



Tech Torque

What is BIO-DIESEL?

BIO-DIESEL is a recycled fuel made from organic oils. It is chemically called Free Fatty Acid Methyl Ester. It is made from processed organic oils and fats, and can be burned in normal diesel engines just like normal mineral diesel, but its use does not pollute the atmosphere nor add to the causes of global warming. It is also possible to make good bio-diesel from waste vegetable oil like used chip fat. In this way, burning bio-diesel turns a waste disposal problem into a non-polluting fuel source.

Organic fuels are derived from plant and animal fats. Mineral fuels are derived from the fossil remains of decomposed organic matter extracted from below the surface of the earth. Everyone knows that the resources of mineral oils are nearly depleted, and the cost of extracting the last reserves will become increasingly high. There is an urgent need to find other forms of energy before mineral fuel supplies run dry.

It is also well known that burning of fossil fuels increases the level of carbon-dioxide in the atmosphere as the carbon locked within the earth's crust is released by burning into the atmosphere as exhaust gasses. This is the main cause of the 'Green House' effect in which the overall temperature of the globe increases as it becomes enveloped within a pool of carbon-dioxide. This process is thought to be the main cause of global warming, which is now a well accepted fact even amongst those who were the most sceptical. All the time we burn normal petrol or mineral diesel we are therefore actively contributing to global warming.

However, the burning of organically derived fuels does not contribute any additional CO₂ into the atmosphere, as the carbon released is the same as the carbon absorbed by the plants as they grow. Using organic fuels is therefore beneficial to the environment and to the atmosphere.

Many potential organic fuels presently pose a waste disposal problem, for example, waste vegetable fats used for cooking require costly disposal. However, most of these materials can easily be re-processed to make useful fuels by the process of transesterification.

Biologically derived oils and fats comprise three fatty acid chains attached to glycerol. Processing detaches the three hydrocarbon chains to make BIO-DIESEL, and glycerine. The BIO-DIESEL is washed and dried, ready for use. The glycerine can be used to make soaps or fermented to make ethanol which is re-used to make more BIO-DIESEL, or it can be burned as a heating fuel.

NOTE: This article is an extract from the web site at <http://www.bio-power.co.uk>