**Conservation of Mass Lab Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_\_\_**

The **Law of Conservation of Mass** states that mass can neither be created or nor destroyed during a chemical reaction. Thus, the total amount of matter can does not change in a reaction.

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| **In your own words, what does the law of conservation of mass mean?** |

**PURPOSE:**

The purpose of this lab is to show visual evidence of the law of conservation of mass during a chemical reaction.

**INTRODUCTION:**

When chemical reactions occur, people tend to believe that matter is being destroyed when in fact matter is simply changing states. The Law of Conservation of Mass states that mass is neither created nor destroyed by chemical reactions or physical transformations. **The mass of the products must equal the mass of the reactants.** According to the law of conservation of mass, if a chemical reaction occurs in a closed system, there should be no difference in mass. In this lab the students will witness a chemical reaction and record data to see how the law of conservation of mass works for different systems.

**Reaction I:** Video<https://www.youtube.com/watch?v=MUkb0qZeZCE>

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| --- | --- | --- |
| **Mass BEFORE** | **Mass AFTER** | **Observations** |
|  |  |  |

**REACTION II:**  Video<https://www.youtube.com/watch?v=ruGa1qg6ltE>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mass Before Vinegar** | **Mass Before Baking Soda** | **Total Mass** **Before** **(Add the two reactants)**  | **Mass** **After Reaction** | **Observations** |
|  |  |  |  |  |

**ANALYSIS QUESTIONS:**

1. What evidence to verify that there was a chemical reaction that occurred in both experiments?

2. How did the ***before*** mass of the systems compare with the ***after*** mass of the system for each trial?

Reaction I: Reaction II:

3. Did the reaction in Reaction I confirm or violate the law of conservation of mass? Explain using the data and observations.

4. Did the reaction in Reaction II confirm or violate the law of conservation of mass? Explain using the data and observation.

The reaction for both Reaction 1 and Reaction2 below would be…

Sodium Bicarbonate + Hydrogen Acetate 🡪 Sodium Acetate + Dihydrogen Monoxide + Carbon Dioxide

 **NaHCO3  + HC2H302 🡪 NaC2H302 + H2O + CO2**

Looking at the above reaction and understand that they law of conservation of mass is understood to by a LAW that ALWAYS holds true.

5. Why did it appear to be violated during one video procedure of this lab? Be specific and include the product that may be contributing to this cituation.

6. Explain how you could alter the procedure to ensure the law is demonstrated in BOTH REACTIONS. Be sure to include why the new procedure would have an alternate effect on your mass if performed again. Be specific!