



BIODIESEL – An Introduction

- **BIODIESEL** is an ecofriendly Biodiesel- made from Vegetable oils.
- **BIODIESEL** can be mixed upto 20 % levels with petrodiesel in any Diesel Engine without any modifications.
- **BIODIESEL** can be mixed upto 50 % levels with LDO in any Diesel Engine without any modifications.
- **BIODIESEL** can be stored **Anywhere** and is very safe to handle.
- **BIODIESEL** provides lubrication and reduces friction thereby increasing the life of the engine.
- By using **BIODIESEL** you can avoid adding any expensive lubricating oil.
- Usage of **BIODIESEL** reduces the pollution levels.

The reduction in pollution levels is evident from a comparison of ANY vehicle's PUC reports from the very next day of commencing utilization.

ADVANTAGES OF BIODIESEL OVER PETROLEUM DIESEL

A) Biodiesel is a clear liquid, without unpleasant odour.

B) Biodiesel has a high Flash Point and is very safe to handle.

Biodiesel can be thus stored **anywhere** unlike petroleum diesel which requires elaborate safety precautions.

C) Biodiesel can be used in a standard diesel engine upto a 20 % level alongwith petroleum diesel **without any modifications to the engine.**

D) Biodiesel is **less toxic than common table salt** and rapidly biodegradable

E) Biodiesel is essentially Carbon plus Oxygen plus Hydrogen. Due to the oxygen content it is a very clean fuel, producing 50% less carbon particulates than petrodiesel, together with less nitrogen and carbon monoxides.

F) Biodiesel does not emit carcinogenic particulate matter like that of petrodiesel.

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G) Biodiesel contains **no sulphur**, other than by contamination from the soil, acid rain or commercial alcohol used in the processing.

In round-figure terms, every one tonne of biodiesel, which replaces one tonne of diesel, will reduce carbon dioxide emissions by 3.7 tonnes

COMPARISONS OF POLLUTANTS

1. Sulphur oxides (SOx): Every tonne of petrodiesel that is burnt adds 180 kg of sulphur oxides to the atmosphere, causing irritation to the respiratory system and adding to the formation of acid rain. **Biodiesel** contains no sulphur, other than any which may be absorbed from the (polluted) atmosphere or from field dressings applied during growth of the oil bearing plants.

2. Carbon Monoxide (CO) Every tonne of petrodiesel that is burnt adds 500 kg of carbon monoxide to the atmosphere, which restricts the ability of the blood to absorb oxygen. It is therefore a poisonous gas, **90% of which is produced by transport fuels.**

The advantage of **Biodiesel** is that it contains additional (11%) oxygen molecules which improve the burning efficiency of the fuel. This inhibits the production of monoxides, resulting in a 10 to 20% reduction in emissions.

3. Particulate matter (PM) Every tonne of petrodiesel that is burnt adds 85 kg of solid particles to the atmosphere in the form of solid carbon soot, around which form the **carcinogenic polyaromatic hydrocarbons which are conveyed to the lung tissue by the air we breathe.** Biodiesel emits about 40% less than petrodiesel.

Visual evidence is available just by watching a vehicle powered by Biodiesel - it emits little or no black smoke after acceleration!

Studies currently being undertaken in the USA indicate a possible reduction of 94% in toxic risk assessment.

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BIO-DEGRADABILITY

Fossil oil the source of petrodiesel is, in itself, a pollutant. From oil slicks caused by the illegal washing out of tanks at sea to the massive destruction of wildlife and tourist facilities after a marine disaster, the effects have been catastrophic. As a recent Castrol report shows, fossil oil degrades only 50% in the first 21 days after a spill - **Biodiesel is 98% harmlessly broken down in the same period.**

EFFECTS OF BIODIESEL

The case we have made so far is based on the need for substitute fuels with reduction in pollution levels, Biodiesel being eminently suitable in terms of ecological impact, sustainability and usability. Today, vehicles are running on Biodiesel in USA and European countries and their respective governments are offering incentives on the usage of Biodiesel to curtail pollution and to encourage development of alternative forms of energy.

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