

LAW OF CONSERVATION OF MASS

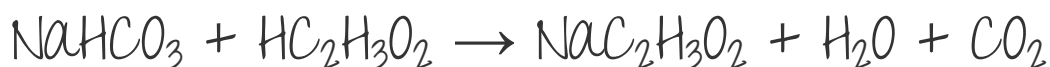
"You can't get something from nothing"

Introduction

The Law of Conservation of Mass states that matter cannot be created nor destroyed; it can only be transferred from state to state. In this lab, you will have to PROVE IT.

Here are the word and chemical formulas that we will be working with. Identify the reactants and the products:

Baking Soda (Sodium Bicarbonate) + Vinegar (Acetic Acid) → Sodium Acetate + Carbon Dioxide + Water



Reactants: _____

Products: _____

Materials:

1. Vinegar 2. Two small cups 3. Baking soda 4. Balance/scale 5. Plastic zip lock bag

Procedure:

1. Pour the cup of baking soda into the plastic bag (**CUP A**).
2. Fill the second cup with 4 full squirts of vinegar from a pipette (**CUP B**).
3. Place **CUP B** (vinegar) in the plastic bag **being careful NOT** to spill the vinegar.
4. Seal the plastic bag.
5. Determine the mass of the cups and the mass of the bag, baking soda, vinegar and cup.
6. Without opening the bag, pour the vinegar into the baking soda.
7. Observe.
8. Without opening the bag, record the mass of the bag and contents.

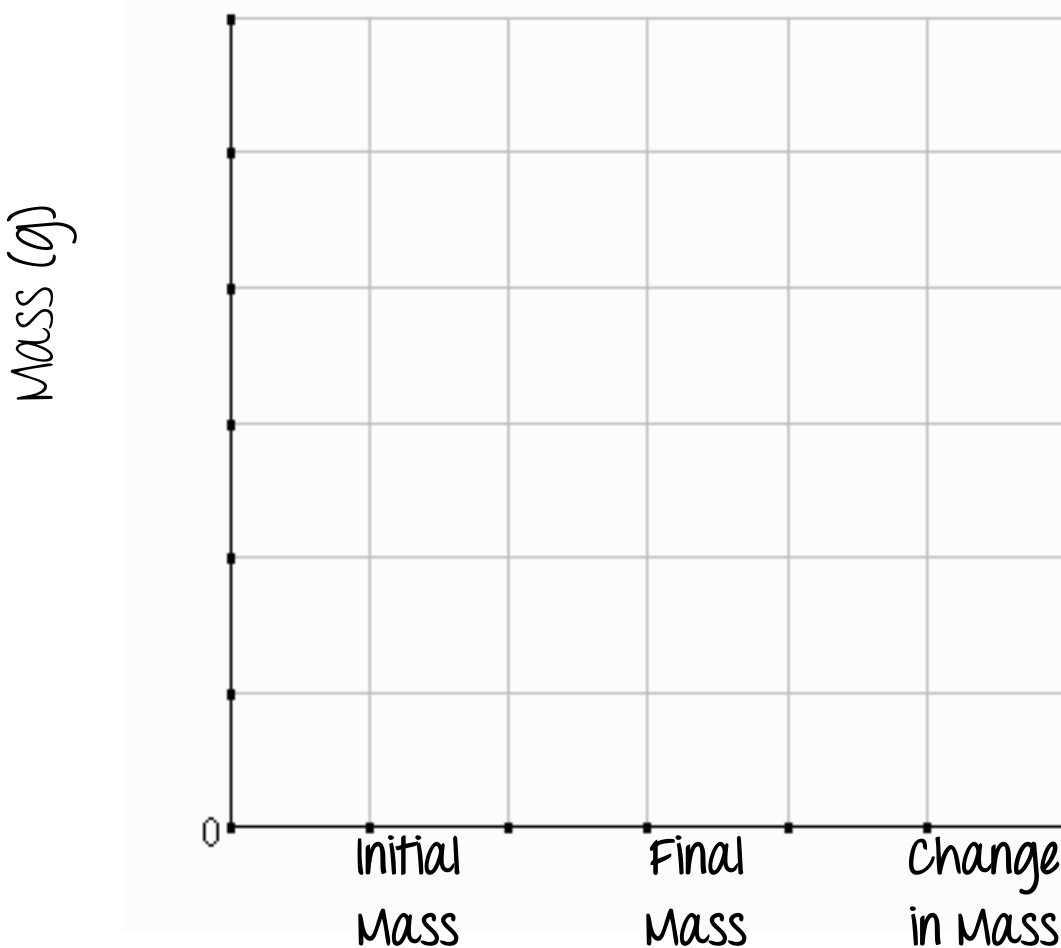
Conservation of Mass - The Data

Data Table:

| Initial Mass (g) | Final Mass (g) | Change in Mass (g) [Final Mass - Initial Mass] |
|------------------|----------------|---|
| | | |

Graph

Use the graph below to create a BAR GRAPH to show your initial and final mass for the experiment. Be sure to LABEL your # increments (i.e. 1, 2, 3, ...)



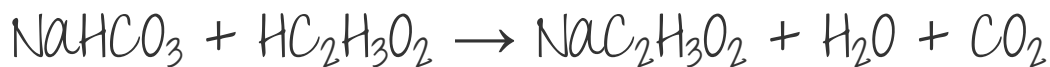
Analysis questions:

1. Describe what happened when the vinegar was poured into the baking soda.

2. Is this a chemical reaction (chemical change)? What evidence do you have to support your answer?

3. What is the conservation of mass and how does it relate to this lab? Why did we do this experiment in a plastic bag?

4. Is the equation you were given at the beginning of the lab balanced? Prove your answer below:



5. This lab showed one example of showing conservation of mass. Design an experiment with a different procedure to show the law of conservation of mass using an Alka-seltzer tablet and water. Use the image below to help guide your procedures:

