Why Biodiesel?

The Advantages of Biodiesel

- Pure biodiesel is biodegradable, nontoxic and essentially free of sulfur and aromatics. It is a renewable resource, based on soybean and other oil crops that are grown anew each year. It is produced domestically, reducing this country's dependence on foreign oil. It requires no engine modifications or changes in the fuel handling and delivery systems. Some vehicle hoses may need to be changed. Biodiesel delivers similar torque, horsepower and miles per gallon.

Safer and Cleaner Fuel

- Biodiesel offers fleet operators a safer, cleaner alternative to petroleum diesel. Biodiesel is made from renewable fats and oils, such as vegetable oils, through a simple refining process. Pacific Biodiesel produces biodiesel from used restaurant fryer oil. One of the main components for fryer oil are soybeans, a major crop produced by almost 400,000 farmers in 29 states.

- Biodiesel is recognized as an alternative fuel. In its neat form and in blends of 20% or more with petroleum diesel, the US Department of Energy has acknowledged biodiesel as an alternative fuel. Biodiesel can be used for vehicle credits under the Energy Policy Act.

- Biodiesel operates in conventional combustion-ignition engines, from light to heavy-duty, just like petroleum diesel. No engine modifications are required, and biodiesel maintains the payload capacity and range of diesel. Since engine modifications are not required, there's no need to change vehicles, spare parts inventories, refueling stations or specially skilled mechanics. Vehicle hoses need to be checked after the first 6 months of operation on biodiesel. Replacement of non-compatible hoses may be necessary, but is not usually difficult or expensive. Blends of 20% or less tend to have little effect on even non-compatible hoses.

- Biodiesel cuts down on targeted emissions. Biodiesel used in a 20 percent blend with petroleum

diesel and a catalytic converter will cut air pollution. Particulate matter is reduced 31 percent, carbon monoxide by 21 percent and total hydrocarbons by 47 percent. Biodiesel used in a blend will also reduce sulfur emissions and aromatics. Using 100% biodiesel further reduces emissions and carcinogenic compounds.

Practical Alternative for Marine Market

Biodiesel use in the marine market can be practical and safe. In its pure form, biodiesel is less harsh on marine environments and easier for boaters to handle and store. The marine industry consumes about 10 percent of the petroleum diesel in the U.S.

- Biodiesel can work in several marine factions. Because biodiesel can replace or blend with petroleum diesel without engine modifications, it is a viable alternative to several categories of the marine industry, including: recreational boats, inland commercial and ocean-going commercial ships, research vessels and the U.S. Coast Guard Fleet. Today, much of the emphasis is on recreational boats, which consume about 95 million gallons of diesel fuel annually.
- Biodiesel is a safe alternative fuel. Biodiesel has a higher flash point than regular diesel. It is classified as non-flammable by the NFPA, and is not required to carry a Hazardous Material label when being shipped.
- Biodiesel is easier on engines. Biodiesel blended as low as a 2% rate with low sulfer or ultra-low sulfer petroleum diesel increases lubricity to traditional high sulfur diesel fuel levels. Field tests indicate that engine life is increased with biodiesel usage.
- Biodiesel is "user-friendly." The use of biodiesel and biodiesel blends results in a noticeable change in exhaust odor. The reduction in smell and change of odor are easier on ship workers and pleasure craft boaters. In fact, it's been compared to the smell of French fries. Users also report no eye irritation. Since biodiesel is oxygenated, diesel engines have more complete combustion than when using petroleum fuel.

Biodiesel Can Help Boaters Meet Regulations

Emissions: The Clean Air Act allows the Environmental Protection Agency (EPA) to assess the contribution of non-road emissions to air pollution. EPA proposes to include marine diesel compression-ignition engines in the same regulatory framework as land-based, non-road compression-ignition engines.

Regulatory Liability: The Oil Pollution Act of 1990 increases the civil and criminal penalties for causing spills and for violating marine safety and environmental protection laws. The law applies to all vessels, and fines up to $10,000 per day can be levied against serious offenders.

Clean Water Act: The Clean Water Act requires states to establish standards for pollutants like grease and oil, in an effort to restore and maintain the chemical, physical and biological condition of U.S. waters.

The Role of Biodiesel

The goal of the biodiesel industry is not to replace petroleum diesel, but to extend its usefulness. Biodiesel is one of several alternative fuels that have a place in the development of a balanced energy policy. The role of biodiesel is to contribute to the longevity and cleanliness of diesel engines. The most likely use of biodiesel will be in certain niche markets that require a cleaner-burning, biodegradable fuel.

Specifications

COMPARATIVE

PHYSICAL PROPERTIES

Note: Pacific Biodiesel fuel is a higher quality fuel than the fuel shown below. This chart is for comparitive purposes only.
See our Fuel Properties.

TEST	LOW SULFUR CONTENT DIESEL	RAPESEED METHYL ESTER	NEAT RAPESEED OIL	RAPESEED ETHYL ESTER	HYDRO-GENATED SOY ETHYL ESTER
CETANE NUMBER	46	61.2	42.6	59.7	61
FLASH POINT, °C	67	180	270	185	144
CLOUD POINT, °C	-12	-2	-11	-2	7
POUR POINT, °C	-16	-10	NA	-20	7

BOILING POINT, °C	191	347	311	273	142
VISCOSITY, (cs) @ 40° C	2.98	5.65	47.6	6.1	5.78
SULFUR (%, wt)	0.036	0.012	0.022	0.012	0.023
NITROGEN, ppm	0	6	NA	7	12
HEAT OF COMBUSTION -BTUs/lb. (gross) -kj/kg (gross)	19,500 46,420	17.500 40,600	17,370 40,400	17,500 40,510	17,113 39,800
SPECIFIC GRAVITY	0.8495	0.8802	0.906	0.876	0.872

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