BIODIESEL

Definition & Explanation:

Biodiesel is a renewable, clean-burning diesel.

Biodiesel is defined as mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats which conform to ASTM D6751 specifications for use in diesel engines.

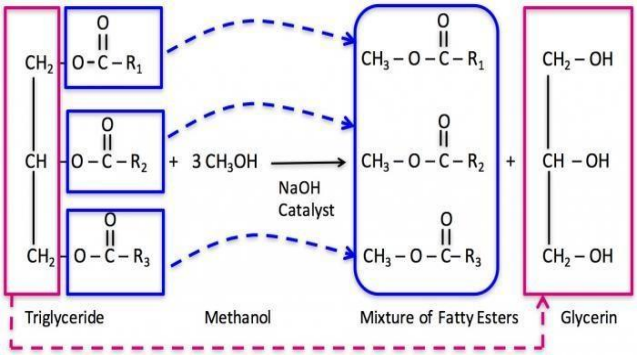
Biodiesel is typically made by chemically reacting lipids (e.g., vegetable oil, animal fat with an alcohol producing fatty acid esters.

Biodiesel can be used alone, or blended with petro diesel in any proportions. Biodiesel can also be used as a low carbon alternative to heating oil.

Making of biodiesel:

Biodiesel is made through a chemical process called **trans - esterification** whereby the glycerin is separated from the fat or vegetable oil. The process leaves behind two products

-- methyl esters (biodiesel) and glycerin (a valuable byproduct usually sold to be used in soaps and other product



Advantages:

Biodiesel environment friendly because it is made from renewable resources.

It has lower emissions compared to petroleum diesel.

It is less toxic than table salt and biodegrades as fast as sugar.

It is produced domestically from natural resources. So it is bio degradable.

Its use decreases our dependence on imported fuel and contributes to our own economy.

Disadvantages:

It gels during cold weather.

It absorbs water from atmosphere.

It decreases the efficiency of the engine.

It emits about 10% higher nitrogen oxides than conventional petroleum.

Biogas

Biogas It is formed by the bacterial degradation of biomass under anaerobic condition (airtight digesters). Biogas mainly contains methane (50-70%), carbon dioxide and trace amount of water, sulfur and hydrogen sulphide.

Uses

- **Heating and Cooking:** Biogas can be used as a fuel for stoves and boilers.
- **Electricity Generation:** Biogas can be used in engines or fuel cells to generate electricity.
- **Vehicle Fuel:** Biogas can be upgraded to biomethane and used as a vehicle fuel.
- **Waste Treatment:** Anaerobic digestion can treat organic wastes and reduce their volume and odor.
- **Fertilizer Production:** The digestate (the solid and liquid residue after anaerobic digestion) can be used as a fertilize

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