**Name:** _____ **Date:** _____

***Chemistry*** *~ Ms. Hart* **Class:** Anions or Cations

## 6.4 – Lab #15: Does Mass Change in a Chemical Reaction?

**Pre-Lab:**

1) Have you ever dropped an Alka Seltzer tablet into a glass of water? What happens?

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2) Is this an example of a chemical change? What observations lead you to your decision?

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3) What is a closed system? Why is it important to have a closed system to conduct this experiment?

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**Materials:** Erlenmeyer flask, water, effervescent tablet, tweezers, plastic cup, balloon (9 in or larger)

**Question**: Do you think that the mass will change in the closed system before and after the tablet is dropped into the water?

**Hypothesis:** (use the format If… then… because…)

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**Procedure:**

1) Examine your balloon for holes. If there are any, ask for a new balloon.
2) Using your tweezers, carefully break the effervescent tablet into smaller pieces to fit it into the balloon (quarters should work). Put the pieces of the tablet into the balloon.
3) Fill the Erlenmeyer flask with ~150 mL of water. Dry the outsides of the Erlenmeyer flask off very well as any drops on the side may lead to errors in the massing of the flask.
4) Without allowing the tablet to fall into the water, gently stretch the mouth of the balloon over the mouth of the flask as shown on the demo model provided by your teacher. BE VERY CAREFUL NOT TO TEAR THE BALLOON. Make sure the balloon is on very well so that the system is truly a closed system.
5) Mass the entire system, (balloon, tablet, flask, and water), using the triple beam balance. Record the mass to the nearest ones place holder (e.g. no decimal) in the results section on the back of this page. Even though the measuring device is more accurate, our experiment may not be accurate to more than the ones place because the balloon is not a perfect closed system.
6) Remove the system from the scale and place on lab bench. Drop the tablet that is in the balloon into the flask. (You may have to gently break the tablet a little more, inside the balloon, to get it into the flask). HOLD THE BALLOON ONTO FLASK TO PREVENT ANY GAS FROM ESCAPING.
7) Once most of the reaction has occurred, re-mass the entire system using the triple beam balance. Record the mass to the nearest ones place holder in the space provided.

**Results:**

Record your mass to the nearest ones place.

_____ _____

Mass of Entire System Mass of Entire System

*Before Reaction* *After Reaction*

Was the mass the same before and after the reaction occurred (to the nearest ones place)?

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Observations Indicating a Chemical Change Occurred:

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**Conclusion:**

*Address whether or not your hypothesis was correct using evidence from your results and make a general conclusion about whether or not mass is conserved in a chemical reaction. Discuss any errors in your experiment.*

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| **Prelab** | ☐ All prelab questions are completed<br>☐ Hypothesis is completed in the correct format | ☐ One prelab question is incomplete or the hypothesis is not complete | ☐ Two pieces are missing (either prelab questions or hypothesis) | ☐ Three pieces are missing (either prelab questions or hypothesis) |
| **Data, Observation, Data Analysis** | ☐ Data is properly recorded (to the correct place value)<br>☐ Analysis of data is completed<br>☐ Observations are completed | ☐ Missing 1 of the previous | ☐ Missing two of the previous | ☐ N/A |
| **Conclusion** | ☐ Restate hypothesis<br>☐ Analyzes hypothesis<br>☐ Uses data to support analysis<br>☐ Makes a connection to broad idea of conservation of mass | ☐ Missing 1 out of 4 | ☐ Missing 2 out of 4 | ☐ Missing 3 out of 4 |