

## FINDING, CHOOSING AND OPERATING A VEHICLE TO RUN ON BIODIESEL

Whether you prefer a car, truck, van or SUV, you can run them with confidence on up to 100% biodiesel. And you can run **any** diesel vehicle on biodiesel **without any modifications** (in most cases, see below). The primary tradeoff is cost versus model, age and condition as normal for gasoline powered vehicle purchases.

You can find diesel vehicles listed in most newspapers and on the internet under classified ads. Online sites like [www.craigslist.com](http://www.craigslist.com), [www.autotrader.com](http://www.autotrader.com) and [www.ebay.com](http://www.ebay.com) let you do a search for 'diesel' vehicles in your area. You may have to drive a bit to find just the right make, model and year, but chances are you can find pretty much what you're looking for.

The best diesel vehicles for use with biodiesel will have the newer 'turbocharged electronic fuel injected' (eg – TDI) engines which were introduced in the mid-1990s. These engines deliver the best overall fuel economy and performance, but are naturally more expensive. Older diesels can still be run quite well on biodiesel. Diesels made before the mid-1980s may have used natural rubber fuel lines which will need to be replaced with the modern synthetic type because biodiesel is a mild solvent and will degrade natural rubber fuel lines over time. If in doubt, check with your mechanic. It's a simple and inexpensive upgrade.

Sometimes the question comes up of whether to run your diesel on Straight Vegetable Oil (SVO) or on biodiesel. You must convert **each** vehicle you want to run on SVO, which includes an additional tank for the oil plus special pre-heaters and control systems. These kits cost about \$800 plus labor. While this fuel needs no conversion as in the case of biodiesel, the oil must be of very good quality. Many SVO drivers prefer Fresh Vegetable Oil (FVO) over Waste Vegetable Oil (WVO) to minimize hassles from the variables in using a waste product. And when it comes time to sell this converted vehicle, your buyer may not be interested in running it on SVO.

If you've purchased a used diesel vehicle you should replace the fuel filter element after the first tank of biodiesel over 20% (B20). This is because petroleum diesel fuel has left gums, tars and varnish in your fuel tank which biodiesel will scrub out and dump into your fuel filter. After the filter change you can use even 100% biodiesel with confidence under the standard

maintenance schedule as petroleum diesel. Occasionally you may notice a 'water in fuel' indicator on your dashboard. A good habit to get into is to briefly drain any residual water from the bottom of your fuel bowl every time you tank up with biodiesel. Although biodiesel is biodegradable, place a drain pan under your vehicle to catch the drainage. This avoids buildup of any non-fuel contaminants and keeps your engine running clean. You may notice that your engine runs smoother and quieter with biodiesel because of its superior lubricating properties. So long as you use a 5 micron (or finer) final filter on the system you use to dispense biodiesel into your vehicle you should not experience any clogging due to particles. If you also use a water-separator on the dispensing system, so much the better.

Because biodiesel has the same cetane (like octane) rating as petroleum diesel, you should experience similar fuel economy. You can confidently mix biodiesel in any ratio with diesel #1 or diesel #2. This is handy when you are far away from your source of biodiesel. Just top off with biodiesel when you get back. Even as little as 5% biodiesel will deliver significant lubricating benefits. Using B20 will provide all the lubrication effects and as much as 50% of the emissions reduction of pure (B100) biodiesel. A side benefit is that your exhaust will smell like a deep-fat fryer!

In colder weather (below 40F) B100 biodiesel may tend to start gelling which slows fuel flow and can lead to hard starting. When the fuel warms back up again it will flow properly. If you think you might operate in colder weather, then you should mix biodiesel with at least 20% of diesel #1 which can be found at most large truck plazas. This diesel is a lighter (less viscous) type of diesel used to 'winterize' standard #2 diesel. A trick for starting in **very** cold weather is to drain the fuel bowl and refill it with pure diesel #1. Once the engine warms up in just a few minutes it will pre-heat the rest of the fuel in your tank to prevent gelling problems.

And remember, diesel generators, tractors and even home heating fuel furnaces will run fine on biodiesel. Biodiesel is a truly versatile natural fuel.