

Frequently Asked Questions

from the Biodiesel Handling and Use Guide



U.S. Department of Energy

What is biodiesel made from?

Biodiesel can be made from a variety of renewable sources such as plant oils (soybeans or other crops), recycled cooking grease, and/or animal fats. These feedstocks are used to manufacture a mixture of chemicals called fatty acid methyl esters, also known as FAME (biodiesel).

Which feedstock is best?

Each feedstock can produce a high-quality B100, but with slightly different properties, especially cloud point, cetane number, and oxidative stability. Cost may also factor into the selection process. Most operational differences seen with B100 are reduced when B20 is used. Any remaining differences can be managed with additives or diesel fuel blending strategies.

Is biodiesel the same as renewable diesel?

No, while biodiesel and renewable diesel are both processed from fats and oils, the production process differs greatly. The biodiesel production process produces FAME, while renewable diesel is generally alkanes (hydrocarbons) produced through hydroprocessing.

Does biodiesel affect how my engine operates?

Biodiesel blends of 20% or lower should not noticeably change engine performance.

What are the OEMs' approvals for biodiesel?

In most cases, biodiesel alone is not enough to void an OEM warranty. With more and more OEM approvals for B5, B20, and B100, the use of biodiesel in diesel engines is becoming commonplace. The warranty offered by your OEM covers materials and workmanship; it does not cover damage by external conditions like poor quality fuel (whether biodiesel or diesel fuel). Federal law prohibits the voiding of a warranty just because biodiesel was used—it has to be the cause of the failure. If an engine experiences a failure caused by biodiesel (or any other external condition, such as bad diesel fuel), it will not be covered by the OEM's warranty. OEM approvals for biodiesel blends and blend levels vary and can be found on the NBB Web site (biodiesel.org).

Do I need to modify my vehicle to use biodiesel?

Based on user experience, no vehicle modifications appear to be necessary for blends of biodiesel as high as 20% biodiesel mixed with diesel fuel. Higher blend levels may require minor modification to seals, gaskets, and other parts. Tank and fuel line/fuel filter heaters (arctic packages) are recommended for blends higher than 20% biodiesel. Detailed long-term engine durability data have not been established for B20 in the United States, so good maintenance practices are recommended.

Do I need to modify my dispensing equipment to use biodiesel?

Dispensing equipment does not need to be modified for blends of 20% biodiesel or lower, unless there is an issue with specific elastomers that are not compatible with B20. Occasional fuel filter plugging has been reported, and some people filter the biodiesel fuels entering or leaving the tank. Some exposed parts of the dispensing systems may need protection from freezing in cold climates. Some people recommend tank cleaning before switching to B20 fuels.

How do biodiesel (B20 and B100) emissions compare to diesel emissions?

With NTDEs, vehicle emissions do not change regardless of the fuel burned in the engine. The emission control devices are equally efficient with biodiesel and diesel fuel and their blends. In older engines not equipped with these advanced emissions controls, there may be differences in emissions. For these older engines (pre-2007), carbon monoxide, hydrocarbons, and PM will be reduced with increasing biodiesel blend level. There is still considerable debate about the effect of biodiesel on NOx emissions from these older technology engines.

How much biodiesel is used and produced in the United States?

In 2011, the biodiesel industry produced over 1 billion gallons for the first time in history. By 2015, domestic consumption was over 2 billion gallons.

Can I use biodiesel in a cold climate?

User experience with cold weather varies. B20 blends are used in some very cold climates such as northern Minnesota and Wyoming, where temperatures routinely fall below -34°C (-30°F) in the winter. B20 was used in an airport shuttle fleet for four years in Boston with no problems. Cold flow additives are applicable to the diesel portion in biodiesel blends.

