



The Business of Biodiesel

courtoisie / courtesy PMG Technologies inc

Pre-Construction Permits & Licenses

- **Business License**
- **Fire Marshall**
- **Waste Water Discharge Permit**
- **Storm Water Permit**
- **Air Permit**



FUEL PRODUCER & DISTRIBUTOR LICENSES



- ✓ Form 637 for IRS. Registration certificate w/letters AB for producer.
- ✓ EPA Fuel Manufacturer Registration
- ✓ Special Fuel License/Fuel Distributor License from GA Department of Revenue.
- ✓ GA Department of Agriculture Manufacturer Registration.



Build It Yourself or Buy Turnkey

- ***Cost***
- ***Talent***
- ***Process Guarantee***



Batch vs. Continuous



The Reaction

Triglycerides

+

Methanol

+

Base

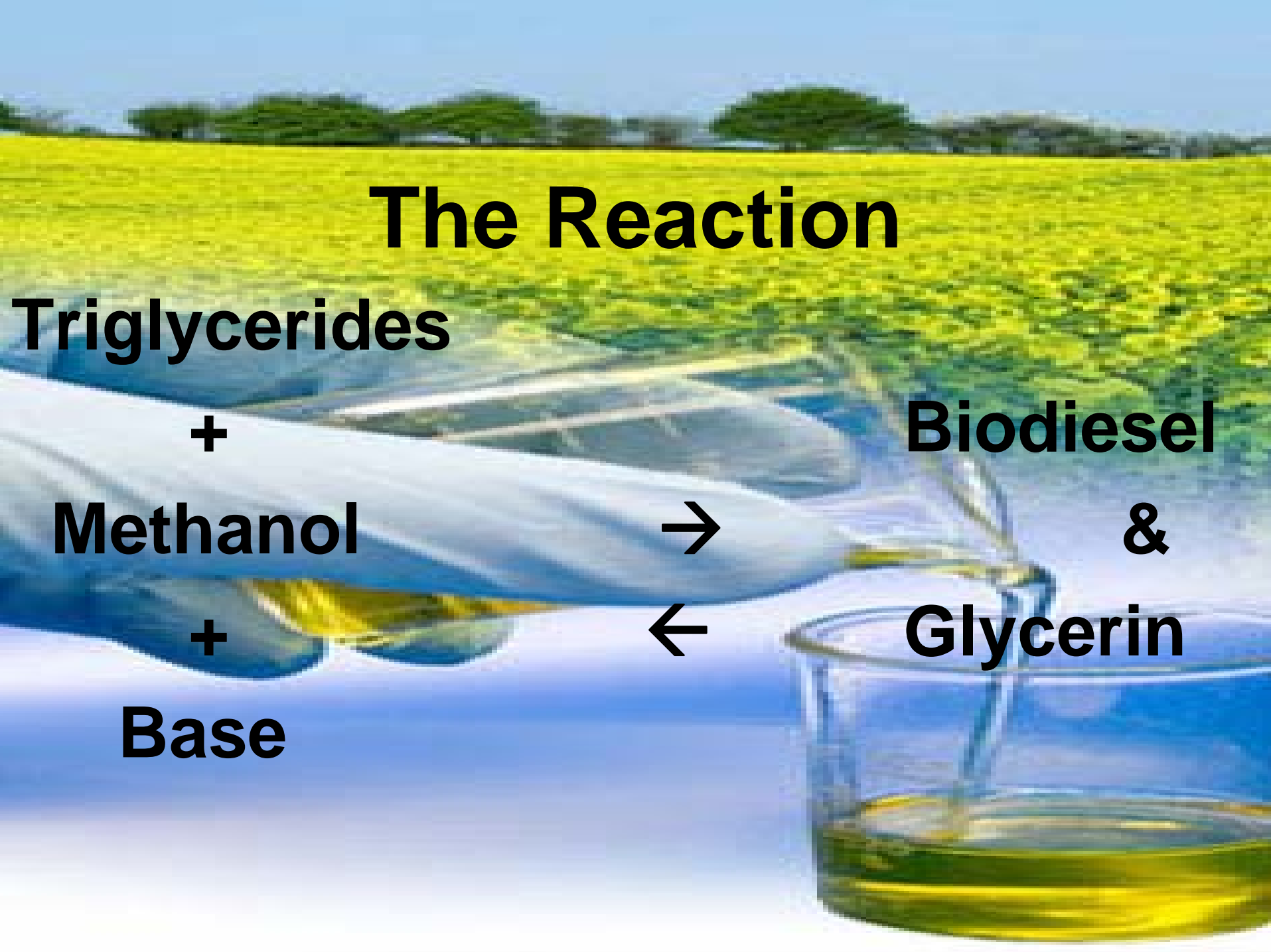
→

←

Biodiesel

&

Glycerin



Shift Equilibrium to the Right

- ❑ Excess Methanol
- ❑ Two-stage reaction
- ❑ Improved mass transfer
- ❑ Complete but short



After the Reaction

- **Washing**
- **Drying**
- **Polishing**



QUALITY

- ASTM Specifications
- In-house testing





ASTM International Specification

D6751: Standard Specification for Biodiesel Fuel

In 2002, ASTM International issued a standard specification for biodiesel fuel called D6751. This specification states that the only form of biodiesel that can be legally resold for commercial operations must meet ASTM specifications.

TABLE 1: Detailed Requirements for Biodiesel (B100)

Property	Test Method	Limits	Units
Flash point (closed cup)	D 93	130.0 min	°C
Water and sediment	D 2709	0.050 max	% volume
Kinematic viscosity, 40°C	D 445	1.9–6.0	mm ² /s
Sulfated ash	D 874	0.020 max	% mass
Sulfur	D 5453	0.05 max	% mass
Copper strip corrosion	D 130	No. 3 max	N/A
Cetane number	D 613	47 min	N/A
Cloud point	D 2500	Report to customer	°C
Carbon residue	D 4530	0.050 max	% mass
Acid number	D 664	0.80 max	mg KOH/g
Free glycerin	D 6584	0.020	% mass
Total glycerin	D 6584	0.240	% mass
Phosphorus content	D 4951	0.001 max	% mass
Distillation temperature, atmospheric equiv. temp	D 1160	360 max	°C

Safety

- Methanol
- Unwashed Biodiesel
- Glycerin Bottoms



Two Biggest Issues

❖ Feedstock

❖ Glycerin Bottoms

