**ENGINE OILS LABORATORY EXERCISE**

**Class:** §130.24. Agricultural Power Systems 130.24 A, B, C, 5 a-c

112.39. Physics

**DATE:** February 21, 2011

**PURPOSE:** To show students the difference in viscosity between winterized motor oils and “straight” weight motor oils.

**Objectives:**

Agricultural Power Systems 130.24 A, B, C, 5 a-c

Physics 112.39 A, B, C 1 a-b, 4 a-b \*Consulted with Keri Phipp for information on viscosity and lab ideas

**Materials:**1- 4 ft. half pipe PVC

1- Bucket

2-4 oz. Samples of 40 SAE Motor Oil (One sample frozen, one at room temp.)

2- 4 oz. Samples of 10-w 40 Motor Oil (One sample frozen, one at room temp.)

1-Stop Watch

Rags

**Method:**

Place on sample of SAE 40 Motor Oil and One sample of 10-W40 in the freezer for 4 hours or longer.

Place half pipe of PVC in bucket and have students time the amount of time required for the oil to pass from a starting point to a stopping point on the half pipe. Have them do it once with each sample of the room temperature oil. Make sure to clean half pipe in between samples.

Have students repeat procedure with the frozen samples. They should be able to see that the winterized oil flows better when cold and thus is better suited for colder climates. The winterized oil has the lower viscosity.

**Evaluation**:

Students must complete a chart displaying the times of their samples, along with hypothesis and a conclusion.