

Do I have to worry about cold flow issues?

NO. B20 has been tested in a variety of climates and operates without cold flow problems even in very cold weather. Pure biodiesel (B100) will gel, just as the common #2 petroleum diesel does. Although B100 has a higher cloud point than standard petroleum diesel, B20 provides enough dilution that it can be managed with the same fuel management techniques as #2 petroleum diesel.

How does biodiesel impact my engine warranty?

Engine manufacturers' warranties only cover the manufacturers' parts and workmanship. These warranties do not cover fuel whether it's regular diesel, ultra-low sulfur diesel, or biodiesel. The use of biodiesel in diesel engines does not void these warranties. If there are engine problems caused by a fuel (whether that fuel is petroleum diesel or biodiesel) these problems are the responsibility of the fuel supplier. Whether or not a biodiesel blend is "recommended" is separate from the question of whether the use of biodiesel affects engine warranty coverage. Typically an engine company will define what fuel the engine was designed for and will recommend which fuel to use. All major engine companies have approved B5 as a recommended fuel, and most are moving to formally approve blends up to B20.



Tim Clarke, shop foreman for Sanipac, which operates over 85 vehicles on B20.

"Our transition to B20 has been seamless. If you're considering going to B20 I suggest that you have your vehicles' fuel tanks tested ahead of time for water, algae and dirt. We made sure our tanks were clean before we switched to B20. We also bought fuel filters ahead of time to make sure we'd have some on hand just in case we needed them. We haven't had problems with filters clogging or any other issues."



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- Biodiesel distributors
- Maintenance procedures
 - Engine performance
 - Fleet success stories
- Using B20 and B99 blends
 - Fuel quality
- Air quality and health benefits
 - Engine warranties

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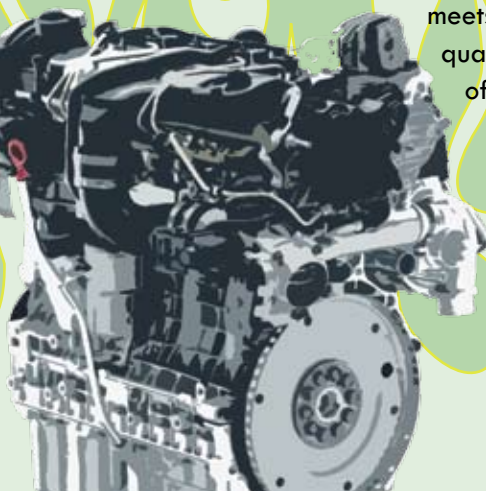
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What is B20?

B20 is a diesel blend that contains 20% biodiesel and 80% petroleum diesel. Biodiesel is a cleaner burning, renewable fuel for diesel engines made from oilseed crops (like canola or soybean) or from used cooking oil and other fats. Biodiesel has many benefits. It's simple to use, biodegradable and nontoxic. B20 can be used in existing diesel engines, including those with advanced fuel injection systems, with little or no modification and without reducing reliability. Biodiesel is registered with the U.S. Environmental Protection Agency for use as a fuel and as a fuel additive.

Why use B20?

Although biodiesel can be used at any mixture, B20 is a higher-level blend commonly used in conventional diesel engines. B20 is popular because it represents a good balance of cost, emissions reduction, cold weather performance, materials compatibility, and solvency. B20 is also the minimum blend level that can be used for Energy Policy Act (EPA) compliance for covered fleets. In more than 50 million miles of in-field demonstrations, B20 showed similar fuel consumption, horsepower, torque, and haulage rates as conventional diesel fuel. All B20 sold in Portland meets the rigorous quality standards of ASTM D 6751.



What are the health benefits of using B20?

B20 burns significantly cleaner than regular petroleum diesel. Using B20 reduces the amount of harmful emissions released into the air.

Carbon dioxide	-15% (lifecycle)
Carbon monoxide	-12.6%
Hydrocarbons	-11%
Particulates	-12%
Air toxics	-12 to -20%
Mutagens	-20%

What procedures are needed for switching to B20?

B20 has a mild solvent property that can result in a cleansing effect on the fuel or storage tanks when B20 is first introduced. Most people do not clean their tanks before switching to B20, although some find it beneficial to test their tanks for water, algae, and other contaminants prior to switching. B20 is sufficiently diluted so that most problems encountered are insignificant, but occasionally a fuel filter or dispensing filter may become plugged.

Keep some extra filters on hand and consider a new fuel filter with any standard fuel maintenance in the first 60 days after switching to B20. Provide fuel filter changes as needed to ensure optimal fuel flow and engine performance.

Does B20 benefit my engine?

YES. Sufficient fuel lubricity is necessary to reduce equipment wear and premature breakdown. B20 improves the lubricity of diesel fuel (especially ultra low sulfur diesel) which enhances engine performance and can prolong engine life and decrease fleet operating costs.

Biodiesel's high cetane rating boosts the cetane level of petroleum diesel which results in a more complete combustion of the fuel. This improves engine efficiency, can improve the power output of the engine and results in less white smoke. This increased cetane also aids in self-ignition of the fuel for easier starting, smoother running engine performance and reliable operation.



Once I start using B20, can I go back to petroleum diesel?

YES! Successful businesses depend upon versatility. With biodiesel, you can easily switch back and forth between regular biodiesel and petroleum diesel, and between various biodiesel blends.