National Renewable Energy Lab in February 2007, “Recently available data shows that B20 appears to have no significant or consistent impact on NOx emissions.”





## Using Biodiesel -- Impact on Engines and OEM Warranties

**Engine manufacturers do warranty B5 blends.**

**Fact.** Virtually all engine manufacturers now warrant B5. Remember that using biodiesel only impacts the warranty as it relates to fuel related problems.

**No engine manufacturer warrants a B20 blend.**

**Myth.** Currently Cummins, Case Holland, and Caterpillar warrant B20 in several engine models. Most engine manufacturers have said that they will warrant B20 once there is an ASTM specification for B20.

**Biodiesel even at low-level blends such as B5 improves lubricity significantly.**

**Fact.** ULSD diesel has extremely low lubricity and thus requires a lubricity additive. Compared to ULSD diesel with the lubricity additive, biodiesel fuel blends offer significantly higher lubricity. Even low level blends can considerably improve fuel lubricity with studies showing that B2 can increase lubricity up to as much as 66% compared to ULSD.

**No engine modifications or new equipment are needed to use biodiesel blends.**

**Fact.** Biodiesel is a “drop in” technology for fuel blends of B20 or less. No new equipment or engine modifications are necessary. When first using biodiesel fuel blends, particularly if using a B20 or higher blend, users may experience fuel filter plugging upon the first few weeks of use. It is recommended that biodiesel users monitor their filters for plugging more closely during initial use. The potential for fuel filter plugging typically goes away after the first few tanks of fuel. Some users of B20 or higher blends will take the precautionary measure of changing the fuel filters after consuming the first or second tank of fuel.

**Using biodiesel results in lower fuel economy.**

**Myth.** Although biodiesel B100 has about 10%-11% lower BTU content, fuel economy depends on the blend level used. Most B20 users report no reduction in fuel economy. This is mostly due to the higher cetane provided by the biodiesel. Initial findings from the “2 Million Mile Haul”, a comprehensive fuel impact study using 20 trucks traveling the same routes for 2 million miles to examine the effects of B20 compared with regular petroleum diesel fuel, shows that B20 performs similarly to conventional diesel.

**Using biodiesel results in higher engine / fleet maintenance costs.**

**Myth.** Biodiesel's higher lubricity content reduces engine wear and improves component life, which tends to lower maintenance costs.



## Using Biodiesel – Materials Compatibility and Storage

**Biodiesel has several materials compatibility issues and makes usage difficult.**

**Myth.** Materials such as Teflon, Viton, fluorinated plastics, and Nylon are compatible with B100. But B100 is not compatible with nitrile rubber compounds, polypropylene, polyvinyl, and Tygon materials, which are no longer used in most newer engine models, i.e. 1994 or later. B20 blends have shown a much smaller to no effect; the effects are virtually non-existent in low-level blends such as B2 or B5.

**Biodiesel is compatible with Teflon, Viton, fluorinated plastics, and Nylon.**

**Fact.** These materials are completely compatible with B100 biodiesel and all biodiesel blends.

**Biodiesel blends must be stored in a heated, above ground tank.**

**Myth.** For B2 – B30 biodiesel blends, heated and insulated storage is not typically needed, although in extreme cold climates where temperatures are below 10-15 degrees F, B20 or even B10 blends may require heated storage. The cloud point of the biodiesel blend is an indicator of the minimum storage temperature that must be maintained. However, for B100/ 99.9 storage, heated and insulated tanks are strongly recommended. Note that B100 and biodiesel blends must be stored in tanks that do not have any residual water, sediments or other contaminants.

**If there is water or excessive moisture in the storage tank, this can degrade biodiesel quality.**

**Fact.** Note that B100 and biodiesel blends must be stored in tanks that do not have any residual water, sediments or other contaminants. The presence of water or excess moisture in tank can be absorbed by biodiesel (biodiesel is hydrophilic) which can cause performance problems such as degraded cold weather performance, precipitation of waxes and filter plugging.

**Biodiesel has a short storage or shelf life.**

**Myth.** Biodiesel has a finite storage or shelf life just like conventional diesel. The storage or shelf life of biodiesel depends on the type of biodiesel and the blend level. Soy/canola-based B100 biodiesel has an average shelf life of four to six months, whereas animal fats and palm-based B100 biodiesel can last up to nine months. Typically, the lower the blend level, the longer the storage life. The National Biodiesel Board recommends that B20 blends be used within six months, which is comparable to current practices recommended for conventional diesel. Note that stability additives can be used to significantly extend storage life.

### Common Facts

- Biodiesel is a “drop in” technology – no engine modifications or new equipment are necessary
- Using biodiesel reduces carbon and other harmful emissions
- Biodiesel’s higher lubricity content reduces engine wear and improves component life.
- Biodiesel quality is governed by an ASTM specification, ASTM D6751.

# Biodiesel: Myths versus Facts

## The Biodiesel Market and Biodiesel Legislation

**Minnesota is the only state to have a biodiesel mandate.**

**Myth.** Washington, Oregon and Louisiana have also passed biodiesel mandates requiring 2% to 5% biodiesel content. Other states such as New York, Illinois, Iowa and Tennessee provide excise tax waivers or credits for biodiesel usage.

**The cities of San Francisco, Santa Monica and Glendale have all mandated the use of B20 for their municipal diesel fleet.**

**Fact.** These cities all have mandated the use of B20 in their diesel vehicles. In fact, the City of Santa Monica is now testing the use of B50 blends.

**There is a Federal mandate for using biodiesel.**

**Fact.** The new Energy Policy Act of 2007 mandates a minimum of 500 million gallons of biodiesel (B100 / B99.9) usage in 2009, growing to one billion gallons in 2012. This mandate applies primarily to major refiners and importers.

**The largest biodiesel plant in California is under construction in Bakersfield.**

**Fact.** Crimson Renewable Energy expects to complete its 30 million gallons per year biodiesel plant in Bakersfield in summer 2008.

**California has a biodiesel mandate law.**

**Myth.** California does not have a mandate for biodiesel. Instead, California is implementing a Low Carbon Fuel Standard that requires a 10% reduction in carbon intensity in diesel and gasoline fuels by 2020. Biodiesel is one of the primary options that refiners, blenders and importers can use to reduce the carbon intensity of diesel fuel.

**Europe uses significantly more biodiesel than the U.S.**

**Fact.** Biodiesel has been used in Europe on a commercial scale for over 15 years. Many countries in the European Union have biodiesel mandates or targeted levels of biodiesel consumption. Estimates for biodiesel usage in the EU in 2007 ranged from 1.3 to 1.6 billion gallons. Over half of the biodiesel produced in the U.S. in 2007 was exported to Europe to meet this high level of demand for biodiesel.

**The Department of Defense is the largest user of biodiesel in the U.S.**

**Fact.** The Department of Defense, which encompasses all of the branches of the U.S. Armed Forces, is the single largest purchaser of biodiesel in the U.S. and in California.

**Safeway announced in 2008 that it is fueling its entire US truck fleet of over 1000 vehicles with cleaner burning B20.**

**Fact.** Other companies such as UPS and Waste Management Corp have also announced the use of biodiesel blends in their fleets as part of their environmental sustainability initiatives.

For more information about biodiesel contact your local fuel distributor or contact Crimson Renewable Energy.



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