

TENDER HEART HIGH SCHOOL

29.07.24

SEC-33B, CHD

CLASS - X
CHAPTER - 5

SUBJECT - CHEMISTRY
TEACHER - ANAMIKA

Good morning to all students!

Students this lesson is for class X for the subject of Chemistry, Topic - Mole Concept and stoichiometry of your text book titled - Concise Chemistry by 'Selina Publication'.

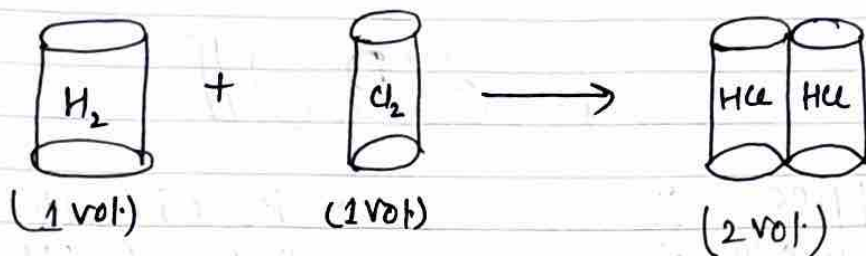
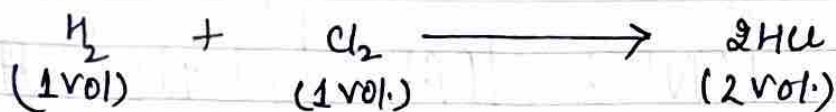
Gay Lussack's Law of Combining Volumes:-

It states that whenever gases react, they always do so in volumes which bear a simple whole number ratio to one another and to the volumes of gaseous products, all volumes being measured under similar conditions of temperature & pressure.

It is valid only for gases and the vol. of solids & liquids are considered to be zero.

Example:- One vol. of hydrogen combines with

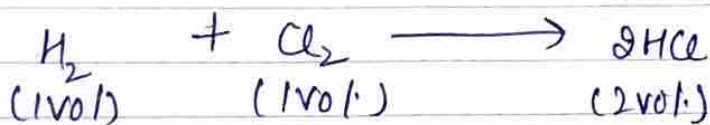
one volume of Chlorine to form two volume of hydrogen chloride gas.



Numerical:-

Q:- If 6 litre of hydrogen & 5.6 l of Chlorine are mixed & exploded, what will be the composition by vol. of resulting mixture?

Soln:-



1 vol. of Cl_2 react with 1 vol. of H_2

$\therefore$ 5.6 l of Cl_2 react with 5.6 l of H_2

Vol. of H_2 left unreacted = $6 - 5.6 = 0.4 \text{ l}$

1 vol. of Chlorine produces 2 ^{0.4 l} ~~litre~~ vol. of HCl

$\therefore$ 5.6 l of Chlorine produces:-

$$5.6 \times 2 = 11.2 \text{ l}$$

Therefore, resulting mixture contain 11.2 l. HCl & 0.4 l of H_2 .

Avagadro's Law:-

It states that equal vol. of all gases under similar conditions of temperature & pressure contain equal no. of molecules.

Atomic Mass Unit:- It is defined as $\frac{1}{12}$ th of the mass of an atom of Carbon ($C-12$) taken as 12 amu

Relative Atomic Mass:- Or atomic mass of an element is the number of times one atom of an element is heavier than $\frac{1}{12}$ th of the mass of Carbon-12

Gram Atomic Mass is expressed in grams

Relative Molecular mass:- It is the average mass of one molecule of it as compared to $\frac{1}{12}$ th of mass of one atom of $C-12$

Mole Concept:- Study of Collection of particles using mole as the counting unit to express the mass & vol. of such unit particles in bulk is known as mole concept.

