**Experimental Procedure – Richard Le-Nguyen**

The following is the procedure that our group completed by following the guidelines outlined in the document “Bomb Calorimeter.” We found that we did not have to deviate from the established procedure.

Before beginning the experiment, safety and caution were taken in accordance with the Bomb Calorimeter Lab Document.

First the fuse wire was cut to 10 cm and weighed in the scale. This wire was attached to the leads of the bomb calorimeter at its lead points. The two ends were wrapped and clamped around the leads while the center of the wire was bent towards the cradle. A clean cup and a tablet of benzoic acid pellet were weighed. The benzoic acid was placed into the cup which was then placed into the cradle. The wires were placed to touch the benzoic acid only. 2 ml of de-ionized water was added into the bomb and the cover assembly containing the cup of benzoic acid was lowered into the cup for a snug fit.

The needle valve on the cover of the bomb was opened and the connector from the oxygen tank was attached. Approximately 25 atm of oxygen was added to the bomb and it was purged for more than 5 seconds to ensure there is only pure oxygen in the bomb’s internal atmosphere. Both the oxygen tank valve and the bomb valve were closed. The connector was removed from the bomb.

2000g of de-ionized water was added to a stainless steel bucket. The bomb was carefully placed, remaining upright, into the bucket. The bomb was properly aligned into the bucket. The temperature of the water was recorded using the thermometer. The bucket with the bomb and the water was lowered into the insulating beige box. The ignition wires within the box, red and black, were connected to the top of the bomb. Use a rubber band as a drive belt and wrap it around the motor and the stirring propeller. The thermometer was placed into the hole on the plastic cover of the beige box and it was lowered all the way down ensuring that it is 3 inches beneath the water. The ignition unit was plugged in.

The ignition button was pressed so the reaction began. Data for the temperature was recorded every 10 seconds. Data was recorded until the temperature started to decrease and reached a constant state. The bomb was removed from the water bucket and the vent valve was loosened to release the pressure. The bomb was carefully disassembled after by lifting the top straight off. The fuse holder was removed from the bomb. The cup and the remaining pieces of the fuse wire weighed and the data was recorded.

After the data is collected, the experiment was repeated with approximately 0.80g of diesel fuel instead of benzoic acid. After the data was collected for the diesel fuel, all of the equipment was dried and cleaned properly and stored in their designated areas.