Procedure 1

Empty test tube- 18.200g

Closed test tube- 19.128g

Vinegar (5ml)- 23.213g

NaOH (5ml)- 23.283g

Closed tube of NaOH (5ml)- 24.211g

1. Record the following masses in grams:

 (a) an open, empty test tube:

 (b) a closed, empty test tube:

 (c) the test tube containing 5 mL vinegar:

 (d) the test tube containing 5 mL sodium hydroxide:

 (e) the closed test tube after the reaction:

2. Calculate and record the combined mass of the reactants vinegar and sodium hydroxide (in grams).

3. Calculate and record the mass of the contents of the test tube after the reaction (in grams).

4. Compare the two masses before and after the reaction. Calculate the percent deviation between the original mass and the measured mass after the reaction, which is defined as:

 percent deviation = |(mass before reaction) - (mass after reaction)| / (mass after reaction \* 100%)

According to the law of conservation of mass, we expect the percent deviation to be zero, but experimental measurements rarely give perfect results. The percent deviation is an indication of how well the experiment conforms to our expectations.

5. Explain what may have caused any discrepancy between the two values of the masses and whether you have confirmed the law of conservation of mass.

Procedure 2

Empty flask- 91.780g

Closed empty flask- 96.548g

Flask w/ Alka seltzer powder(1g)- 97.548g

Empty flask2- 91.780g

Flask2 H2O(40ml)- 131.780g

Flask2 H2O(40ml)+Alka seltzer powder(1g)- 137.548g

Assignment 1 of Procedure 2

1. Record the following masses, making sure to use the correct number of significant digits:

 (a) mass of an open, empty flask (g)

 (b) mass of a closed, empty flask (g)

 (c) mass of a closed flask plus 1g Alka Seltzer powder (g)

 (d) mass of an open flask with 40 mL water (g)

 (e) mass of the closed flask with 1g Alka Seltzer and 40 mL water, after the reaction (g)

2. Calculate the combined mass of the reactants, Alka Seltzer and water (g)

3. Calculate the mass of the contents of the flask after the reaction.

4. Compare the two masses, before and after the reaction. Calculate the % deviation as:

 % deviation = |(mass before reaction) - (mass after reaction)| / (mass after reaction) \* 100%

5. Explain what may have caused any discrepancy between the 2 masses, and whether you have proved the law of mass conservation.