

# ***Soy Biodiesel***

***Supplier and User Guide***



***Fuel Made Better.***

# *What is soy biodiesel?*

Soy biodiesel is the only clean-burning diesel fuel substitute produced from the premium feedstock of U.S.-grown soybeans. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create one of the many commonly used biodiesel blends. It is available in all 50 states and can be used in most diesel engines without any modifications.

## *Soy Biodiesel, Past, Present and Future*



*“The soybean checkoff has invested and continues to invest in research and promotion of soy biodiesel.”*

*- Laura Foell  
Iowa Farmer*

### **A Growing Development**

The U.S. biodiesel industry has come a long way since U.S. soybean farmers and their checkoff helped to develop it more than 15 years ago. Initially, biodiesel was attractive to American farmers, who used it in their equipment because it utilized homegrown crops. Next, truckers realized the performance benefits and began asking for and receiving soy biodiesel from their fuel suppliers. Even diesel users serving consumers, such as bus fleet operators, have begun jumping on the bandwagon for the environmental benefits.

Whoever the user and whatever their reason for choosing it, biodiesel continues to grow. From the 2 million gallons that were pumped in 2000 to the nearly 700 million gallons used in 2008, diesel users all across the country are finding that biodiesel is simply Fuel Made Better.

## Biodiesel vs. Diesel

**BIODIESEL  
USE  
IT**

*“It gives me good power and good lubrication especially on some of my older equipment.”*

*- Russell Counce  
Tennessee Farmer*

### Performance That Speaks for Itself

Whether it's a B2 blend (2% biodiesel and 98% petroleum diesel) or B100 (100% pure biodiesel), soy biodiesel can offer a number of performance benefits for your diesel engine, including:

- Improved Fuel Lubricity – Just a 2 percent blend of soy biodiesel can increase fuel lubricity by up to 66 percent
- The prevention of premature wear and tear
- A higher cetane level
- The highest BTU content among renewable fuels
- Less equipment downtime
- Lower maintenance costs
- Comparable performance to regular diesel in start-up, fuel efficiency, range, torque and haulage rates

### Biodiesel vs. Diesel

A comparison with diesel fuel shows B100 (pure biodiesel) has more oxygen, usually no sulfur and better cetane.

<i>FUEL PROPERTIES</i>	<i>DIESEL ASTM D975</i>	<i>BIODIESEL ASTM D-6751</i>
OXYGEN, BY WEIGHT	0%	11%
SULFUR, BY WEIGHT	500 ppm	LESS THAN 5 ppm
CETANE NUMBER	43	52

Even by blending soy biodiesel at 2 percent, you can expect some incremental benefits in all of the above areas compared with No. 2 diesel.

# Myths and Facts



*“We use it all year and have no problems.”*

*- Tim Cain  
Indiana Farmer and Trucker*

## Busting Biodiesel Myths

**Myth:** A regular diesel engine won't run properly on biodiesel.

**Truth:** Biodiesel blends can be operated in any diesel engine with little or no modification to the engine or fuel system.

**Myth:** Biodiesel is an experimental fuel that has not been thoroughly tested.

**Truth:** Biodiesel is one of the most thoroughly tested alternative fuels on the market. A number of independent studies performed by the U.S. Department of Energy and multiple other independent organizations have shown that biodiesel performs similarly to petroleum diesel with greater benefits to the environment and human health.

**Myth:** Biodiesel use voids manufacturers' engine warranty coverage.

**Truth:** All major U.S. automakers and engine manufacturers accept the use of at least B5, and many major engine companies have stated formally that the use of high-quality biodiesel blends up to B20, and some even higher blends, will not void their parts and workmanship warranties.

*For a listing of specific statements from engine companies, please visit the National Biodiesel Board Web site at [www.biodiesel.org/resources/oems](http://www.biodiesel.org/resources/oems).*

**Myth:** Biodiesel contributes to rising food prices.

**Truth:** Demand for soy biodiesel has very little impact on

the price of food. Biodiesel made from soybeans uses only the oil portion of the bean, leaving 80 percent of each bean available for use as protein-rich meal and other animal feed and food products.

