

Conservation of Mass Lab

During a chemical reaction, atoms, molecules, or ions collide, rearrange, and form products. Word and chemical equations describe the chemical changes that occur during a chemical reaction.

Purpose: Investigate two different chemical reactions and determine if mass is gained or lost during the reaction.

Materials and Equipment

Safety Considerations

- Iron (III) nitrate and sodium hydroxide are both corrosive, toxic, and irritants. Wash any spills on skin or clothing immediately with plenty of cold water. Report spills to your teacher.

Procedure

1. Put on eye protection and a lab apron.

Part A: Antacid Tablet in Water (Open)

2. Add 50 mL of tap water to a large erlenmeyer flask.
3. Take an antacid tablet out of its package.
4. Place the tablet and the flask of water on the scale. Measure and record the total mass of the flask, water, and tablet.
5. Add the tablet to the water. Record your observations.
6. When the visible reaction has stopped, measure and record the total mass of the flask and its contents.
7. Properly dispose of the beakers contents in the marked waste container.

Part B: Antacid Tablet in Water (Closed)

8. Add 50 mL of tap water to a large erlenmeyer flask.
9. Take an antacid tablet out of its package.
10. Place the tablet and the flask of water(along with a stopper) on the scale. Measure and record the total mass of the flask, water, and tablet.
11. Add the tablet to the water and quickly place the stopper on the flask. Be sure to hold it in place to it doesn't fly off. Record your observations.
12. When the visible reaction has stopped, measure and record the total mass of the flask and its contents.
13. Properly dispose of the beakers contents in the marked waste container.

Data Table:

| | Reaction 1 | Reaction 2 |
|---------------------------------------|------------|------------|
| Initial mass of reactants + container | | |
| Final mass of products + container | | |
| Change in mass (final - initial) | | |

Discussion:

- a) Calculate the change in mass for each reaction. Note whether each resulted in an increase or decrease in mass. Record these results in your data table above.
- b) Was there a mass change noted in reaction A? Explain your results.
- c) Was there a mass change noted in reaction B? Explain your results.
- d) How does the total mass of the products of a chemical reaction compare with the total mass of the reactants.