



With Biodiesel, the Future has Never Looked Brighter

FOR YOUR FLEET. FOR OUR ENVIRONMENT. FOR ALL OF INDIANA.

Why Is Biodiesel a Better Fuel for Fleets?

From lower carbon to better engine performance and cleaner air, today's biodiesel offers many benefits that fleet operators are looking for. If you are not yet using a biodiesel blend or are considering increasing the biodiesel blend you already use, this guide can help you start fueling your success.



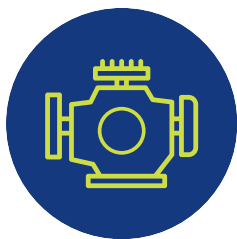
THE BENEFITS OF BIODIESEL

See how biodiesel produces gallons of good, without any drawbacks.

<https://b20clubindiana.org/why-b20/>



Scan to see all biodiesel benefits



Powerful and Reliable

Today's biodiesel is a reliable, high-performance fuel that works in any diesel engine without modifications when using blends up to 20 percent (B20). Due to its superior lubricity, biodiesel reduces engine wear and contains higher cetane for quicker starts and reduced black and white smoke.



Drop-And-Go

B20 is compatible with fueling equipment and diesel engines in use today. Think of it as a "drop-in" fuel.



Energy Security

Biodiesel reduces our dependence on imported oil. It's made from readily available, renewable resources, including soybean oil, other plant oils and animal fats. Soybean oil is a natural co-product of soybean processing, so biodiesel production doesn't take land away from food production.



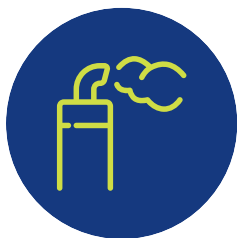
Fueling Indiana's Economy

Indiana produces 107 million gallons of biodiesel per year and roughly 20,000 Indiana soybean farmers benefit from supplying soybean oil to the local industry.



Cleaner, Healthier Air

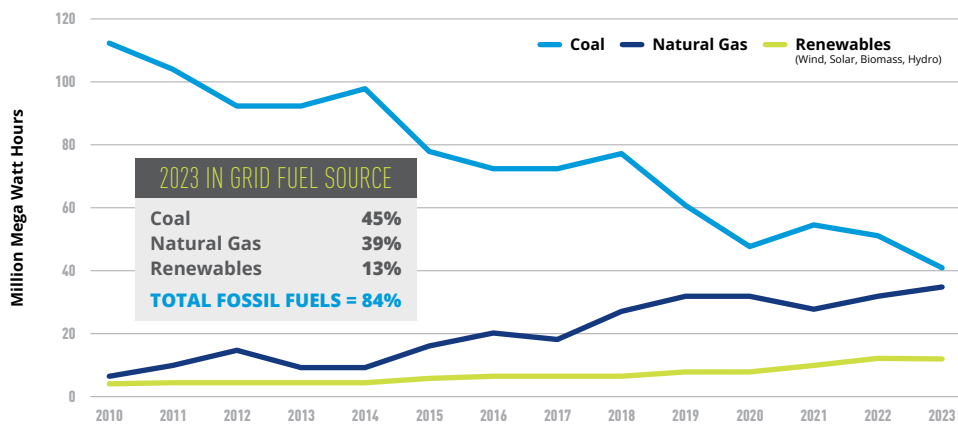
Biodiesel blends can reduce emissions from diesel vehicles and equipment, including particulate matter and harmful pollutants, reducing risk of exacerbating asthma and other respiratory diseases.



Lowest Carbon Emissions in Existing Diesel Equipment

The U.S. Environmental Protection Agency has designated biodiesel an advanced biofuel. Compared with regular diesel fuel, biodiesel generates on average 74 percent fewer CO₂ emissions from production and use. Biodiesel is an easy way to displace fossil fuels, especially in heavy duty equipment that is harder to electrify. A vast majority of the electricity produced in Indiana is from fossil fuels, so switching to electric vehicles in many cases will actually increase the amount of fossil fuels consumed when compared to biodiesel blends.

