

# Biodiesel as a Transportation Fuel



## What is biodiesel?

Biodiesel is an alternative fuel produced from renewable resources, such as soybeans or used restaurant grease.

Biodiesel contains no petroleum, but it can be blended with petroleum diesel to create a biodiesel blend. It can be used in diesel engines with no major modifications.

Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics.



*Soybean production  
Photo courtesy of the  
National Renewable Energy Laboratory*

## Is biodiesel used as a pure fuel or is it blended with petroleum diesel?

Biodiesel can be used as a pure fuel or blended with petroleum in any percentage. B20 (a blend of 20 percent by volume biodiesel with 80 percent by volume petroleum diesel), B2, and B5 are common fuel blends used today.

## Is it approved for use in the U.S.?

Biodiesel is registered as a fuel and fuel additive with the U.S. Environmental Protection Agency (EPA) and meets clean diesel standards established by the California Air Resources Board (ARB). Neat (100 percent) biodiesel has been designated as an

alternative fuel by the U.S. Department of Energy (DOE) and the U.S. Department of Transportation (DOT).

## How do biodiesel emissions compare to petroleum diesel?

Biodiesel is the only alternative fuel to have fully completed the health effects testing requirements of the Clean Air Act. The use of biodiesel in a conventional diesel engine results in substantial reductions of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel.

## Can biodiesel help mitigate “global warming”?

A 1998 biodiesel lifecycle study, jointly sponsored by DOE and the U.S. Department of Agriculture, concluded biodiesel reduces net carbon dioxide emissions by 78 percent compared to petroleum diesel. This is due to biodiesel’s closed carbon cycle. The CO<sub>2</sub> released into the atmosphere when biodiesel is burned is recycled by growing plants, which are later processed into fuel.

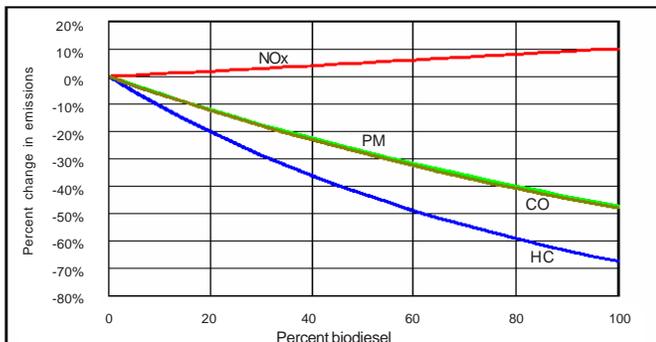
## Is biodiesel better for human health than petroleum diesel?

All outdoor air pollution is estimated to pose one percent of our cancer risk. Scientific research confirms that biodiesel exhaust has a less harmful impact on human health than petroleum diesel fuel. Biodiesel emissions have roughly 45-90 percent lower toxics emission compared to diesel.

## Does biodiesel cost more than other alternative fuels?

When evaluating the total costs associated with other alternative fuel systems, many fleet managers have determined biodiesel is their least-cost-strategy to comply with state and federal regulations. Use of biodiesel does not require major engine modifications.

Average emission impacts of biodiesel for heavy-duty highway engines



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That means operators keep their fleets, their spare parts inventories, their refueling stations, and their skilled mechanics. The only thing that changes is air quality.

### Do I need special storage facilities?

In general, the standard storage and handling procedures used for petroleum diesel can be used for biodiesel. The fuel should be stored in a clean, dry, dark environment. Acceptable storage tank materials include aluminum, steel, fluorinated polyethylene, fluorinated polypropylene, and teflon. Copper, brass, lead, tin, and zinc should be avoided.

### Can I use biodiesel in my existing diesel engine?

Biodiesel works in any diesel engine with few or no modifications to the engine or the fuel system. Most major engine companies have stated formally that the use of blends up to B20 will not void their parts and workmanship warranties. This includes blends below 20 percent biodiesel, such as the two percent biodiesel blends that are becoming more common.

### Where can I purchase biodiesel?

Biodiesel is available anywhere in the U.S. The National Biodiesel Board (NBB) maintains a list of registered fuel suppliers. A current list is available on the biodiesel website at [www.biodiesel.org](http://www.biodiesel.org), or by calling NBB at (800) 841-5849.

### Is biodiesel being used in California?

Currently more than 4 million gallons of biodiesel per year is being used in California at such locations as the Channel Islands National Park, Yosemite National Park, the City of Berkeley, and at U.S. Military installations.



*Ocean Ranger at Anacapa Island  
Photo courtesy of Channel Islands National Park*

### Who can answer my questions about biodiesel?

NBB maintains a library of biodiesel information. Information can be requested by visiting the biodiesel website at [www.biodiesel.org](http://www.biodiesel.org), by emailing the NBB at [info@biodiesel.org](mailto:info@biodiesel.org), or by calling NBB's toll free number (800) 841-5849.



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