Siva Sakthi Enterprises

BIODIESEL

ABOUT US

SIVA SAKTHI ENTERPRISES a renewable biofuel industry, with focus on enhancing the nation's energy security, based on today's urgent need to save the country and world from "polluting gas" emissions.

SSE is committed to producing biofuels which aids reduction in dependence on petroleum fuels, and aims for better tomorrow through research and enhancements.

WHY USE BIODIESEL?

Biodiesel has been demonstrated to have significant environmental benefits in terms of decreased global warming impacts, reduced emissions, greater energy independence and a positive impact on agriculture.

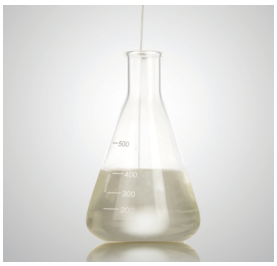
Various studies have estimated that the use of 1 kg of Biodiesel leads to the reduction of approximately 3 kg of CO^2. Hence, the use of Biodiesel results in a significant reduction in CO^2 emission (65%-90% less than conventional diesel), Particulate emissions and other harmful emissions. Biodiesel is extremely low in sulphur, and has a high lubricity and fast biodegradability. Additionally, reducing pollutant emissions alleviates several human health problems.

In specific cases, used vegetable oils can be recycled as feedstock for biodiesel production. This can reduce the loss of used oils in the environment and provides a competitive and CO^2 advantageous way of transforming waste into transport energy.

Biodiesel production also plays a pivotal role in agriculture. The raw materials needed for Biodiesel production may be grown on set-aside land which would otherwise be taken out of production.

WE HAVE THREE FORMS OF BIODIESEL

DISTILLED BIODIESEL



BIODIESEL

BIODIESEL BLENDED

Reduces life cycle greenhouse gases by **86%.**

Lower particulate matter by **47%.**

Reduces hydrocarbon emission by **67%.**

Safe for transport due to high flash point.

Safe to handle, it is bio-degradable & non-toxic to life.

OUR FACILITY

- SSE's Biodiesel plant design, process and technology is powered by world leaders.
- The technology is based on a three step Continuous Transesterification Unit.It functions under mild operating conditions with constant quality and minimized specific consumption of raw material and energy.
- The plant design is targeted to reduce process effluents with consequent virtual elimination of pollutant and process wastes to a negligible extent.
- SSE produces Biodiesel (B100). The plant is capable of manufacturing Biodiesel match to ISO 9001 : 2015 standards and is ISCC Certified for sustainability and greenhouse gas emissions.
- We have large storage facilities.

S.NO	PROPERTY	UNITS	SPECIFICATION OF PETRO DEISEL	SPECIFICATION OF BIODIESEL	TEST METHOD
1	Density at 15°C	Kg/m3	820-860	860-900	ISO 3675/ P 32
2	Viscosity at 40°C	mm2/s(	2-5	2.5-6.0	ISO 3104/P25
3	Flash Point (closed cup)	°C (min)	66	120	P21
4	Sulphur Content	mg/kg (max)	500	50	D5443/P83
5	Carbon Residue	% mass max	0.3	0.05	D4530
6	Acid Number	mg KOH/gm max	To report	0.5	P1
7	Cetane Number	Min	48	51	ISO 2160
8	Ash Content	% mass max	0.01	0.02	ISO 6245
9	Moisture Content	Mg/kg (max)	NA	500	D2709/P40
10	Total Contaminations	Mg/kg (max)	24	24	EN 12662
11	Copper Corrosion Test (at 50°C 3hrs max)	Rating/ Class	1	1	ISO 2160/P15
12	Oxidation Stability at 11°C	Hrs.min	NA	6	EN 14112
13	Ester Content	% mass min	NA	96.5	EN 14103
14	Methanol Content	% mass max	NA	0.2	EN 14110
15	Free Glycerin	% mass max	NA	0.02	D6584
16	Total Glycerin	% mass max	NA	0.25	D6584
17	Iodine Value	gm 12/100gm	NA	120 Max	En 14104
18	Phosphorous Content	mg/kg (max)	NA	10	D4951

BIODIESEL EMISSIONS COMPARED TO CONVENTIONAL DIESEL

EMISSION TYPE	B100 BIODIESEL	B20 PETRO-DIESEL
Total Unturned Hydrocarbons	-93%	-30%
Carbon Monoxide	-50%	-20%
Particulate Matter	-30%	-22%
Sulphates	-100%	-20%
PAH (polycyclic Aromatic Hydrocarbons)	-80%	-13%
nPAH	-90%	-50%
Ozone potential of speciated HC	-50%	-10%

COMPARISON OF CALORIFIC VALUE OF HIGH SPEED DIESEL AND BIODIESEL

PRODUCT	UNIT	GROSS CV	% OF PURITY	NET CV	SPECIFIC GRAVITY	EFFECTIVE CV
-1	-2	-3	-4	(5)= (3) x(4)	-6	(7)=(5) x (6)
HSD	Kcal/kg	10700	95%	10165	0.82	8335
Biodiesel	Kcal/kg	9600	99.50%	9552	0.875	8358

*Net Calorific Value= Gross Calorific Value x % Gross Calorific Value

Effective Calorific Value = Net Calorific Value x Specific Gravity.

