

WHAT IS BIO-DIESEL?

- ❖ Technical Definition for Biodiesel
- ❖ (ASTM D 6751):
- ❖ Biodiesel, is a fuel comprising mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM D 6751.

CONVERSION TO ESTER REDUCES VISCOSITY
TO SAME LEVEL AS DIESEL FUEL AND POTENTIALLY
INCREASES CETANE NUMBER TO BE THE SAME OR
EVEN HIGHER THAN DIESEL FUEL

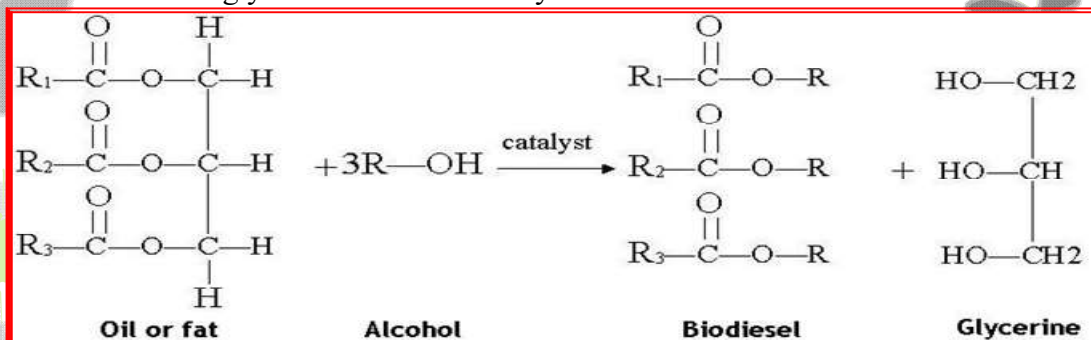
WHAT ARE THE ADVANTAGES OF BIO-DIESEL FUEL?

- ❖ Renewable
 - carbon neutral
- ❖ Biodegradable
 - benefits environment
- ❖ Domestically grown
 - reducing imported oils
- ❖ Low emissions
 - except maybe Nox
- ❖ No engine modifications required
 - except replacing some fuel lines for older engines
- ❖ Safer
 - less flammable
- ❖ Non-toxic

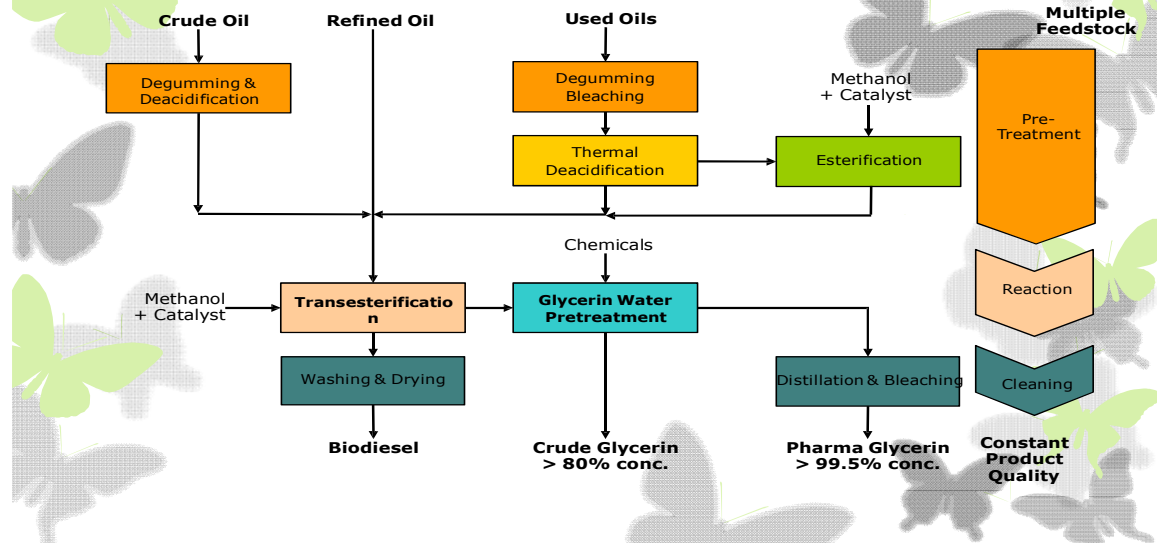
- ❖ Very favorable energy balance, 3.2 to 1
- ❖ Can be blended in any proportion with petroleum diesel fuel
- ❖ High cetane number and excellent lubricity
- ❖ Very high flashpoint (>300°F)
- ❖ Can be made from waste restaurant oils and animal fats

HOW IS BIO-DIESEL PRODUCED?

- ❖ A simplified representation of biodiesel production:
 - Transesterification
 - Chemical reaction between methanol or ethanol and a vegetable oil or animal fat
 - Requires a catalyst, such as caustic soda (NaOH) or KOH
 - Removal of glycerin reduces viscosity



BIO-DIESEL PROCESS SCHEMATIC



SHATABDI EXPRESS TRIAL



- ❖ Indian Railways tried a 5% blend of bio diesel on ALCO locomotive to haul Shatabdi Express on 31st Dec, 2002.(DLI-ASR)
- ❖ Hauling Capacity: No adverse effect was observed during the run in terms of haulage capacity etc.
- ❖ Filters: No unusual deposits were noticed on the filter surface.
- ❖ Fuel Injection System: The fuel injection pumps and injector nozzles were also found in satisfactory condition.

5% blending of bio-Diesel in HSD: RCD Jodhpur and Phulera were nominated for blending of Bio-diesel in 2015-16. Indent for 4286KL was placed out of which order for 1429 KL was placed on M/s Emami Agrotech Ltd. 144KL was received and consumed during 2015-16.

For 2016-17, indent for 7850 KL for RCD at Jodhpur, Phulera, Hanumangarh, Abu Road and Bhagat ki Kothi was placed and tender opened on 30.06.2016. Which has been discharged on 23.09.16 due to higher rates as per LAR, Firm didn't agree for negotiation. Re-tender is due for opening on 18.11.16.