INDIANA ELECTRICAL GRID FUEL SUPPLY



Source: US Energy Information Administration (EIA)



BIODIESEL 101: EXPLAINING THE BASICS OF BLENDS

The term biodiesel refers to pure, unblended fuel that meets ASTM International (ASTM) D6751 standards and specifications. Biodiesel itself contains no petroleum, but it can be blended with petroleum-based diesel at any percentage. Biodiesel blends are indicated by a “B” followed by a number which represents the percentage of biodiesel in a gallon of fuel. For example, B20 means 20 percent biodiesel blended with 80 percent petroleum diesel. B100 means 100% biodiesel.

BIODIESEL CAN BE BLENDED TO ANY PERCENTAGE WITH DIESEL

The Most Common Blends

B5

- BLENDS UP TO AND INCLUDING 5 PERCENT are nearly identical to traditional ultra-low sulfur diesel (ULSD).
- A 5% blend of biodiesel in diesel does not even require a label in the marketplace, so a customer purchasing “diesel” could in fact be using up to B5.
- Blends up to and including 5 percent should be treated the same as No. 2 diesel.

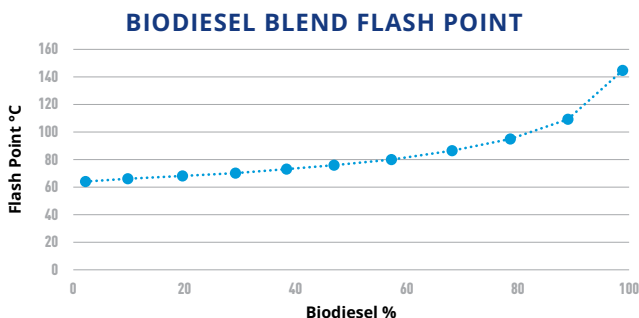
B6 – B20

- BLENDS OF BIODIESEL FROM 6 TO 20 PERCENT are also similar to ULSD and are commonly used throughout the United States.
- At 20 percent, benefits include higher lubricity and cetane, and decreased soot and greenhouse gas emissions.
- Biodiesel blends up to and including B20 meeting ASTM specifications have been used trouble-free in virtually every diesel engine without modifications, including in temperatures as low as -20°F.
- B6 – B20 blends have their own fuel quality specification and must conform to ASTM D7467.
- Since biodiesel is made from biological sources and biodegrades over time, stability additives are included at the factory to preserve shelf-life.



B20+

- BLENDS OVER 20 PERCENT can be used in existing diesel engines to maximize the carbon reduction benefits of biodiesel.
- Precautions need to be taken in colder weather to prevent fuel gelling.
 - The winter blend fuel plus the cold flow additive should be tested in a lab to determine the cold weather operability before trying higher blends in cold weather.
- Since biodiesel has a higher flash point than diesel, engines that have diesel particulate filters may operate inefficiently during a regeneration cycle, or regen.
- Going beyond B50 (see chart) will significantly change the burn characteristics and the fuel may not combust properly in diesel particulate filter (DPF) systems that are not designed for higher blends. Improper combustion can lead to a build-up of residue on the DPF.
- Research is being conducted by engine and vehicle OEMs to optimize engines with blends over B20, which includes optimizing the DPF regen cycle to allow for different flash points of fuel.



Research conducted by Indigenous Energy shows that blends up to B50 have similar flash points to diesel and are expected to operate effectively during DPF regen cycles.

