

# What is Biodiesel

Biodiesel is a renewable fuel manufactured from vegetable oils, animal fats, or recycled cooking oils. Biodiesel offers many advantages:

- It is renewable.
- It is energy efficient.
- It displaces petroleum derived diesel fuel.
- It can be used in most diesel equipment with no modifications.
- It can reduce global warming gas emissions.
- It can reduce tailpipe emissions, including particulates and known carcinogens.
- It is nontoxic, biodegradable, and suitable for sensitive environments.
- It is made in the United States from either agricultural or recycled resources.

Biodiesel can be used in several different ways. You can use a blend of up to 20% biodiesel with 80% diesel fuel (B20) for use in most applications that burn diesel fuel. You can even use it in its pure form (B100) if you take the proper precautions. The word Biodiesel in this publication refers to pure fuel (B100) that meets the standards approved by ASTM International. A number following the “B” indicates the percentage of biodiesel in a gallon of fuel, where the remainder of the gallon can be no. 1 or no. 2 diesel, kerosene, jet A, JP8, heating oil, or any other distillate fuel.



# Integrity Biofuels

Integrity Biofuels is proud to be a pioneer of biodiesel production in Indiana. Located in Morristown, just 30 minutes east of Indianapolis, Integrity is committed to using soybean oil from the mid-west to provide quality ASTM spec biodiesel.



# How Biodiesel is Made

Biodiesel is made using a chemical reaction called transesterification. Unprocessed vegetable oil or animal fat contains two primary components: glycerin and esters. The glycerin is a dense component that makes raw oil unsuitable as a fuel. During transesterification, glycerin is removed and replaced by a simple alcohol. This creates mono-alkyl esters, commonly known as biodiesel, with glycerin as a byproduct.

Integrity Biofuels manufactures 100% soy methyl ester (soy biodiesel). We use only refined soybean oil and anhydrous methanol to produce a high quality fuel, and our Quality Control practices exceed industry standards.

# Biodiesel Performance

Biodiesel power and performance are very similar to no. 2 diesel fuel. More than 15 million miles of testing has demonstrated that biodiesel has similar fuel consumption rates, horsepower, torque, and haulage values to conventional diesel fuel. Biodiesel has a higher cetane number than does standard no. 2 diesel, and it provides significant lubricity improvement over petroleum diesel fuel. The results of comparative tests show that biodiesel blends as low as 2% produce marked improvement in lubricity, greatly compensating for the reduced lubricity in reformulated ultra low sulfur diesel fuel.

# Why use Biodiesel

Biodiesel is an energy-efficient fuel. It can extend petroleum supplies and makes for sound state and federal energy policy. The biggest benefit to biodiesel is that it is easy. In blends of B20 or less, it is literally a “drop in” technology. No new equipment and no equipment modifications are necessary. Biodiesel blends can be stored in diesel fuel tanks and pumped with diesel equipment.

Biodiesel blends also offer significant ecological benefits. Biodiesel itself is biodegradable, nontoxic, and essentially free of sulfur and aromatics. It lowers emissions of all target polycyclic aromatic hydrocarbons (PAH) and nitrated PAH compounds.



# Benefits of Biodiesel

Biodiesel displaces imported petroleum. The fossil fuel energy required to produce biodiesel from soybean oil is only a fraction (31%) of the energy contained in one gallon of fuel. You get 3.2 units of fuel energy from biodiesel for every unit of fossil energy used to produce the fuel. That estimate includes the energy used in diesel farm equipment and transportation equipment (trucks, locomotives), fossil fuels used to produce fertilizers and pesticides, fossil fuels used to produce steam and electricity, and methanol used in the manufacturing process.



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Renewable Fuel



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