**Types of Chemical Reactions**

There are 6 basic types of chemical reactions such as synthesis reaction, decomposition reaction, single replacement reaction, double replacement reaction, combustion reaction and acid-base reaction.

* **Synthesis Reaction**: In this reaction, two or more simple substances (reactants) combine together to yield a more complex substance. For example, hydrogen gas combines with oxygen to form a more complex product, water. The chemical equation of this reaction looks as follows:
2H2 + O2 = 2H2O
* **Decomposition Reaction**: In this type of chemical reaction, a complex substance breaks down into some simple substances. A single reactant produces two or more products. For example, a water molecule can be broken down into hydrogen and oxygen. This chemical reaction can be presented as:
2H2O = 2H2+ O2
* **Single Replacement or Displacement Reaction**: In this kind of reaction, a less active element is replaced by a more active element present in a compound. Two reactants produce two products. For example, when zinc reacts with hydrochloric acid, hydrogen molecule is replaced by zinc to form ZnCl2. This reaction looks like:
Zn + 2HCL = ZnCl2 + H2
* **Double Replacement or Displacement Reaction**: In this chemical reaction, the cations and anions of two different substances switch their places to yield two totally different compounds. For example, when silver nitrate reacts with sodium chloride, sodium and silver switch their places and there is a formation of sodium nitrate and silver chloride. The chemical equation of this reaction is:
AgNO3 + NaCl = AgCl + NaNO3
* **Combustion**: During this chemical reaction, a hydrocarbon is burnt in the presence of oxygen to form carbon dioxide (in complete combustion), or carbon monoxide (in partial combustion due to a limited amount of oxygen). This reaction can be presented as:
C10H8 + 12O2 = 10CO2 + 4H2O
* **Acid-base Reaction**: It is a special type of double displacement reaction, which is characterized by the reaction between an acid and a base. In this chemical reaction, H+ ion in the acid reacts with OH- ion present in the base, leading to formation of water. Generally, the end products of this reaction are water and some ionic salts. For example, hydrobromic acid reacts with sodium hydroxide to yield water and NaBr. The equation of this chemical reaction is:
HBr + NaOH = NaBr + H2O