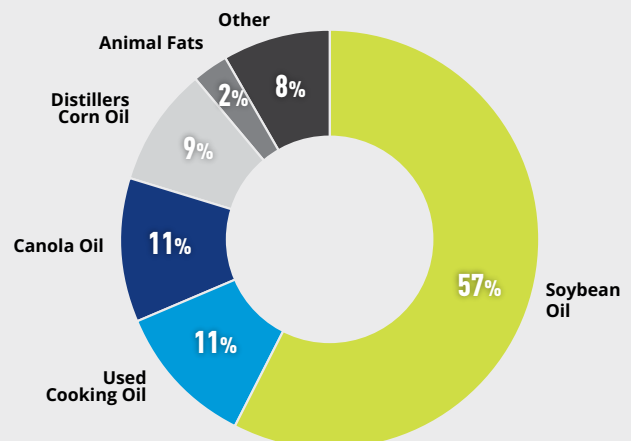
B100

- In terms of combustion, ANY DIESEL ENGINE CAN BURN 100% BIODIESEL, which is essentially chemically modified vegetable oil.
 - The first diesel engine was designed to run on peanut oil over 100 years ago.
- There are a few requirements before using B100.
 - Older diesel vehicles may have some natural rubber fuel lines that are not compatible with B100.
 - Viton or another type of fuel line specified for use with B100 should be used for fuel lines and gaskets to prevent any swelling or leakage that can occur with incompatible materials.
 - To use B100 in colder climates, some aftermarket technology — like the Vector System from Optimus Technologies — must be installed to keep the biodiesel liquid when it's cold out.
- B100 usage allows for an average 74% reduction in life-cycle carbon dioxide emissions compared to diesel.
- It is non-toxic and biodegradable, which makes it safer to handle and attractive for operations in environmentally sensitive areas.
- It drastically reduces soot and other harmful pollutants that cause poor lung health. In fact, biodiesel is so clean that the American Lung Association recognizes it as a Clean Air Choice alternative to petroleum diesel.

ANY ANIMAL FAT OR VEGETABLE OIL CAN BE USED TO MAKE BIODIESEL

Diverse Biodiesel Stocks

Biodiesel is one of the most diverse fuels because it can be made from many different feedstocks. This allows producers to take advantage of market factors such as supply and price, as well as feedstock characteristics that affect cold flow properties. Soybean oil accounts for over half the biodiesel produced in the United States. Distillers corn oil from ethanol plants, used cooking oil from restaurants, canola oil and animal fats make up the remainder of feedstocks used.



Source: Energy Information Administration data
(<https://www.eia.gov/biofuels/update/table2.pdf>)

UNDERSTANDING THE ECONOMICS OF BIODIESEL

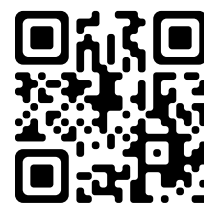
Every Aspect of Biodiesel Drives Indiana's Economy Forward

Biodiesel has been proven as a better fuel for the environment. But did you know that biodiesel also helps improve Indiana's economy? Demand for biodiesel increases the demand for soybean oil, boosting the value of soybeans and reducing the cost of soybean meal fed to poultry and livestock—a huge benefit to Indiana farmers. On an even larger scale, biodiesel helps create jobs, generate tax revenue and fuel local and nationwide economies, with \$23.2 billion in national economic impact in 2023.

Biodiesel Laws and Incentives

Both Indiana and the federal government enact laws and provide incentives to help build and maintain a market for biodiesel fuel and vehicles. These policies help provide thousands of jobs across the state, and hundreds of millions in economic activity.

By nature, these laws and incentives are often changing. For an up-to-date list of the exemptions, grants, credits, special licenses and more, please scan the QR code or visit <https://b20clubindiana.org/biodiesel-indiana-incentives/> to see the most recent developments.



INDIANA BIODIESEL BY THE NUMBERS:



6th largest
producer of biodiesel in the country*



107 million gallons
of annual production capacity*



Biodiesel adds
11 cents/pound
of value to soybean oil, equal to
63 cents/bushel
or
\$36/acre
on average^{††}



289 million pounds
of soybean oil goes to
biodiesel production**



4,500 full-time jobs
or equivalent labor are supported
by clean fuel production[†]

* Indiana is tied as the No. 6 largest biodiesel-producing state, according to the 2022 Clean Fuels Alliance America "Clean Fuels: Fueling Indiana's Economy" report.

** According to the Indiana Soybean Alliance.

† 2022 Clean Fuels Alliance America, "Clean Fuels: Fueling Indiana's Economy"

†† Based on \$10/bushel price.

HAVE YOU BECOME A BCFP* YET?

*BIOBASED CERTIFIED FLEET PROFESSIONAL™

The Biobased Academy® from the American Lung Association provides comprehensive training to educate professionals on the operational, health, safety and environmental benefits of biobased fleet, facility and grounds products. Participants can complete the course to understand how biobased fleet products can improve operational, health, safety and environmental performance.

Upon completion, fleet professionals will be equipped to:

- Benefit human and environmental health through reduced exposure to harsh chemicals and emissions produced through the use and production of petroleum-based products.
- Assist organizations in achieving health and environmental goals with biobased fleet products.
- Increase professional knowledge of biobased fleet products and associated benefits.
- Contribute to the U.S. economy by increasing the use and sale of biobased products produced from domestic renewable resources, with emphasis on biobased products made from soy.
- Educate leading fleet professionals and assist in the implementation of sustainable, cutting-edge fleet best practices and biobased products to create ideal candidates for local, state, national and international awards and certifications.



