

Demonstrating the Law of Conservation of Mass by Measuring a Chemical Reaction

Objective:

Demonstrate the law of conservation of mass by weighing reactants before and after a chemical reaction.

Materials:

- sodium bicarbonate
- 5% acetic acid (vinegar)
- spoons
- freezer bags
- cups
- balance



SAFETY

Safety goggles and gloves should be worn at all times during this lab.

Procedure:

1. Using your electronic balance, find the total mass of two spoonfuls of sodium bicarbonate and one small cup of acetic acid. Write down the total mass value.
2. Place the sodium bicarbonate into one corner of the freezer bag. Carefully place the cup with vinegar into the freezer bag so that it does not spill. Remove any air from the bag, and create a tight seal. Then, tip the freezer bag so the vinegar pours out of the cup onto the sodium bicarbonate powder.
3. Once the reactants are combined, watch the chemical reaction that takes place, and record any physical changes you observe.
4. After the chemical reaction is complete, find the new mass of the reactants.

Questions:

- 1. What changes did you observe when the sodium bicarbonate and the acetic acid were combined?**
- 2. How do you explain these changes?**
- 3. What was the mass of your reactants before the chemical reaction?**
- 4. What was the mass of your reactants after the chemical reaction?**
- 5. Explain how the mass of your reactants was affected by the chemical reaction and why.**
- 6. State the law of conservation of mass in your own words.**