

Basic Terminology: **Biodiesel** is the pure, or 100 percent, biodiesel fuel. It is referred to as B100 or “neat” biodiesel.

A **biodiesel blend** is pure biodiesel blended with petrodiesel. Biodiesel blends are referred to as Bxx. The xx indicates the amount of biodiesel in the blend (i.e., a B20 blend is 20 percent by volume biodiesel and 80 percent by volume petrodiesel).

Ensure the biodiesel meets the ASTM specification for pure biodiesel (ASTM D 6751) before blending with petrodiesel.

The specification for biodiesel is designed to ensure that consumers will not experience operational problems from the fuel’s use. Make sure that biodiesel meets this specification and that the fuel supplier will warrant this fact. Quality fuel will provide the consumer with improved air quality and enhanced operability. Purchase fuel only from a reputable source, such as companies that are “certified marketers” or “accredited producers” under the BQ-9000 biodiesel quality program. See www.bq-9000.org for more details about the program.

Check fuel filters on the vehicles and in the delivery system frequently upon initial biodiesel use, and change them as necessary.

Biodiesel and biodiesel blends have excellent solvent properties. In some cases the use of petrodiesel, especially #2 petrodiesel, leaves a deposit in the bottom of fuel lines, tanks, and delivery systems over time. The use of biodiesel can dissolve this sediment and result in the need to change filters more frequently when first using biodiesel until the whole system has been cleaned of the deposits left by the petrodiesel. This same phenomenon has been observed when switching from #2 to #1 petrodiesel.

Be aware of biodiesel's cold weather properties and take precautions as with #2 petrodiesel use in cold weather.

A 20 percent blend of biodiesel with petrodiesel usually raises the cold weather properties 2 to 10° F (pour point, cloud point, cold filter plugging point). In most cases, this has not been an issue. Twenty percent biodiesel blends have been used in the upper Wisconsin area and in Iowa during -25° F weather without issues. Solutions to biodiesel winter operability problems are the same solutions used with conventional #2 petrodiesel (use a pour point depressant, blend with #1diesel, use engine block or fuel filter heaters on the engine, store the vehicles near or in a building, etc.).

Be aware of biodiesel's compatibility with engine components.

The switch to low sulfur diesel fuel has caused most OEMs to switch to components suitable for use with biodiesel, but users should contact their OEM for specific information. In general, pure biodiesel will soften and degrade certain types of elastomers and natural rubber compounds over time. Using high percent blends can impact fuel system components (primarily fuel hoses and fuel pump seals), that contain elastomer compounds incompatible with biodiesel. Manufacturers recommend that natural or butyl rubbers not be allowed to come in contact with pure biodiesel. Blends of B20 or lower have not exhibited elastomer degradation and need no changes. If a fuel system does contain these materials and users wish to fuel with blends over B20, replacement with compatible elastomers is recommended.

Wipe painted surfaces immediately when using biodiesel.

Since biodiesel is a good solvent, it can, if left on a painted surface long enough, dissolve certain types of paints. Therefore, it is recommended to wipe any biodiesel or biodiesel blend spills from painted surfaces immediately.

Store biodiesel or biodiesel blend soaked rags in a safety can to avoid spontaneous combustion.

Biodiesel soaked rags should be stored in a safety can or dried individually to avoid the potential for spontaneous combustion. Biodiesel is made from vegetable oils or animal fats that can oxidize and degrade over time. This oxidizing process can produce heat. In some environments a pile of oil-soaked rags can develop enough heat to result in a spontaneous fire.

Use stored biodiesel within six months.

All fuels, including #2 and #1 petrodiesel, have a shelf life. This is also true with biodiesel and biodiesel blends. Industry experts recommend that biodiesel be used within six months of purchase to ensure that the quality of the fuel is maintained. Storage time does not impact biodiesel distribution given biodiesel's production logistics. Biodiesel is generally not stored for long periods of time. Production levels and rates are established to meet demand (similar to "just in time" inventory methods).

The National Biodiesel Board is available to answer additional questions regarding the transition to biodiesel fuel use.

Please do not hesitate to call and ask your questions. NBB can be reached at (800) 841-5849, via e-mail at info@nbb.org, or through its web site <http://www.biodiesel.org>.

ENVIRONMENTAL & SAFETY INFORMATION

Acute Oral Toxicity/Rates	Biodiesel is nontoxic. The acute oral LD50 (lethal dose) is greater than 17.4 g/Kg body weight. By comparison, table salt (NaCl) is nearly 10 times more toxic.
Skin Irritation - Humans	A 24-hr. human patch test indicated that undiluted biodiesel produced very mild irritation. The irritation was less than the result produced by a 4 percent soap and water solution.
Aquatic Toxicity	A 96-hr. lethal concentration for bluegill of biodiesel grade methyl esters was greater than 1000 mg/L. Lethal concentrations at these levels are generally deemed "insignificant" according to NIOSH (National Institute for Occupational Safety and Health) guidelines in its <i>Registry of the Toxic Effects of Chemical Substances</i> .
Biodegradability	Biodiesel degrades about four times faster than petroleum diesel. Within 28 days, pure biodiesel degrades 85 to 88 percent in water. Dextrose (a test sugar used as the positive control when testing biodegradability) degraded at the same rate. Blending biodiesel with diesel fuel accelerates its biodegradability. For example, blends of 20 percent

	biodiesel and 80 percent diesel fuel degrade twice as fast as #2 diesel alone.
Flash Point	<p>The flash point of a fuel is defined as the lowest temperature at which the vapor above a combustible liquid can be made to ignite in air. Biodiesel's flash point is over 200° Fahrenheit, well above petroleum based diesel fuel's flash point of around 125° Fahrenheit. Testing has shown the flash point of biodiesel blends increases as the percentage of biodiesel increases. Therefore, biodiesel and blends of biodiesel with petroleum diesel are safer to store, handle, and use than conventional diesel fuel</p>