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**SCAN TO
LEARN MORE**

 **American
Lung Association.**
Biobased Academy

SELECTING A BIODIESEL BLEND

Once you've decided that using a biodiesel blend is the right decision for your organization or fleet, you must then choose which blend to use (B5, B11, B20, B20+, B100) and whether to purchase blended fuel or blend your own. WHEN SELECTING THE BLEND, THERE ARE A FEW THINGS TO CONSIDER:

Biodiesel Price and Availability

The price of biodiesel will vary over time; however, the combination of state and federal incentives keeps the cost competitive with diesel. In many Midwestern markets, the OPIS pricing reports for terminal level fuel transactions show that biodiesel blends rarely stray a few cents per gallon in one direction or the other, compared to diesel. Talk with your supplier about current incentives available and how they affect pricing for higher biodiesel blends, like B20. Expect to pay 2 – 4 cents per gallon for an additional cold weather additive when using B20 through the winter. If your current fuel supplier says that biodiesel is not available, check with other local suppliers.

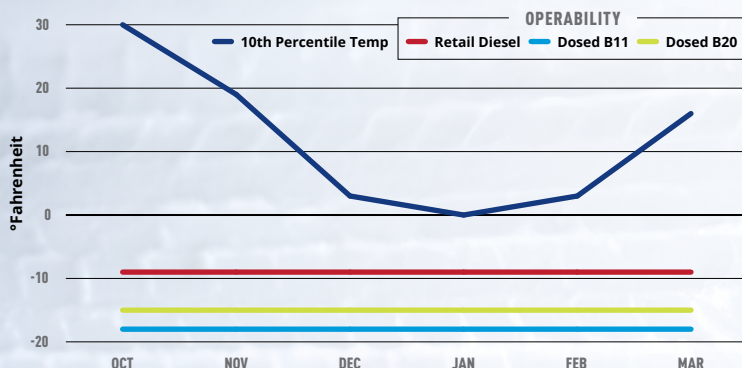
Cold Weather

With proper care, biodiesel blends up to B20 can be used year-round, even in cold climates. For proper cold-weather operation it's important to understand cloud point—the temperature at which solids start to form within the fuel and become visible to the naked eye. Typically, No. 2 diesel fuel has a cloud point in the range of -5°F to 15°F . No. 1 diesel fuel has a cloud point of -40°F or lower. That means without additives to improve cold flow properties, No. 2 diesel will begin to gel and plug filters near the cloud point. Blends of No. 1 and No. 2 diesel fuel, cold flow additives and/or fuel heating systems must be used to keep No. 2 diesel from gelling at temperatures below the cloud point. B20 is typically blended with a double dose of cold flow additive and/or No. 1 diesel to achieve similar cold flow results to winterized No. 2 diesel.

Compatibility

Blends up to and including B20 can be used in current fueling systems, underground storage tanks (USTs) and diesel vehicles in Indiana without additional notifications or approvals beyond those needed for ULSD. While all steel and fiberglass tanks are compatible with blends up to B100, blends over B20 may require B100 compatible hoses and gaskets, made from materials such as Viton® or Teflon®. Engine and vehicle recommendations for blends over B20 vary. A useful guide can be found on the original equipment manufacturers (OEM) section of the Clean Fuels Alliance website at <https://cleanfuels.org/wp-content/uploads/oem-support-summary.pdf>

INDIANA RETAIL COLD FLOW TESTING RESULTS



Cold weather operability testing with retail IN fuel samples shows that biodiesel blends with proper cold flow additives can outperform diesel in cold weather. The 10th percentile ambient temperatures for Indiana are based on historical climate data and represents the lowest temperature expected per month for 10% of the time. Fuel should be tested to ensure cold weather operability is below the 10th percentile expected temps.

Purchasing Blended Fuel

Purchasing your fuel pre-blended from a reputable supplier is the easiest way to quickly begin using a biodiesel blend. But before choosing this route, there are a few questions you need to have answered.

