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How the Use of Biodiesel Can Reduce Air Pollution and Other Benefits of Biodiesel Fuel

Air pollution is a very controversial topic in the news lately. Everyone wants something done about it, but the controversial part is agreeing on what to do and who should do it. Some people think that they cannot do anything about reducing air pollution, they only believe that big companies can solve the problem. This thinking is wrong. One way a single person can help the environment is by using biodiesel in your vehicle. If you drive, why not make a simple change to using biodiesel fuel to help reduce emissions?

Biodiesel is a clean burning alternative fuel to petroleum diesel. Biodiesel is produced in the United States with renewable resources such as soy beans or waste vegetable oil from restaurants. Biodiesel does not contain any petroleum, but it can be blended with petroleum for certain uses. Biodiesel can be used in most diesel engines, especially newer ones.

Biodiesel is created through a chemical process called transesterification. During this process, glycerin is separated from fat or vegetable oil. This process leaves behind methyl esters, which is the chemical name for biodiesel. The glycerin can be used in other products such as soap, toothpaste, cough syrup, cosmetics and plastics. It is easy to see that nothing is wasted during this process.

So you ask yourself, "Why should I use biodiesel instead of petroleum diesel?" The answer is that biodiesel is non-toxic, biodegradable, simple to use, can help us become less dependent on foreign oil, is better for the environment, and poses no threat to human health. Biodiesel is biodegradable, breaking down about four times faster than

petroleum diesel. Biodiesel is made from renewable resources. There is currently excess production of soybeans in the United States, and biodiesel is a good way to use this surplus. Biodiesel is non-toxic and free of sulfur and aromatics. This means there is less offensive exhaust odor, which can be a real benefit in small spaces or urban areas. Because there is no sulfur in biodiesel and biodiesel has good lubricating effects, this should extend the life of diesel engines. Finally, a blended fuel of biodiesel and petroleum can be easily used in diesel engines without expensive modifications. Biodiesel also stays blended with petroleum diesel, which means that biodiesel blended fuel can be distributed through existing diesel fuel pumps at gas stations.

Biodiesel is the first and only alternative fuel to voluntarily perform EPA testing to show emission levels and health effects under the Clean Air Act. The United States also did a lifecycle inventory study to look at the materials used, energy consumed, and air, water and solid waste emissions generated by both petroleum diesel fuels and biodiesel in order to compare the costs and benefits of each fuel. Both studies found that biodiesel has lower emissions of carbon dioxide and methane (two major greenhouse gases), carbon monoxide and hydrocarbons (both contributing factors in the formation of smog and ozone), soot or particulate matter (a contributor of respiratory disease), and sulfur oxides (major components in acid rain).

The EPA has looked at a number of biodiesel emissions studies and averaged the health effects testing results. The results show that B100 (100 percent biodiesel fuel) has 48 percent lower emissions of carbon monoxide than petroleum diesel; 47 percent lower emissions of particulate matter; 67 percent lower emissions of total unburned hydrocarbons; and the emissions of sulfur oxides and sulfates are essentially eliminated.

The results for B20 (20 percent biodiesel fuel) fuel show that B20 has 12 percent lower emissions of carbon monoxide; 12 percent lower emissions of particulate matter; 20 percent lower emissions of total unburned hydrocarbons; and 20 percent lower emissions of sulfates. In addition, both the wastewater and hazardous solid wastes from the production of biodiesel are lower than the production of petroleum diesel.

According to a model developed by the Argonne National Laboratory, B100 made from soybeans can cut global warming pollution by more than half compared to petroleum based diesel. The emissions benefits are even higher for canola oil. In the future, other sources like algae might be used to make biodiesel. This makes biodiesel the most diverse fuel on the planet.

A few additional interesting facts about biodiesel is that biodiesel is not the same as raw vegetable oil, like some people believe. The idea of using vegetable oil for fuel has been around since the late 1800s when Rudolph Diesel invented the diesel engine as he experimented with different fuels including peanut oil. Biodiesel is less toxic than table salt and degrades as fast as sugar. Biodiesel is also safer to handle and store because its flash point is over 200° Fahrenheit compared to around 125° Fahrenheit for petroleum diesel. Biodiesel fuel can also be used for heating oil for buildings.

Biodiesel is not as common as petroleum diesel, but it can still be found in many places nationwide. It can be purchased directly from biodiesel producers and marketers themselves. It can also be purchased from petroleum distributors and a handful of public pumps throughout the nation. While biodiesel is not distributed as widely as traditional petroleum diesel, the distribution infrastructure is improving. The biodiesel industry has been active in setting standards for biodiesel for more than 15 years. 315 million gallons

of biodiesel fuel was produced in the United States in 2010 compared to 112 million gallons in 2005.

Hopefully, this article will provide a little background knowledge on the benefits of biodiesel, especially how it can help reduce air pollution. I also hope it shows that one single person can make a difference and help the environment by using biodiesel in your vehicle. Not only is biodiesel better for the environment, but its widespread use can decrease our dependence on foreign oil. With the gas prices rising and our economy coming out of a recession, the use of biodiesel is a win-win for everyone.