Baggie Reactions

Driving Question: When a chemical reaction occurs, do you lose or gain atoms?

Preliminary Answer: \_\_\_\_*I think you lose atoms. When I light a match, the match burns and gets smaller, and smoke comes off of it. Because it’s getting smaller, you can tell that it’s losing atoms.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Mass before | Mass after |
| *206.8 g* | *206.8 g* |

Investigation:

1. Open a sandwich sized Ziploc bag and pour in 30 mL of water.
2. Drop in 2 drops of phenol red.
3. Using a triple beam balance, find the mass of your reactants by placing the Ziploc bag and its contents on the balance, along with 2 effervescent tablets. Record the mass of the reactants.
4. Remove the bag from the scale and carefully place 2 effervescent tablets into the bag without letting them touch the water.
5. Squeeze out the air in the bag and zip the top closed.
6. Drop the tablets into the water and watch the reaction.
7. After the reaction has finished, find the mass of the products. Record.

Reflection:

1. Did a chemical or physical reaction occur? Cite 2 pieces of evidence in your answer. \_\_\_\_\_*It is apparent that a chemical reaction occurred, because a gas formed and the liquid changed from red to yellow. Both of these changes are indications that a new substance formed and a chemical reaction occurred.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Did the mass of the bag change during the reaction? \_\_\_\_*No\_\_\_*\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Sketch your baggie before and after the reaction.

|  |  |
| --- | --- |
| Before | After |
| http://sarpass.com/wp-content/uploads/2012/10/clipart_baggie.gif | http://sarpass.com/wp-content/uploads/2012/10/clipart_baggie.gif |

Scientific Explanation:

Construct a scientific explanation that answers the driving question.

Claim: \_\_\_*When a chemical reaction occurs, no atoms are gained or lost.*\_\_\_\_\_\_\_\_\_\_\_\_

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Evidence: \_\_\_*For this chemical reaction, we found that the mass of the reactants was 206.8 g. The mass of the products was also 206.8 g.* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reasoning: \_\_\_\_*We know that the mass of the water, phenol red, and effervescent\_\_\_\_ tablets is due to the mass of the atoms that comprise these substances. Because the\_\_\_ mass of the bag did not change, we know that the total number of atoms in the system\_ did not change. However, the atoms did break and remake bonds, forming new\_\_\_\_\_\_\_ substances.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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