

**OBJECTIVE:**

We are going to study the law of conservation of mass, performing two different experiments. Let's check if the mass of the substances present at the beginning of a reaction (reactants) is the same as the mass of the substances present at the end of it (products)

**MATERIALS:**

Scale, Erlenmeyer flask, graduated cylinder, balloon, spoon, matches.

Scale, beaker, 2 test tubes, solutions of  $\text{Pb}(\text{NO}_3)_2$  and  $\text{KI}$ .

**1st Experiment:**

The reactants are calcium carbonate ( $\text{CaCO}_3$ ) and hydrochloric acid solution, 1M (1 mol per liter).

1. Introduce a few grams of calcium carbonate into the balloon. Annotate this mass: \_\_\_\_\_ (m1)
2. Put the flask on the scale and use the tare button to set the weight to 0.
3. Measure 30 mL of HCl using the graduated cylinder. Introduce this liquid into the flask. Annotate the mass: \_\_\_\_\_ (m2)
4. Put the balloon at the top of the flask and check the total mass: \_\_\_\_\_ (m1+m2)
5. Introduce the content of the balloon into the flask. Place the balloon well on the top of the flask, so no air comes out of the flask.
6. Check the mass after the reaction finishes: \_\_\_\_\_ (m3)
7. Explain what you have observed.
8. Check the masses of the reactants (m1+m2) and the products (m3), are they the same?
9. Now light a match and remove the balloon from the flask. Introduce the match into the flask. What does it happen now?

**2nd Experiment:**

The reactants are lead nitrate and potassium iodide. At the end of the reaction, we are going to get potassium nitrate ( $\text{KNO}_3$ ) and lead iodide ( $\text{PbI}_2$ )

Write down the reaction, pointing out the reactants and the products.

1. Measure the weight of the beaker with the two test tubes. Tare to zero.
2. Introduce 2-3mL of one solution in the first test tube and 2-3mL of the second solution in the other.
3. Check the total mass. \_\_\_\_\_
4. Add the content of one test tube into the other.
5. Check the mass again: \_\_\_\_\_
6. Explain your observation.