Chemical reactions and equations

SUBJECT-CHEMISTRY

CHAPTER-1

TOPIC – CHEMICAL REACTIONS AND EQUATIONS

SUB TOPIC- WHAT IS A CHEMICAL REACTION AND HOW IT SHOULD BE REPRESENTED PRECISELY.

What are chemical reactions ?

A chemical reaction is a process where the reactant gets converted into a product which may be under an influence of a catalyst .

A word-equation shows change of reactants to products through an arrow placed between them.

The reactants are written on the left-hand side (LHS) with a plus sign (+) between them. Similarly, products are written on the right- hand side (RHS) with a plus sign (+) between them. The arrowhead points towards the products,

When Mg ribbon burns in air it combines with O_2 to form white ash of Magnesium Oxide(MgO).

$2Mg + O_2 \rightarrow 2MgO$

- (s) (g) (s)

How do we identify a chemical reaction?

Chemical Reaction is identified by any of these 4 Factors :

- Change in state
- Change in colour
- Evolution of a gas
- Change in temperature

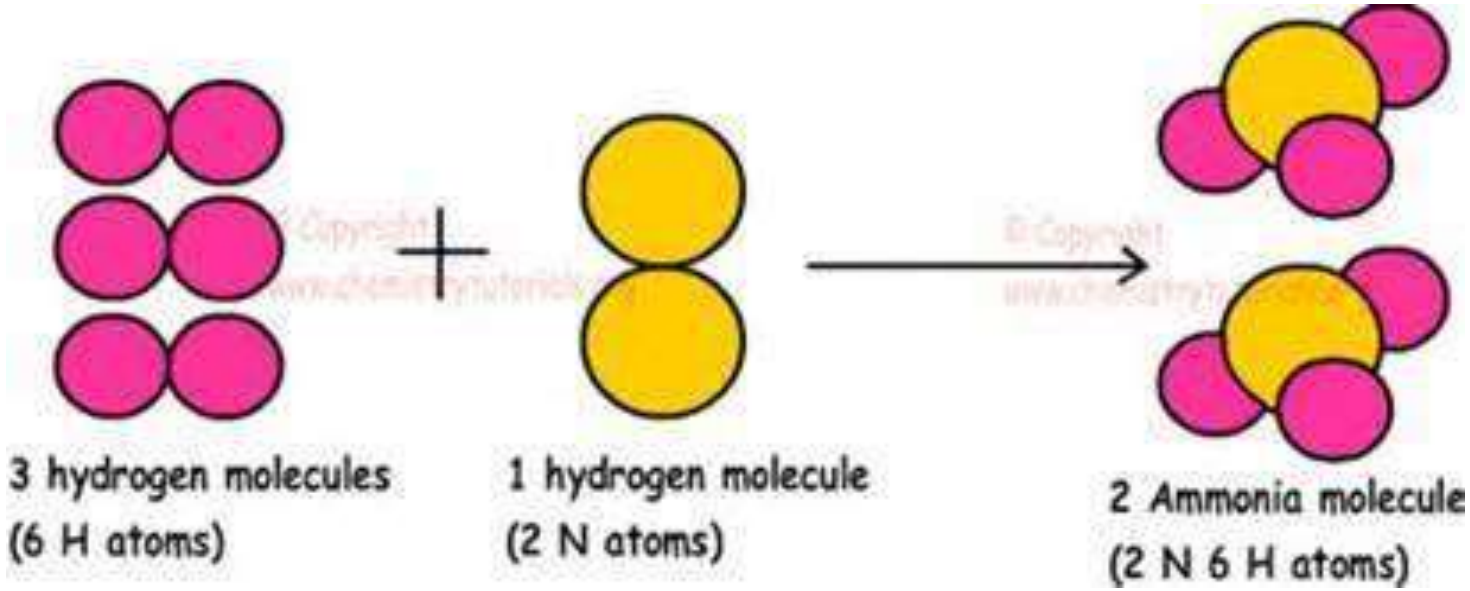
Change in state

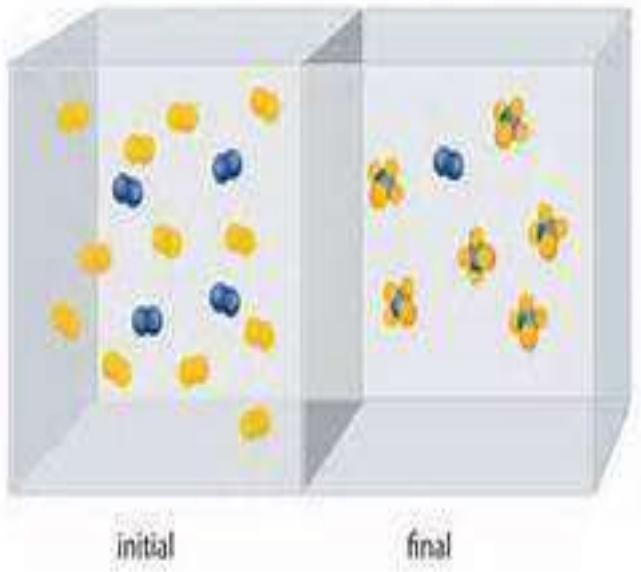
According to law of conservation of mass of matter can neither be created nor be destroyed in a chemical reaction .

some examplary reactions :

- Addition of Zinc granules with dil.HCl
- $Zn + HCl \rightarrow ZnCl_2 + H_2$ [evolution of gas]
- Heating of Lead Nitrate in a hard galass test tube
- $2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$ [producing reddish brown gas of Nitrogen dioxide and Oxygen gas]
- In the above reactions heat is also required.
- Addition of 5ml of Lead Nitrate with 4ml of Potassium Iodide solution
- $Pb(NO_3)_2 + KI \rightarrow PbI_2 + 2KI$ [formation of an yellow insoluble mas Lead Iodide]

How to write a chemical Reaction





Representation of Chemical Reaction

When 3 vol of H_2 combines with 1vol of N_2 gas at 450-500C at 200atm pressure to form 2 vol of Ammonia (NH_3).

N_2+ 3H2 -> 2NH3
(g) (g) 200atm (g)

When 5ml of Barrium Chloride is added with 4ml of Sodium Sulphate, it forms a white insoluble mass of Barrium Sulphate and soluble Sodium Chloride.

BaCl2 + Na2SO4 -> BaSO4 + 2NaCl
(aq) (aq) white(s) (aq)

When some zinc granules are added with Copper Sulphate solution and shaken for sometime, it changes its colour from blue to colourless and reddish brown Cu gets deposited over Zn.

Zn + $CuSO_4$ -> $ZnSO_4$ + Cu
(s) blue colorless(s)

Next you can watch the following video :

https://www.youtube.com/watch?v=E_5Z-hJ1vVQ

THANKING YOU

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