

# Chemical Reaction

**Physical change:** is a change in the physical appearance of a substance such as shape, size, state ..

**Chemical change:** is a change in the identity of a substance.

**Chemical reaction:** is a transformation during which reactants disappear and new products of different nature appear.

Examples: Photosynthesis, combustion ..

**Reactants:** are the initial substances consumed up at the end of a chemical reaction.

**Products:** are new substances formed during a chemical reaction.

## ***General form of a chemical equation:***

Reactant (1) + Reactant (2)  $\longrightarrow$  Product (1) + Product (2)

***Example: Hydrochloric acid reacts with sodium to produce water and sodium chloride.***

**reactants:** Hydrochloric acid and sodium

**products:** Water and sodium chloride

**Chemical equation:** Hydrochloric acid+ sodium  $\longrightarrow$  water + sodium chloride

## **Signs of chemical reaction:**

- a) Gas release
- b) Color change
- c) Formation of precipitate
- d) Release or absorption of heat

## **Chemical reaction can be:**

- a) **Exothermic reaction:** is a reaction that releases heat
- b) **Endothermic reaction:** is a reaction that absorbs heat

**Chemical reaction can be:**

**a) Spontaneous:** Requiring no input of an outer condition.

**b) Non-spontaneous:** Occurring only after the input of some heat, light, electricity...