**Myth:** Soy biodiesel doesn't work in cold weather.

**Truth:** Although pure biodiesel has a higher cloud point than No. 2 diesel fuel, typical blends of 20 percent biodiesel are managed with the same fuel-management techniques as No. 2 diesel. Some of these fuel-management systems include kerosene blending, block and filter heaters and indoor garaging of vehicles where possible. Biodiesel blends of B5 and under have nearly no impact on cold flow.

*For even more biodiesel facts, go to [www.biodiesel.org](http://www.biodiesel.org) and click on the biodiesel myths and facts link.*

## U.S.-Grown

*“We think it is good for America, good for America’s economy.”*

*- Charles Fullerton  
Missouri Trucker*

### **A U.S.-Grown Alternative**

As a clean-burning, renewable energy source that is produced right here in the United States, soy biodiesel offers a number of built-in advantages that regular diesel fuels simply can't match.

### **Environmental Benefits**

- Studies conducted by the U.S. departments of Agriculture and Energy show that biodiesel can reduce life-cycle greenhouse gases by 78 percent, which helps fight global warming.
- The ozone (smog) forming potential of pure biodiesel hydrocarbons is 50 percent less than that of petroleum diesel fuel.
- The exhaust emissions of sulfur oxides and sulfates (major components of acid rain) from biodiesel are essentially eliminated compared with petroleum diesel.

### **Energy Independence**

- Biodiesel reduces our reliance on foreign oil and can help improve America's energy security.
- Biodiesel is a green industry that supports rural communities by generating jobs.

- Biodiesel represents a domestically produced renewable fuel that can help replace oil imports, according to the U.S. Department of Energy.

### **Sustainability**

- Biodiesel has a significant positive energy balance. A 2009 study found that for every unit of fossil energy it takes to make biodiesel, 4.5 units of energy are gained.
- As compared to global oil deposits, which are relatively scarce and finite, soybeans offer a consistent, renewable source of energy.

### **Health Effects**

Biodiesel is the only alternative fuel in the United States to complete the EPA Tier 1 and Tier 2 Health Effects Testing. This four-year, \$2.2 million endeavor provided the most thorough analysis of environmental and human health effects ever conducted on any fuel.

*“It’s a fuel that powers consumers to make changes to impact our country.”*

*- Norm Woolley  
New Jersey Fuel Supplier*

## **Supplier Information**



### **A Fuel Supplier’s Guide to Soy Biodiesel**

Soy biodiesel is fast growing into one of the most demanded renewable fuels on the market. But what is it, why should you offer it and how do you become a supplier?

#### **Who uses soy biodiesel?**

Soy biodiesel blends are used nationwide. From farming equipment to trucks to school buses, you name the diesel vehicle and odds are that soy biodiesel is already fueling it all across the country.

#### **How does biodiesel compare with diesel fuel?**

A comparison with diesel fuel shows B100 (pure biodiesel) has more oxygen, usually no sulfur and better cetane. And just a 2 percent blend of soy biodiesel can actually increase fuel lubricity by up to 66 percent.

#### **How much does biodiesel cost?**

Biodiesel prices vary based on volume, region and the feedstock used to produce it. For real-time pricing, contact a soy biodiesel supplier near you. A list of biodiesel manufacturers and suppliers in your area can be found at [www.biodiesel.org](http://www.biodiesel.org).

#### **Do tax incentives exist for biodiesel?**

In the past, biodiesel manufacturers, blenders, suppliers and diesel users have benefited from some state and federal tax benefits that have made the retail price of biodiesel blends close to or even below the price of straight petroleum diesel. For up-to-date information on tax incentive programs, go to [www.biodiesel.org](http://www.biodiesel.org), contact the Qualified State Soybean Board in your state or contact the Petroleum Marketers Association of America at [www.pmaa.org](http://www.pmaa.org).

#### **What is BQ-9000?**

BQ-9000 is an accreditation program open to all companies actively producing, distributing or marketing biodiesel fuel. By completing the quality-assurance programs, you are able to ensure that both you and the customers you serve have the highest level of confidence in the biodiesel you supply.

#### **How do I get started?**

For more information on becoming a certified biodiesel supplier, visit the BQ-9000 Web site at [www.bq-9000.org](http://www.bq-9000.org) and follow the directions under “How to Get Started.”

