

Converting Cooking Oil into Biodiesel

© 2011

by James Perry

Reprinted 2011

By *Aquosus Potentia*

www.aquopotent.net

With the rising price of gas and diesel fuel, we need to look for a better solution. One solution to consider can be the use of biodiesel. Biodiesel is produced by converting use cooking oil. It is not a difficult process. This paper shows how it is collected and produced, and it gives information on how it can help the environment as well. Biodiesel is already used in other parts of the country as well as Alabama. There are different types of oil that produce biodiesel. We really need to explore alternatives to these high gas prices and look for renewable resources technology that works.

Biodiesel is made up of fatty acids and alcohol. The vegetable oil is chemically converted in biodiesel. The difference between diesel and biodiesel is that biodiesel is produced from plants. Some of these plants are canola, soybean, sunflower and safflower. These plants are grown mostly in the Midwest. By growing our own plants, we can save on import costs. We can control how much we need to produce. All the money stays here in the United States. There are two types of bio-diesel: ethanol and methanol. Biodiesel is meant to use in standard diesel engines and is distinct from vegetable and waste oil used to fuel converted diesel engines. It can be used as a low-carbon alternative to heating oil. Biodiesel has also been tried in parks' trains in Disneyland, the British trains and a few jets flights. Bio-diesel is a great alternative for a "green" renewable source.

Biodiesel fuel has many possible uses. According to agricultural engineer Vern Hoffman, "biodiesel could be an excellent renewable fuel for diesel engines. It is derived from vegetable oils that are chemically converted into bio-diesel" (2003). In Missouri and Idaho, they ran biodiesel in "pick-ups, city buses, large trucks and tractors on various mixes of biodiesel fuel.

These mixtures have ranged from 2/98 % (B2), 20/80 % (B20, up to 100 % (B100)” (Hoffman, 2003). In Montgomery, the production facility has collected used cooking oils retrieved from area restaurants as the primary source. The biodiesel has been used in the city vehicles. “While running at full capacity, the equipment can produce about 100 gallons of biodiesel a day. By mixing 20 percent of biodiesel with 80 percent regular diesel fuel, the city and department could have about 500 gallons (“Alabama Converting Cooking Oil,” 2007). Using cooking oil from restaurants keeps it from going to the landfills. This helps the environment as well. In our homes, if we stop pouring used cooking oil down the drain, we can save our sewer system. Minnesota was the first state in in the United States that directed all diesel fuel have at least 2% biodiesel (Morris, 2001), but all states should follow suit.

While some people may doubt that biodiesel is a viable alternative, it actually has better lubricating properties than diesel fuel. Biodiesel cuts down on the wear and tear of the fuel systems. Depending on the engine, this could include high-pressure injection pumps, pump injectors and fuel injectors. Lower diesel emission requirements call for a smaller amount of sulfur in fuel, meaning a lower level of lubrication in the fuel. By adding biodiesel blends, this will improve lubrication, reduce wear and tear and add life to the fuel system and engine. There may be questions to answer regarding a new type of fuel, but there are standards to cover this problem. “Some people are concerned that using a new fuel in an engine may cause damage. Several engines manufactures guarantee their engines the same when using biodiesel as for diesel fuel as long as the amount of bio-diesel does not exceed 20% and the fuel meet ASTM D6751 specification” (Hoffman, 2003). Interestingly, Laura Bramble explains that biodiesel was actually envisioned as the primary fuel for diesel engines when they were first invented:

“When Rudolph Diesel invented the diesel engine, it was with the intention that they would be run on vegetable and plant oil” (Bramble, 2010). The time may have come to start really exploring this alternative fuel.

The production of biodiesel would create another source of energy. This would cut the cost of gas and heating oil here in the United States. Energy security is a major reason for promoting biodiesel. Not only does it create more energy but, it also has a number of environmental effects. It cuts down gas emission from greenhouse gases, air pollution and biodegradation. Biodiesel could save us energy, money and help our environment. By converting cooking oil into biodiesel, we take another step in reducing our dependence on other countries for oil. By growing our own plants, we can continue to produce the products we need for biodiesel. Lastly, by using a renewable resource, we can save our environment a little longer.

References

Alabama converting cooking oil into bio-diesel. (2007, August 29). *Farm Press Marketplace*.

Retrieved from <http://southeastfarmpress.com/alabama-converting-cooking-oil-biodiesel>

Bramble, L. (2010). How to covert cooking oil into diesel. *eHow.com*. Retrieved from

http://ehow.com/how_6063318_convert-cookingoil-diesel.html

Hoffman, V. (2003, February). *Extension Agriculture Engineer*. Retrieved from

<http://www.ag.ndsu.edu/pubs/ageng/machines/ae1240w.html>

Morris, D. (2011). Six reasons to support the biodiesel mandate. Institute for Local Self-

Reliance. *TheNew Rules Project*. Retrieved from <http://www.newrules.org/energy/rules/ethanol-and-biodiesel/biodiesel-mandate-minnessotab>