

Name: _____

Investigation – Law of Conservation of Mass

Purpose: 1) To prove the Law of Conservation of Mass within a chemical change

Materials: goggles HCl
 scale sealable plastic bag
 plastic pipet NaHCO₃



READ!!! Procedure:

- 1) Put 2 grams of NaHCO₃ in a plastic bag.
- 2) Fill the pipet with HCl. Use a paper towel to wipe away any acid that may be on the outside of the pipet. Discard the paper towel. **CAUTION:** HCl is corrosive, handle with care.
- 3) Carefully place the pipet in the bag. Press the bag gently to eliminate as much air as possible from the bag. Be careful not to press the bulb of the pipet. You do not want any of the acid to leak out of the pipet. Seal the bag.
- 4) Measure the mass of the sealed plastic bag and its contents. Record this value in the data table.
- 5) Remove the plastic bag from the balance. Without opening the bag, direct the stem of the pipette into the NaHCO₃. Make sure that the acid mixes with the NaHCO₃. Record your observations in the data table.
- 6) After a few minutes, measure the mass of the sealed plastic bag and its contents. Record in the data table.

Data Table:

Mass of bag and its contents	Observations after mixing	Mass of bag and its contents AFTER mixing
9.3 g	Very cold! Gas produced, lots of bubbles	9.2 g



COMPLETE Analysis:

Compare your original mass to the mass after mixing. If these numbers are the same (within .5 grams of each other) answer question #1a. If they are different, answer question #1b.

1a. Explain how the mass after is the same as the original mass when some of the NaHCO₃ seemed to “disappear”?

1b. Explain why you think the original mass is different from the mass after mixing? Do you think some of the matter “disappeared”?

2. Why do you think we did the reaction in a sealed bag?

3. What type of change took place (physical or chemical)? What evidence do you have to support your answer?

4. The Law of Conservation of Mass says that matter cannot be created or destroyed during a chemical reaction. Do your results support this statement? Why or why not?

5. Write a statement regarding what you learned in this investigation about matter.