



RENEWABLE ENERGY GROUP

BIODIESEL 101: YOUR QUESTIONS ABOUT BIODIESEL ANSWERED

Switching your operation to biodiesel blends is easy. But if you're new to the fuel, understanding what it is and the terminology associated with it can take a little while to learn.

That's why we created this Q&A on what your need to know about biodiesel.

What is biodiesel?

Biodiesel is an advanced biofuel that is renewable and biodegradable. It is a cleaner-burning, drop-in replacement to petroleum diesel fuel. In addition to vehicles, it can be used in heating systems to warm buildings.

What is biodiesel made from?

Biodiesel is primarily produced from animal fats, inedible corn oil, recycled cooking oil and vegetable oils. Skilled producers can create high-quality biodiesel that meets customer specifications from a variety of feedstocks, something that's known as feedstock neutrality.

How can things like canola oil and beef tallow be turned into fuel?

Keeping it to a high-level explanation, biodiesel is made through a chemical process called transesterification in which those oils or fats are converted to what are known as fatty acid methyl esters (FAME), which is the chemical name for biodiesel. Biodiesel has ASTM standards that ensure quality. B20 has a nearly identical ASTM specification to No. 2 ULSD, for example.

B20? What's that?

The amount of biodiesel mixed into petroleum is the product's blend level. This is commonly abbreviated to "B" and then that number. B20 is 20 percent biodiesel and 80 percent petroleum diesel, for example. B5 contains 5 percent biodiesel.

What are the advantages of biodiesel?

This is an easy one. There are several ways fleets and retailers can benefit from biodiesel. Here are some of the big ones:



Performance — Fleets throughout North America wouldn't use biodiesel blends if the fuel didn't perform. In some areas, biodiesel actually outperforms petroleum diesel. For instance, the ASTM specification for biodiesel requires a minimum Cetane number of 47, compared with the ASTM diesel spec of 40. Higher Cetane equals a shorter ignition time and better performance. Also, the removal of sulfur in ULSD took the lubricity out of the fuel. A B2 blend can double the amount of lubricity in the fuel. Modern diesel engines rely, in part, on fuel to aid in the lubricating process.



Emissions — A B20 blend has been shown to reduce particulate matter and carbon monoxide emissions by more than 10 percent and unburned hydrocarbons by more than 20 percent in heavy-duty highway engines. A recent study by Argonne National Laboratory, Purdue University and the U.S. Department of Agriculture found that biodiesel reduces greenhouse gas emissions by 72 percent and fossil fuel use by 80 percent compared with petroleum diesel.¹



Business — These days, it's common for companies and governments to have sustainability plans that apply to both their operations and their vendors. Walmart, for example, has a stated goal of reducing emissions in its supply chain by 1 gigaton by 2030. These organizations want to fill up their vehicles with renewable fuels that help them reduce their carbon footprints — and they expect the same from fleets they work with.

¹<http://biodiesel.org/news/news-display/2018/01/22/us-government-report-strengthens-consensus-on-biodiesel-benefits>



How can I add biodiesel to my operation?

If you're a fleet and want to start using B20, just pump it into your diesel vehicles. Biodiesel blends don't require any vehicle upgrades. If you are a retailer or a fleet that operates your own fueling site, biodiesel is also an easy switch from a supply and infrastructure standpoint. If you want blended fuel, ask your current diesel supplier if they can get you product. Some biodiesel producers also supply blended fuel. To do your own blending, you will need a dedicated biodiesel storage tank and blending system. While there is an initial cost, the return on investment is often achieved in only six to 18 months.



How popular is biodiesel?

U.S. biodiesel consumption rose 135 percent between 2011 and 2016, the most recent year stats are available from the U.S. Energy Information Administration.²

Anecdotally, countless public and private fleets are using the fuel, including FedEx, Florida Power & Light and the city of New York.

²www.eia.gov/totalenergy/data/monthly/pdf/sec10_8.w

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