Does Your Current Fuel Supplier Offer Biodiesel Blends?

- If so, will they provide the specific blend you intend to use?
- If not, can you switch to another supplier that does?
- Will your supplier help you adjust the blend higher or lower when requested?

Blending Your Own

Blending on your own provides the opportunity to take the best advantage of the various biodiesel incentives; however, it may also require an initial investment, depending on your current infrastructure availability. You will also need to be registered as a blender with the IRS using Form 637.

- In-line blending your own fuel will require a separate storage tank dedicated to biodiesel that is connected to the diesel tank and a blending system. Also consider equipment that allows the blending percentages to change, should incentives and other market conditions encourage use of a higher or lower blend.
- If in-line blending is not available, biodiesel can be splash-blended in a delivery truck or UST by following the directions below.
- When top loading a delivery truck or UST, load diesel first and biodiesel second. Biodiesel is heavier and will mix with diesel as it enters the tank. Agitation during delivery or through other means will further aid in blending.
- When bottom loading a transport at the bulk plant, load biodiesel first, then the diesel fuel. Since most terminals will not allow anything to be loaded into delivery trucks prior to entering the terminal, diesel will be loaded first at the terminal and biodiesel loaded at a second location. In the winter months, be sure to flush the manifold with diesel fuel after loading biodiesel. If bottom loading both products separately at the terminal, load biodiesel first and diesel second. Users should never bottom load biodiesel or diesel in a UST.
- B100 and diesel should be maintained at 15°F above the cloud point (preferably 60°F or more) while blending takes place. Once biodiesel is properly blended with ULSD, it does not separate.

It is important to note that in-line blending is the best way to ensure complete blending of biodiesel and diesel fuel. Whether blending yourself or purchasing pre-blended fuel, it is important to purchase biodiesel from a BQ-9000 accredited producer and a reputable fuel supplier. Find your local BQ-9000 accredited producer here: www.bq-9000.org

PURCHASING FROM RETAILERS

The Federal Trade Commission requires that all public pumps dispensing biodiesel blends above B5 indicate such with approved labels. Labels must be removed if the blend drops below 5 percent.

≤ B5	B5 – B20	B21 +	
Biodiesel blends up to 5 percent require no additional label because these blends fall under the same fuel specification as ULSD (D975).	<div>Biodiesel Blend</div> <div>contains biomass-based diesel or biodiesel in quantities between 5 percent and 20 percent</div>	<div>B-20 Biodiesel Blend</div> <div>contains biomass-based diesel or biodiesel in quantities between 5 percent and 20 percent</div>	<div>B-XX Blend</div> <div>contains more than 20 percent biomass-based diesel or biodiesel</div>

BEST PRACTICES: MAKING THE MOST OF BIODIESEL

FOLLOW THESE SIMPLE STEPS TO ENSURE YOU ARE GETTING THE MOST FROM YOUR DECISION TO FUEL WITH BIODIESEL

Fuel Storage Best Practices

- Materials compatibility:
 - Only steel, aluminum and compatible fiberglass should contact biodiesel.
 - Brass and copper will adversely react with biodiesel.
- EPA compliance for B20+ blends:
 - Notify implementing agency of biodiesel blend level.
 - Retain documentation of UST system compatibility with biodiesel.
- Reduce headspace by keeping tank full. This will minimize humid air from entering through the vent.
- Before cold weather:
 - Check fuel tanks for water and remove.
 - Ensure cold weather additives are included at the proper dosage for expected temperatures.
- Check seals around spill buckets and submersible pumps for water infiltration.
- Periodically inspect tank bottoms for water, sediment and sludge. Promptly remove contaminants and determine prevention steps.
- Underground storage tanks (USTs) are preferred to avoid temperature extremes.
- Aboveground storage tanks should be sheltered or painted with reflective paint to resist excessive heat in the summer. High temperatures during storage accelerate fuel degradation regardless of fuel type.

Fuel Dispensers Best Practices

- Materials compatibility:
 - Only steel, aluminum and compatible fiberglass should contact biodiesel.
 - Brass and copper will adversely react with biodiesel.
- Blends higher than B20 may need heater dispensers and plumbing depending on ambient temperatures.
- Select filters compatible with the blend level you expect to use. Avoid any water blocking filters in cold weather.
- Before cold weather:
 - Check fuel tanks for water and remove.
 - Ensure cold weather additives are included at the proper dosage for expected temperatures.

Vehicle Best Practices

- For B20+ blends, confirm biodiesel compatibility for seals and fuel hoses. Viton and Teflon are best.
- For B40+ blends, monitor diesel particulate filter operation to ensure fuel is lighting off properly.
- Biodiesel will clean out accumulated diesel varnish, which may accumulate on fuel filters. Be ready for shorter filter change intervals until the tanks are fully cleaned out.
- Before cold weather:
 - Check fuel tanks for water and remove. Ensure cold weather additives are included at the proper dosage for expected temperatures.

FOR FULL DETAILS OF REQUIREMENTS FOR OFFERING BIOFUEL BLENDS CALL THE FOLLOWING RESOURCES:

Indiana State Fire Marshal
317-232-2222

Indiana Bureau of Weights and Measures
317-356-7078

U.S. Environmental Protection Agency
312-353-2000

Fuel and Tank Maintenance

The importance of keeping your tank and fuel system free of contaminants has become more important with the introduction of ULSD. Inspections and basic housekeeping practices will help promote a problem-free experience with either ULSD or biodiesel blends.

- Before introducing a biodiesel blend into a storage tank, it is best to sample the tank to make sure there is no water or sediment present.
- Always install a high-capacity, 30-micron paper-pleated dispenser filter on a storage tank to keep contaminants from reaching vehicle tanks. Water-absorbing and fiberglass filters are not recommended.
- Check tank bottoms twice a year (spring and fall) with a Bacon Bomb tank sampling device. If water is found, have it removed.
- If hazy fuel is found, this indicates soluble water. Take steps to check for and remove water, and consider a de-icer product to keep the water suspended and moving through the system. It will be filtered through the dispenser.
- Check spill containment buckets for water regularly and remove if found.
- Keep tanks as full as possible to reduce the amount of air and water entering the tank.
- Before colder weather sets in:
 - Check tank bottoms for water.
 - Install a new 30-micron dispenser filter to handle the increased viscosity of the fuel.
 - Make sure fuel meets cold flow operability by discussing your needs with your supplier prior to purchase.
 - Winter fuel additives need to be administered when the fuel is a minimum of 10 to 15 degrees above the cloud point of the fuel.
- No. 1 diesel is lighter than No. 2 diesel. When using No. 1 to increase cold flow operability, put No. 1 in the tank first and No. 2 on top to achieve a better blend.

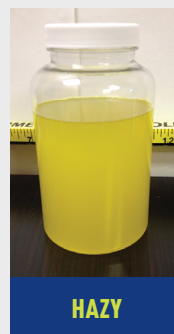
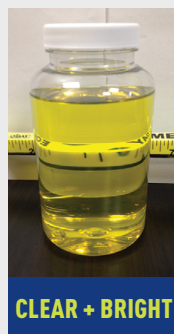
RETRIEVING A TANK BOTTOM SAMPLE

Obtain a Tank Bottom Sample

Check storage tanks for water and sediment twice each year, spring and fall, by obtaining a tank bottom sample. The Bacon Bomb sampler will retrieve the best bottom sample from a fuel storage tank. It is available in several sizes to fit almost all tank openings. Underground storage tanks can shift and settle over time. Free water and sediment will settle to the lowest point, so make sure to sample the lowest point of the tank. If possible, sample both ends of the tank to determine which is the lowest point.

Reading the Sample

Use a clear plastic or glass jar so the sample can be visually inspected for water and sediment. The sample should appear clear and bright. If any free water and/or sediment is found it should be removed. If free water is present, the fuel should be tested for microbial contamination. Your fuel supplier should be able to provide this test for a fee or refer you to a lab and apply a biocide treatment if microbial activity is found. If significant or consistent sediment is found, have the tank cleaned.



**HOW TO
SAMPLE
FUEL TANKS**

**BIODIESEL
IN THE TANK:
PART 1,
ABOVE GROUND**



**BIODIESEL
IN THE TANK:
PART 2,
UNDERGROUND**



**BIODIESEL
IN THE TANK:
VEHICLE**



HAVING DIESEL ISSUES?