The effective calorific value of biodiesel is slightly more than high speed diesel, so in terms of power output and fuel consumption, biodiesel performs same as high speed diesel.

APPLICATION

AUTOMOBILE

FARMING & INDUSTRIAL EQUIPMENT

STATIONARY POWER GENERATION

BOILER FUEL

RIGS & DRILLING

FAQS

WHAT IS BIODIESEL?

Biodiesel is a renewable fuel for diesel engines. Biodiesel, defined by BIS ISI5607 of 2017, consists of long-chain fatty acid alkyl esters and is made from renewable vegetable oils, recycled cooking oils, or animal fats. It can be used at full strength, but it is typically blended with petroleum diesel. A blend of 5 percent Biodiesel and 95 percent diesel is referred to as B5. Other typical blends include BI0, and B20; pure biodiesel is referred to as B100.

WILL BIODIESEL HURT THE MECHANICAL PARTS OF MY ENGINE?

No. In fact, Biodiesel can be good for an engine for two reasons: First, biodiesel has more lubricating properties than pertroleum diesel. Loss of lubricity is one of the drawbacks of newer low –sulphur diesel fuels. Adding just 1 percent Biodiesel increases the lubricity to an acceptable level, so any biodiesel blend will have the required lubricity without sulphur or other additives. The second advantage is that Biodiesel will actually help clean the fuel system, as it is a good solvent. It can remove deposits and build-up from tanks, lines, pumps, and other fuel system components.

WILL BIODIESEL HURT SEALS AND OTHER COMPONENTS?

Biodiesel blends higher than B20 can cause problems with natural rubber engine components, such as seals and hoses. Biodiesel will degrade rubber, so any seals or hoses in the fuel system that are made of rubber will be susceptible to damage. Biodiesel blends of B20 or below should not cause problems with rubber components, but users should periodically check rubber components when using any Biodiesel blend to make sure they are not degrading or getting hard. As the use of Biodiesel increases, most equipment manufacturers are increasing the use of PVC, synthetic Rubber, Metals (Like SS). Some manufacturers do caution users about potential problems with the lubricating oil in an engine. If Biodiesel gets mixed with the lubricating oil, it can react with the oils to create sludge might accumulate in the sump or in the oil passages, always check manufacturer recommendations about oil change frequency, as some suggest changing oil more often when using Biodiesel.

CAN I USE BIODIESEL IN COLD WEATHER?

Pure Biodiesel is more susceptible to cold temperature problems than petroleum diesel, but when blended, this effect is moderated. A B2 Biodiesel blends, for example, has the same cold flow properties as petroleum-based. However, B20 will have a higher get point, that is between 3 and 5°F higher.

HOW LONG CAN I STORE BIODIESEL?

Fuel aging and oxidation can lead to heightened acid content, high viscosity, and the formation of gums and sediments that clog filters. It is recommended that biodiesel be stored for no more than six months without an antioxidant additive.

WILL BIODIESEL CAUSE FUEL FILTER PROBLEMS?

The most common fuel filter problems occur when switching older machinery from petroleum diesel to Biodiesel. Petroleum diesel tends to leave paraffin-based-build-up on the insides of tanks and other fuel system components. Biodiesel will loosen this build-up, which will be trapped in the fuel filter. Users can expect to replace fuel filters several times after switching older equipment to Biodiesel. After the fuel system gets cleaned out, filter usage should return to normal. Another less common cause of filter problems comes from the use of higher. Biodiesel blends that have been stored for extended periods of time.

IS BIODIESEL MORE SUSCEPTIBLE TO WATER CONTAMINATION?

Biodiesel is more susceptible to water contamination than petroleum diesel. The presence of water in biodiesel or any fuel can promote corrosion of fuel system components and growth of micro organ-isms. The following are some common-sense techniques useful for preventing water contamination in any fuel system:

- Make sure all tank caps are in place and in good condition.
- Stone machinery with tanks full to minimize condensation inside the tank. Get in the habit of filling the tanks at the end of the day so there is no room for condensation to form when the temperatures cool overnight.
- Large temperature swings can pro-mote moisture condensation on the inside of storage tanks. Underground storage tanks are best at preventing condensation because fuel is kept at a relatively constant temperature, but underground storage introduces many other potential problems such as leakage and liability. Above ground storage tank should be insulated (double wall) and shaded if possible to moderate temperature swings, thereby reducing the possibility of condensation formation.
- Drain a small amount of fuel from the bottom of storage tanks every six months to remove any water that might have accumulated in the tank.
- Avoid prolonged exposure of fuel to light, which can induce algae growth. Fiber glass tanks should be painted and/or placed in shaded areas.
- If biological growth is a problem, the same products that are used with petroleum diesel can be used in biodiesel to “dry” the fuel and clean up biological contaminants.

Siva Sakthi Enterprises

Manufacturer & Importer of Petroleum Products & Biodiesel

No. 68, Mahalakshmi Nagar, Edapalayam, Redhills,

Chennai – 600 052, Tamil Nadu, India

Phone: +91-766 750 7409, 866 813 3912

FOR ENQUIRY

ssepetro@gmail.com

VISIT US AT

www.sivasakthienterprises.in