

# BIODIESEL

A BETTER CHOICE FOR BUSINESS

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## Fuel Quality

Ensuring that consumers have a high level of confidence in the biodiesel they purchase is a top priority for biodiesel manufacturers, distributors, and retailers. The biodiesel industry has been active in setting standards for biodiesel since 1994 when the first biodiesel taskforce was formed within the American Society for Testing and Materials (ASTM). ASTM approved a provisional standard for biodiesel in 1999 and developed a final specification (D 6751) in 2001 called "Standard Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels". Copies of the specifications are available from ASTM at [www.astm.org](http://www.astm.org).

### HOW IS BIODIESEL DEFINED?

Biodiesel is a specific fuel made by a specific process. It is defined as the mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel is produced when oil or fat is chemically reacted with an alcohol to produce a new compound that is known as a fatty acid alkyl ester. A catalyst such as sodium or potassium hydroxide is required and glycerin is produced as a byproduct.

### WHAT IS NOT BIODIESEL?

Raw vegetable or animal oil is NOT biodiesel. Ethanol-diesel blends (known as E-diesel) are NOT biodiesel. Today, alkyl ester is not considered biodiesel until it meets ASTM D 6751.

When biodiesel meets its specification and is handled according to proper fuel management techniques, the result is a high quality, premium fuel which has been shown to perform well in virtually any unmodified diesel engine. However, use of any fuel that does not meet its quality specifications could cause performance problems or equipment damage, and this includes biodiesel. Sale of off-spec fuel is a violation of federal and state law. Several federal and state government agencies are responsible for the regulation and enforcement of fuel quality in the United States.

All commercially sold biodiesel in the Northwest has been rigorously tested to assure that it meets ASTM D 6751 specifications.

Go to [www.biofuels4business.com](http://www.biofuels4business.com) for information on: 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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## Specification for Biodiesel 100 (B100) ASTM D6751-07a

Biodiesel is defined as the mono alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, for use in compression-ignition (diesel) engines. This specification is for pure (100%) biodiesel prior to use or blending with diesel fuel. #

Property	ASTM Method	Limits	Units
Calcium & Magnesium, combined	EN 14538	5 max	ppm (ug/g)
<b>Flash Point (closed cup)</b>	<b>D 93</b>	<b>93 min.</b>	<b>Degrees C</b>
Alcohol Control (One of the following must be met)			
1. Methanol Content	EN14110	0.2 Max	% volume
2. Flash Point	D93	130 Min	Degrees C
<b>Water &amp; Sediment</b>	<b>D 2709</b>	<b>0.05 max.</b>	<b>% vol.</b>
Kinematic Viscosity, 40 C	D 445	1.9 - 6.0	mm <sup>2</sup> /sec.
Sulfated Ash	D 874	0.02 max.	% mass
<b>Sulfur</b>			
<b>S 15 Grade</b>	D 5453	0.0015 max. (15)	% mass (ppm)
<b>S 500 Grade</b>	D 5453	0.05 max. (500)	% mass (ppm)
Copper Strip Corrosion	D 130	No. 3 max.	
Cetane	D 613	47 min.	
<b>Cloud Point</b>	<b>D 2500</b>	<b>Report</b>	<b>Degrees C</b>
Carbon Residue 100% sample	D 4530*	0.05 max.	% mass
<b>Acid Number</b>	<b>D 664</b>	<b>0.50 max.</b>	<b>mg KOH/g</b>
<b>Free Glycerin</b>	<b>D 6584</b>	<b>0.020 max.</b>	<b>% mass</b>
<b>Total Glycerin</b>	<b>D 6584</b>	<b>0.240 max.</b>	<b>% mass</b>
Phosphorus Content	D 4951	0.001 max.	% mass
Distillation, T90 AET	D 1160	360 max.	Degrees C
Sodium/Potassium, combined	EN 14538	5 max	ppm
<b>Oxidation Stability</b>	<b>EN 14112</b>	<b>3 min</b>	<b>hours</b>

Workmanship Free of undissolved water, sediment, & suspended matter  
BOLD = BQ-9000 Critical Specification Testing Once Production Process Under Control

\* The carbon residue shall be run on the 100% sample.

# A considerable amount of experience exists in the US with a 20% blend of biodiesel with 80% diesel fuel (B20). Although biodiesel (B100) can be used, blends of over 20% biodiesel with diesel fuel should be evaluated on a case-by-case basis until further experience is available.

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