

## Biodiesel vs. Bioethanol

### Biodiesel:

- Fuel made from oil plants/sources
- Produced by transesterification
- Usually blended with petroleum diesel fuel
- Few diesel engine modifications are required

### Bioethanol:

- Fuel made by fermenting sugars in biomass materials such as corn
- Usually used as a gasoline additive
- Requires flex fuel engines

*“Let’s not be cruel, use alternative fuel!”*



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**I PRO - 316**

### Group Breakdown:

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Testa Produce

**I PRO - 316**

**Biofuels Production  
Facility for  
Renewable Energy  
Generation**

The logo for BIO FUEL, featuring the words "BIO" and "FUEL" stacked vertically in a bold, sans-serif font. A stylized green swoosh or arc is positioned above the word "FUEL".

## What?



Biofuels - Fuels produced from renewable resources

such as plant biomass or vegetable oils. These fuels are in the form of alcohols, esters, ethers, and other chemicals.

## Why?

- It is a priority to find alternate sources of energy as the supply of petroleum decreases
- Cheaper to use and don't harm the environment
- Reuses waste oils and turns them into a cleaner burning fuel

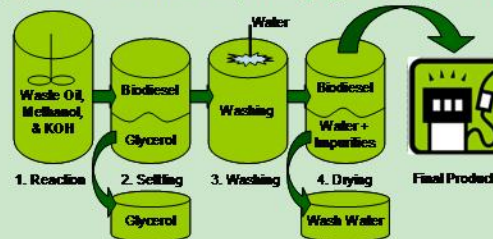
## Production

- A processor running a batch/day will meet Testa's needs
- This overshoots the target production allowing for unscheduled down time

### Volumes of Reactants and Products:

<b>Required Biodiesel</b>	1200 gal/week
<b>Reactants</b>	
oil	1470 gal/week
Methanol	367.5 gal/week
KOH (90% Pure)	52 kg/week
<b>Products</b>	
Glycerol	184 gal/week
Biodiesel	1654 gal/week

\*The biodiesel recipe must be fine-tuned based on available waste oil. For calculations a recipe of 22 vol% Methanol, 78 vol% Waste Oil, and 36g KOH/gal Oil was used.



### Murphy's Machines

- Has knowledge of biodiesel processing and great customer service
- Sells plans to a 500 gallon biodiesel processor
- Estimates an initial investment of \$5000/processor and \$0.03/gallon biodiesel made

## Transportation

