

# Biodiesel Vehicles



Biodiesel is a renewable, biodegradable fuel manufactured domestically from vegetable oils, animal fats, or recycled restaurant grease. It can be blended at any level with petroleum diesel to create a biodiesel blend to be used in compression-ignition (diesel) engines. Biodiesel is often referred to as B100 or neat biodiesel in its pure, unblended form but is most commonly blended as B5 (up to 5% biodiesel) and B20 (6 to 20% biodiesel). Biodiesel is cleaning-burning and a renewable substitute for petroleum diesel. Overall, using biodiesel as a vehicle fuel increases energy security, improves air quality and the environment, and provides safety benefits.



## Biodiesel: A Drop-In Solution for All Diesel Vehicles

Biodiesel and conventional diesel vehicles are one in the same. Although diesel vehicles are not considered alternative fuel vehicles (AFV's), almost all are capable of running on biodiesel. Biodiesel, which is most often used as a blend with petroleum diesel fuel, can be used in many diesel vehicles without any engine modification. All OEMs approve the use of B5 however it is important to check the OEM engine warranty to ensure that higher-level blends of this alternative fuel are approved, such as B20. Contact a local dealer to see other available OEM models and to discuss engine warranty.



Medium-Duty Pickup Truck



School Bus



Heavy-Duty Dump Truck



Short/Long Haul Semi-Trailer Truck

\*To see the full list of diesel/biodiesel vehicles in the U.S. market today, see the Diesel Vehicle List document at <https://biodiesel.org/using-biodiesel/oem-information>.

## Original Equipment Manufacturers (OEMs) that support B20



\*To see the full list of OEM's supporting B20 and more information on engine warranties, see the OEM Support Summary document on the National Biodiesel Board website at <https://biodiesel.org/using-biodiesel/oem-information>.

Biodiesel improves fuel lubricity and raise the cetane number of the fuel. Diesel engines depend on the lubricity of the fuel to keep moving parts from wearing prematurely. Before using biodiesel, check your engine OEM recommendations to determine what blend is optimal for your vehicle. Biodiesel also offers some tailpipe and considerable greenhouse gas emissions benefits over conventional gasoline and diesel. Visit the [National Biodiesel Board \(NBB\)](http://www.nbb.org) for information on OEM approvals of biodiesel use in vehicles.

## Diesel Engine Warranties

Most major diesel engine OEMs have stated formally that the use of blends up to B20 will not cause engine problems or errors in engine operation. Because of this, all diesel engine companies warranty the engines they make for "materials and workmanship" and will cover any problems that come up.

**Today's high-performing biodiesel provides the same power torque and miles per gallon as conventional diesel vehicles.**

| Return-on-Investment (ROI) for Biodiesel Vehicles  |                 |                     |                  |                     |                 |                     |
|--|-----------------|---------------------|------------------|---------------------|-----------------|---------------------|
| Price Levels   | Low Oil Price   |                     | Median Oil Price |                     | High Oil Price  |                     |
| Fuel Type  | Diesel (\$2.61) | Biodiesel (\$2.60*) | Diesel (\$2.87)  | Biodiesel (\$2.85*) | Diesel (\$3.71) | Biodiesel (\$3.65*) |
| <b>Avg. Annual Fuel Costs (per vehicle)</b>  | \$26,100        | \$26,000            | \$28,700         | \$28,500            | \$37,100        | \$36,500            |
| <b>Avg. Annual Fuel Cost Savings (per vehicle)</b>   | \$100           |                     | \$200            |                     | \$600           |                     |
| *Current cooperative fleet contracts exist guaranteeing biodiesel at this price or less.<br>Costs derived from an average annual fuel use of 10,000 gallons per vehicle per year for Class 4-8 Trucks. |                 |                     |                  |                     |                 |                     |

The Return-on-Investment (ROI) table above uses 2019 projected diesel prices for the East North Central Region (where Ohio is located) from the U.S. Energy Information Administration (EIA) at [www.EIA.gov](http://www.eia.gov). Biodiesel prices were provided by Benchmark Biodiesel, a biodiesel supplier who provided their approved B20 retail prices for 2019.

## The Biodiesel Standard (ASTM D 6751)

To avoid engine operational problems, pure biodiesel (B100) must be blended with petroleum diesel to have up to 20% volume levels of biodiesel. Higher levels of biodiesel are allowed on a case-by-case basis.

If you have any questions about any of the information provided in this document, please visit the National Biodiesel Board website at [www.biodiesel.org](http://www.biodiesel.org) or contact [tim@cleanfuelsohio.org](mailto:tim@cleanfuelsohio.org).