



**EPA Region 4  
Biodiesel Workshop  
October 15, 2009**

**Rod Trump**

**Director, Energy Resource Center**

**(803) 981-7074**

**[rtrump@yorktech.com](mailto:rtrump@yorktech.com)**

# Biodiesel From Used Kitchen Oil



YORK TECHNICAL COLLEGE





# What needs to be considered beyond the processing equipment

- Space requirements
- Safety
  - Grounding
  - Ventilation
  - Temperature
- Used Oil Collection System
  - Truck, pumps and hoses
  - Storage – both used oil and biodiesel
- Quality testing
- Labor

# Original Location – 240 Sq ft



# Current Location – 2400 Sq ft



# Safety

**Grounding**



**Ventilation & Temperature**



# Collection

## Used Oil Collection



## Collection Drums



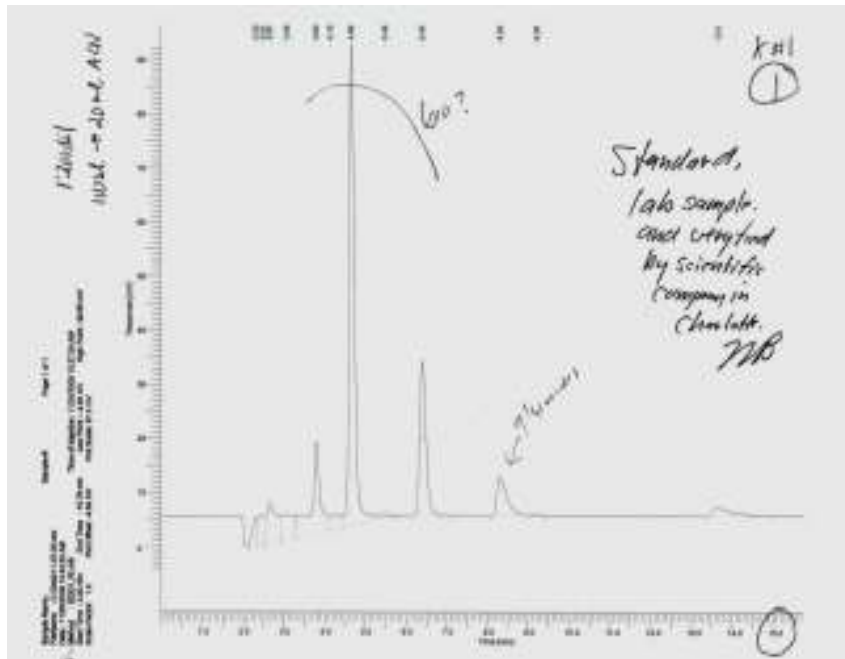


# College Programs

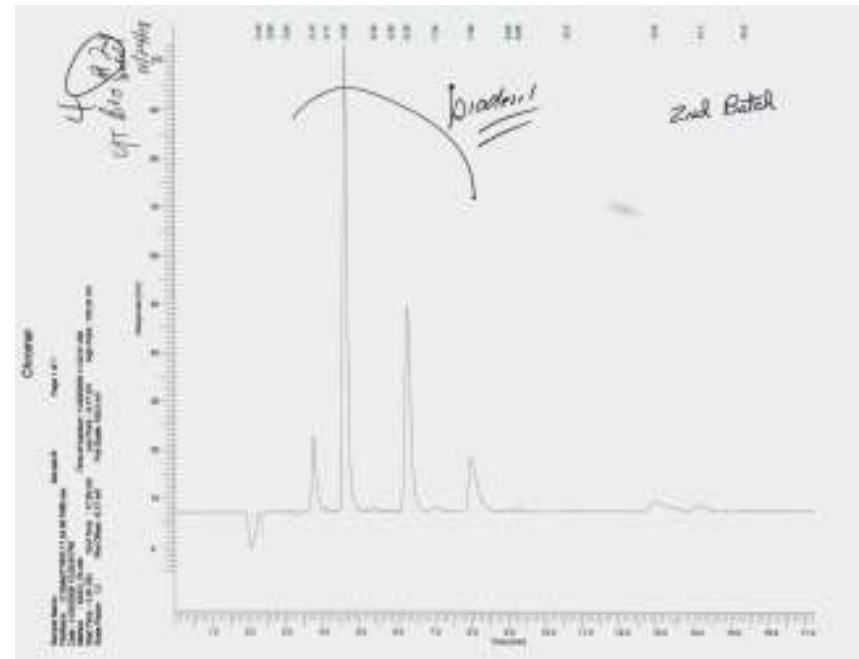
- 1. Environmental Science Certificate ( 28 credit hours)**
  - **Organic and Biochemistry**
  - **Environmental Science**
  - **Water and Wastewater Treatment**
- 2. Analytical Chemistry Certificate ( 23 credit hours)**
  - **Analytical Chemistry**
  - **Modern Chemical Analysis**

# High Pressure Liquid Chromatography (HPLC)

## Baseline Chromatograph



## Using Waste Methanol



# Benefits of Biodiesel

- Less air pollution
- Removing waste material from the waste stream
- Cost Savings
- Educational track
- People want to help the environment

**YORK TECHNICAL COLLEGE** 

**Rod Trump**

**Director, Energy Resource Center**

**(803) 981-7074**

**[rtrump@yorktech.com](mailto:rtrump@yorktech.com)**

**Questions?**

**AVERAGE BIODIESEL EMISSIONS COMPARED TO CONVENTIONAL DIESEL,  
ACCORDING TO EPA**

Emission Type	B100	B20
<u>Regulated</u>  Total Unburned Hydrocarbons Carbon Monoxide Particulate Matter Nox	-67% -48% -47% +10%	-20% -12% -12% +2% to -2%
<u>Non-Regulated</u>  Sulfates PAH (Polycyclic Aromatic Hydrocarbons)** nPAH (nitrated PAH's)** Ozone potential of speciated HC	-100% -80% -90% -50%	-20%* -13% -50%*** -10%

\* Estimated from B100 result

\*\* Average reduction across all compounds measured

\*\*\* 2-nitroflourine results were within test method variability