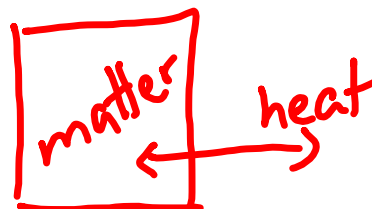


LAW OF CONSERVATION OF MASS REVIEW

In a chemical reaction, products are formed when the reactants undergo a change. These products usually look very different from the reactants. However, the total mass of the products is always the same as the total mass of the reactants.

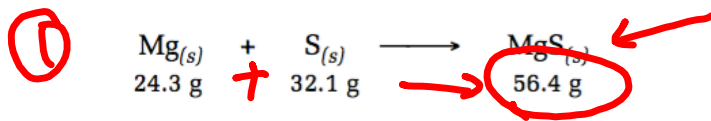
This law is called the Conservation of mass.

- What is a closed system in terms of a chemical reaction?



- What is an open system in terms of a chemical reaction?





$Fe_{(s)}$
iron

+

$S_{(s)}$
sulfur

→

$FeS_{(s)}$
iron sulfide

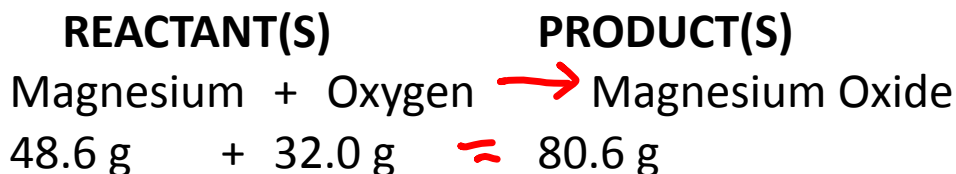
FeS

reactants	products
1 Fe	1 Fe
1 S	1 S

Some Practice Questions:

Examine the data for each of the following combustion experiments and answer the questions based on analysis of the data.

1.



1. What is the mass of each reactant?

Mg = 48.6g Oxygen = 32.0g

2. What is the mass of the product?

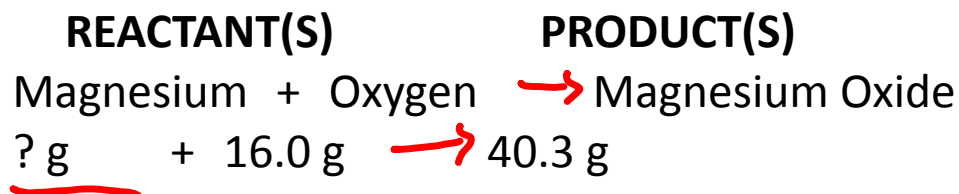
MgO 80.6g

3. What is the total mass of reactants?

80.6g

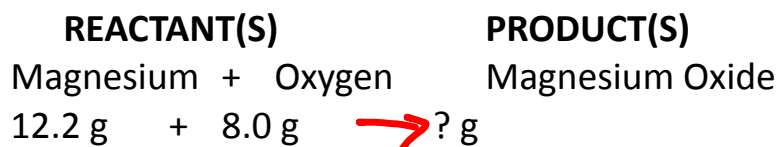
4. Does this experimental data support the Law of Conservation of Mass? Explain.

Yes



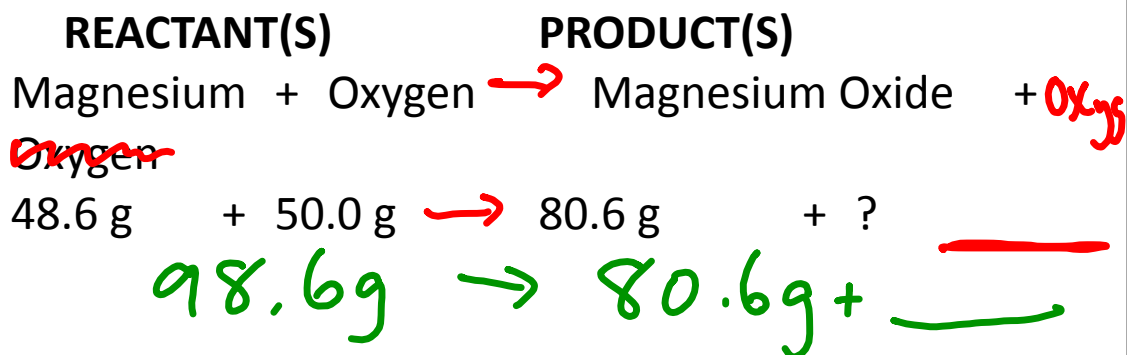
1. Based on the Law of Conservation of Mass, predict the minimum amount of magnesium that will react with all 16.0 grams of oxygen to produce 40.3 grams of magnesium oxide.

$$40.3\text{g} - 16.0\text{g}$$
$$\text{Mg} = 24.3\text{g}$$



1. Assuming that magnesium and oxygen will react completely with one another, predict the mass of magnesium oxide that will be produced.

$$12.2\text{g} + 8.0\text{g}$$
$$\text{MgO} = 20.2\text{g}$$

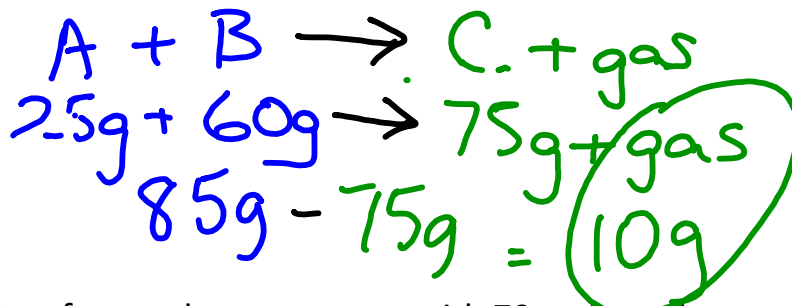


1. Predict the mass of oxygen that will be left over after the reaction of 48.6 grams of magnesium with 50.0 grams of oxygen.

$$98.6 - 80.6g$$
$$\textcircled{O_2 = 18g}$$

1. A solid mass of 25 g is mixed with 60 g of a solution. A chemical reaction takes place and a gas is produced. The final mass of the mixture is 75 g. What was the mass of gas released?

reactants: 25g A + 60g B
products: 75g C + gas



2. If 100 g of one substance reacts with 70 g of another substance, what will be the mass of the products after the reaction?

$$100g + 70g = 170g$$

3. A student adds 15g of baking soda to 10g of acetic acid in a beaker. A chemical reaction occurs and a gas is given off. After the reaction, the mass of the products remaining in the beaker is 23g. Has mass been conserved in this reaction? Explain your answer.

reactants products
25g 23g
NO

4. Does a glass of pop have a greater, smaller, or identical mass after it has sat out on the table overnight? Explain your answer.