

# FUEL FROM OIL SEEDS: PRODUCTION AND ANALYSIS OF BIODIESEL DERIVED FROM VEGETABLE OILS

## LAB OVERVIEW

Level: Grades 9-16

Estimated Time to Completion: Two 90 Minute Sessions

Prior Knowledge: Molarity, Percent Yield

Oil seeds represent a sizable fraction of the feedstocks that are used to generate biodiesel fuel today.

In this lab investigation, students will use oil derived from seed plants (canola and soy) to synthesize biodiesel fuel. Students may also utilize used cooking oil (canola and soy) for biodiesel conversion. Students will then analyze each fuel for yield, purity (freezing point test), combustibility, and particulate formation (during combustion).

Upon completion, students will be able to:

- Conduct and understand a transesterification reaction.
- Evaluate and determine the 'best' feedstock to use for biodiesel fuel using qualitative parameters of purity, yield, and combustion particulate analysis.

## MATERIALS REQUIRED

Soybean Oil and/or Waste Soybean Oil (WSO)

Canola Oil and/or Waste Canola Oil (WCO)

Methanol

NaOH solid

50mL Beakers

250ml Beakers

50mL Erlenmeyer Flask

125mL Erlenmeyer Flask

Magnetic Stir Bar and Stir Plate

Hot Plate

Q-tips

Bunsen Burner

Ice Bath

NaCl solid

0.1M Acetic Acid

250mL Separatory Funnel

Thin Stem Funnels

Centrifuge