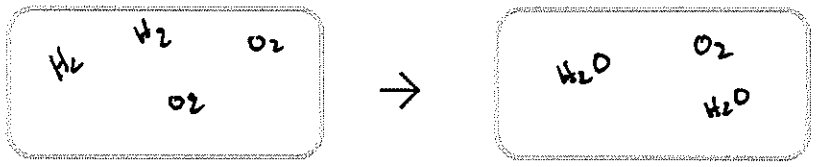
Chemistry

Gas Stoichiometry in Particulate view

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$

1. In the container provided the two reactants are present in equal pressures. Draw the particulate view of the reaction before and after the reaction.



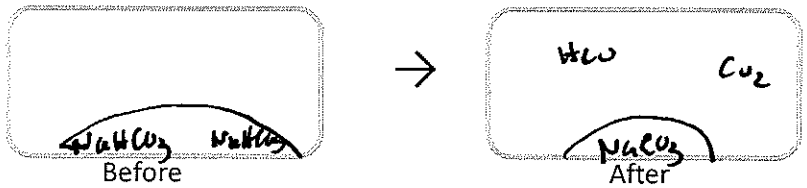
Before After

In an evacuated container solid baking soda ($NaHCO_3$) is heated and decomposes down to solid sodium carbonate, gaseous water and gaseous carbon dioxide.

2. Write a balanced equation for the decomposition.

$2NaHCO_3 \rightarrow Na_2CO_3 + H_2O + CO_2$

3. Draw the particulate view in the boxes below.



Before After

4. After the decomposition, the total pressure in the container is 2.2atm. What is the partial pressure of each gas? 1.1 for both,

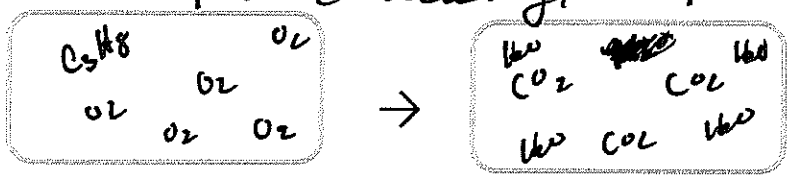
5. What is the number of ~~moles~~ of the original baking soda?

$PV = nRT \quad n = \frac{PV}{RT} \quad \frac{1.1 \cdot 20}{.0821 \cdot 298} = 0.089 \text{ mole} \cdot \frac{2}{1} \cdot \frac{84}{1 \text{ mol}} = 149 \text{ g}$

A ridged container is filled with 1atm of propane and 6 atm of oxygen.

6. ~~Write a balanced equation for the reaction proposed~~

→ Pressure increasing, more particles



7. ~~Draw~~ the proposed reaction and determine the partial pressure of each gas after.

1.5 1.5 atm $\cdot \left(\frac{3}{7}\right) = 0.64$ atm

1.5 atm $\cdot \left(\frac{4}{7}\right) = 0.85$ atm