

Law of Conservation of Mass

Introduction: Does mass change in a chemical or physical reaction? In this series of experiments, you will find the answer to this question.

Procedures:

Work in groups of four and follow the directions for each mini-experiment. Use your balance very carefully and remember to mass all the objects at the BEGINNING and END of each experiment.

Lab 1-Mass of Ice

materials: medicine cup, ice and balance.

procedure:

1. Mass the chunk of ice in the medicine cup.
2. Wait until it melts. (while it is melting, complete labs 2-4)
3. Mass again.
 1. Mass before _____
 2. Mass after _____
 3. change in mass _____

Lab 2-Mass of dissolved salt

materials: salt, graduated cylinder, balance, beaker, cup

procedure:

1. Place 30 mL of water in a small beaker.
2. Place a spoonful of salt in a cup.
3. Mass the cup of salt and the beaker of water.
4. Mix the salt into the water and stir.
5. Mass beaker with salt water and the empty cup.
 1. mass unmixed _____
 2. mass mixed _____
 3. change in mass _____

Lab 3-Mass of Mixed Solutions

materials: two solutions, two medicine cups

procedure:

1. Measure 5 ml of NaCl solution into a medicine cup.
2. Measure 5 mL of AgNO₃ solution into a medicine cup.
3. Mass both solutions.
4. Slowly pour AgNO₃ into NaCl.
5. Mass the medicine cup with the new solution and the empty cup.
 1. mass unmixed _____
 2. mass mixed _____
 3. change in mass _____

Lab 4-Mass of a Gas

Materials: plastic bottle, balloon, 1/2 of an Alka Seltzer tablet, balance and goggles

Procedure:

1. Fill the plastic bottle with 30 mL of water.
 2. Put ½ of the alka seltzer tablet in the balloon and put the balloon over the opening of the bottle without letting the alka seltzer fall in to the water in the bottle.
 2. Mass the bottle, water, balloon and tablet.
 3. Lift the balloon and let the tablet fall into the water.
 4. Mass again.
 5. Allow gas to escape (remove balloon) mass plastic bottle (with water and tablet) and empty balloon.
1. mass before....._____
 2. mass after....._____
 3. change in mass._____
 4. mass after gas released_____
 5. change (#1-#4=)....._____

Questions

1. Which experiments were physical changes?
2. Which experiments were chemical changes?
3. Did the mass change in the physical or chemical changes?
4. Why did the mass change when the balloon was taken off in Experiment 4?