CONSULT THIS CHECKLIST FOR THE MOST COMMON CAUSES

Filter photos provided courtesy of MEG Corp, megcorpnm.com



WATER CONTAMINATION/ICING

Water is the No. 1 cause of filter plugging issues in diesel engines. High water concentration in the fuel can lead to a buildup of water in the filters, causing filter plugging. Icing occurs when temperatures get below 32°F. At this temperature and below, excess water on the filter freezes and blocks the flow of fuel through the filter. Routinely checking and removing water in tanks and filters can help minimize problems with plugged filters. Keep storage tanks full to eliminate air space. Keep fuel caps on tight and regularly check hoses and gaskets for leaks. If using a water separating filter, check and drain if water is found. Avoid water absorbing filters.



MICROBIAL CONTAMINATION

Since the introduction of ULSD in 2006, microbial contamination has become a more common problem associated with diesel fuel. Prior to ULSD, higher sulfur levels acted as a natural antimicrobial agent. Now, bacteria and fungi grow in the water/fuel interface. They can be present in supply tanks and lines, vehicle tanks and fuel system components. A distinct, pungent odor is normally present on a filter with microbial contamination. To prevent microbial contamination, follow the recommendations to prevent water contamination. If microbial contamination is suspected, it is recommended that you treat the contamination with a universally soluble (meaning soluble in fuel and water) biocide at the recommended kill rate.



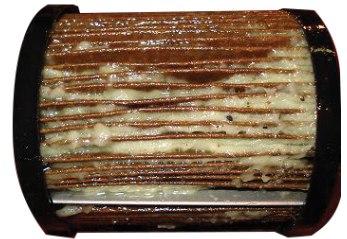
OXIDATION

In today's high pressure common rail engines, ULSD can be prone to thermal breakdown. Thermal oxidation is characterized by fine, black sediment on the filter and looks as if the pleats have been covered by permanent marker. The black filter is caused by hot fuel return which causes coking of the fuel (burning of the fuel causing it to break down and create sediment) and leads to filter plugging. Thermal oxidation on the filter may look similar to microbial contamination; however, it will not have the distinct, pungent odor of microbial contamination. Premium diesel with a stability or anti-coking additive is recommended. If anti-coking additive is already being used, check for a mechanical reason that the engine is running hot.



PARAFFIN WAX

Paraffin is a naturally occurring material in diesel fuel. It does not come from biodiesel. Since the introduction of ULSD, diesel is less soluble, meaning it cannot hold the paraffin in solution. When the temperature of the fuel is at or below its cloud point, paraffin material can precipitate out and collect on the bottom of the tank. Wax anti-settling agent additives (WASA) are used to keep paraffins suspended in solution rather than collecting at the bottom of the tank where they can cause filter plugging.



BIODIESEL MINOR COMPONENTS AND FILTER CLOGGING

The biodiesel specification contains strict controls for minor components, such as mono-, di- or triglycerides, which can remain in biodiesel from the production process. If biodiesel is not properly processed these minor components, which tend to freeze at a higher temperature than the bulk biodiesel if concentrations are too high, can be captured by the fuel filter and cause filter clogging. This can be exacerbated in the presence of water. The biodiesel specification addresses this through two grades, a No. 2 grade which many people use throughout the year, or a No. 1 grade which has tighter controls on minor components for use in extremely cold weather. If a petroleum jelly or butterscotch pudding substance is found on a fuel filter, this can be caused by a water absorbing filter or by too high a level of biodiesel minor components. The fuel should be checked for water and ensure that the biodiesel met its specification. In some cases, a No. 1 biodiesel may be needed depending on the particular diesel fuel and climate.



SEDIMENT

Sediment caused by rust, tank scale and other contaminants will plug fuel filters. Filters plugged by sediment are characterized by sediment in the folds of the filter and solid particles in the filter casing. Sediment on the filter also attracts glycerin which further plugs the filter. Regularly monitor tanks and clean when necessary in order to reduce tank contaminants.



ANSWERING YOUR QUESTIONS

We're digging in to some of the most common biodiesel topics, uncertainties and misconceptions.

<https://b20clubindiana.org/resources/>



Scan to see all FAQs
and B20 Club of Indiana
resources

Do biodiesel blends up to B20 have similar performance to petroleum diesel?