*For more information on the many benefits of soy biodiesel, go to [www.biodiesel.org](http://www.biodiesel.org).*

*“The fuel systems are cleaner, and there is less soot in the tanks and less toxic exhaust.”*

*- Michael Bernich  
Airport Fleet Manager*

## Soy Biodiesel Quality and Blends



### Biodiesel Blends

There are many different soy biodiesel blends on the market today. But whether it's B100 or B2, it must meet strict ASTM biodiesel quality standards. The following are a few of the more commonly used blends and their benefits:

**B2** (2 percent soy biodiesel and 98 percent petroleum diesel) – provides a boost in fuel lubricity. It is a common blend offered by many fuel retailers and distributors.

**B20** (20 percent soy biodiesel and 80 percent petroleum diesel) – Offers an additional boost in fuel lubricity as well as significant environmental benefits. Among others, government utility companies and school-bus fleets commonly use B20 to cut air pollution and meet clean air regulations.

**B100** (100 percent soy biodiesel) – Offers substantial cleaner air advantages. B100 is also 100 percent U.S.-grown, making it one of the only mass-produced diesel fuels that can offer complete energy independence from foreign oil.

### Handling Tips

Handling and usage requirements for soy biodiesel mirror those recommended for petroleum diesel.

**B2 to B20**

**NO. 2 DIESEL**

Store fuel in a clean, dry, dark environment, avoiding temperature extremes.



Keep away from oxidizing agents and ignition sources.



Use tanks made from aluminum, steel, fluorinated polyethylene, fluorinated polypropylene and teflon.



Store for no more than six to 12 months (stabilizing additives will increase storage life).



Splash-blending soy biodiesel at B2 or higher blends involves blending B100 (the pure product).



**Norm Woolley, Maplewood, N.J.**  
Owner, Woolley Fuels—Soy Biodiesel Supplier

“Soybean biodiesel is a renewable energy source that is made by us for us. It’s a fuel that powers consumers to make changes to impact our country to become cleaner and greener while improving equipment performance and our nation’s economy at the same time. It’s a win-win!”



**Charles Fullerton and son, Buffalo, Mo.**  
Truck Driver

“We use biodiesel whenever we can get it. We think it is good for America, good for America’s economy, good for the lubricity in our trucks. We just think it is a win-win for everybody.”



**Laura Foell, Schaller, Iowa**  
Soybean and Corn Farmer  
Soybean Checkoff Farmer-Leader

“We have used B2 and B5 soy biodiesel on our farm for several years. The soybean checkoff has invested and continues to invest in research and promotion of biodiesel. Biodiesel is a renewable product that uses the oil of the bean. As a farm family looking to continue the family farm, biodiesel is one tool that fits into our operation by being environmentally friendly and economically sound.”



**Tim Cain, New Palestine, Ind.**  
Truck Driver  
Professional Tractor Puller

“We’ve run B2 for 4-5 years now in all our semi-tractors and farm vehicles. We use it all year, and we’ve had no problems.”



**Russell Counce, Lawrenceburg, Tenn.**  
Corn, Soybean and Wheat Farmer  
Professional Tractor Puller

"I use biodiesel on my farm and pulling tractor. It gives me good power and good lubrication, especially in some of my older equipment. It makes for less wear and tear on the engine and let's me hold onto a piece of machinery longer."



**Michael Bernich, St. Louis, Mo.**  
Fleet Manager  
Lambert-St. Louis International Airport

"We've been using biodiesel at Lambert for over 20 years and currently all of our diesel-powered units, from small mowers to specialized airport snow-removal and firefighting equipment — pieces with 500-plus-horse-power engines, all use a B20 blend. Diesel is a dirty fuel and we immediately saw a difference with B20. There is greater lubricity so we get a longer life with our fuel pumps and injector systems, the fuel systems are cleaner and there is less soot in the tanks and less toxic exhaust."

## Finding a supplier near you


### To find out where biodiesel is offered in your area:

Visit [www.biodiesel.org](http://www.biodiesel.org) and enter your address to locate a biodiesel supplier near you.

Call the Biodiesel Hotline at 866-246-3437.

Or if you can't find it near you, ASK your local fuel supplier to start carrying it today.



Our soybean checkoff.   
*Effective. Efficient. Farmer-Driven.*  
**[www.unitedsoybean.org](http://www.unitedsoybean.org)**