Biodiesel performs better than diesel in many categories, and the higher the biodiesel blend, the more benefits are realized. Biodiesel has higher cetane and lubricity, meaning engines run smoother and with less wear. Since biodiesel acts as a solvent, it will clean out fuel systems from the tank to the injector. Biodiesel also burns cleaner so diesel particulate filters (DPFs) typically regenerate at longer intervals, which increases DPF life and decreases fuel consumption.

Can I use biodiesel blends in my diesel vehicle?



Biodiesel blends up to B20 can be used in any diesel engine without modification. Almost all Original Equipment Manufacturers (OEMs) approve blends up to B20 and some go up to B100. OEM details and biodiesel approvals can be found at: <https://cleanfuels.org/wp-content/uploads/oem-support-summary.pdf>

Will I void my warranty if I use a biodiesel blend?



According to federal law, vehicle warranties cover parts and workmanship, not fuel. Unless use of a higher-than recommended blend of biodiesel is the cause of engine or parts failure, the warranty must be honored. Keep in mind that if the engine parts fail because of out-of-specification diesel or biodiesel, the failure may not be covered by the warranty.

Does biodiesel have a similar shelf life to ultra-low sulfur diesel (ULSD)?



The biodiesel specifications were designed for a minimum shelf life of at least six months, and recent data from the National Renewable Energy Laboratory (NREL) indicates today's B20 has a minimum shelf life of at least a year, with almost half of the samples having shelf life of over three years. NREL data also showed fuel stabilizers were effective in not only extending the original shelf life of B20, but good housekeeping and simple re-additization of stored fuel was successful in extending shelf life four years or longer.

Is microbial contamination a risk with biodiesel similar to ULSD?



Prior to ULSD, higher sulfur levels acted as a natural anti-microbial agent in diesel fuel, preventing the growth of bacteria and fungus. The removal of sulfur removed these anti-microbial properties. Bacteria and fungus are now able to grow in the water-fuel interface, whether a biodiesel blend is included or not.

Can biodiesel blends be used in winter?



Biodiesel blends are used year-round anywhere ULSD is used. Blends up to 5 percent should be treated the same as ULSD. Blends higher than 5 percent may require winter additives and/or the addition of No. 1 diesel, depending on the local temperature and characteristics of the base diesel fuel. Check with your supplier about preparing the biodiesel blend for your climate conditions and test for cold flow properties in the lab prior to winter weather setting in.

Are there fuel quality standards for biodiesel?



Like petroleum diesel, biodiesel must meet strict quality standards before it is accepted into the fuel distribution system. B100 must meet the ASTM standard D6751. This B100 is then used to blend with petroleum diesel to create the intended blend and meet the corresponding ASTM specification: B5 – ASTM D975, or B6 to B20 – D7467. As diesel fuel and engines change over the years, the biodiesel ASTM specification is continuously reviewed and adjusted to ensure successful operation, just as the ASTM specifications for diesel and gasoline are reviewed and changed. Fuel marketers may be hesitant to offer biodiesel blends because they have heard reports about quality problems in the early years of biodiesel development. Because of these early quality concerns, the biodiesel industry implemented a quality assurance program. This BQ-9000 program provides added assurance that biodiesel is produced, maintained and sold in conformance with the current ASTM D6751 specification. Nearly all biodiesel now in the market is produced and handled by BQ-9000 accredited companies.

GOING BEYOND BIODIESEL

Soy-biobased products can help benefit fleets in more ways than one. See what other options there are to help your operation, Indiana farmers and the environment.



Lubricants, Oils and Greases

Lubricate metal parts and provide corrosion resistance with biobased products that include bar and chain oil, hydraulic fluids, metal-working fluids, slide way lubricants, two-cycle engine oil, cable lubricants and more.



Tires

Benefit from enhanced tire performance and reduce your environmental footprint with tires featuring tread compounds made with soybean oil.



Industrial Cleaners and Degreasers

Remove oil, carbon and grease from a variety of industrial applications with highly-effective soy-biobased cleaners and degreasers.



Absorbents

Clean up spills of oil, grease or other liquids with soy-biobased absorbents.



**TO LEARN WHAT SOY-BIOBASED PRODUCTS MAY
BENEFIT YOUR FLEET OR COMPANY,
contact us at <https://b20clubindiana.org/contact-us/>**



BIODIESEL

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